THE RISE AND FALL OF NOMAD MILITARY POWER

PART 2: c. 1200 AD - c. 1600 AD

by Michael Fredholm von Essen

In Part 2 Michael Fredholm von Essen looks at the circumstances that led Temuchin to change Nomad strategy and create the greatest land empire in history. He then examines the causes of the downfall of nomad military superiority, of which gunpowder was the chieftest.

Genghis Khan: Continuity Broken

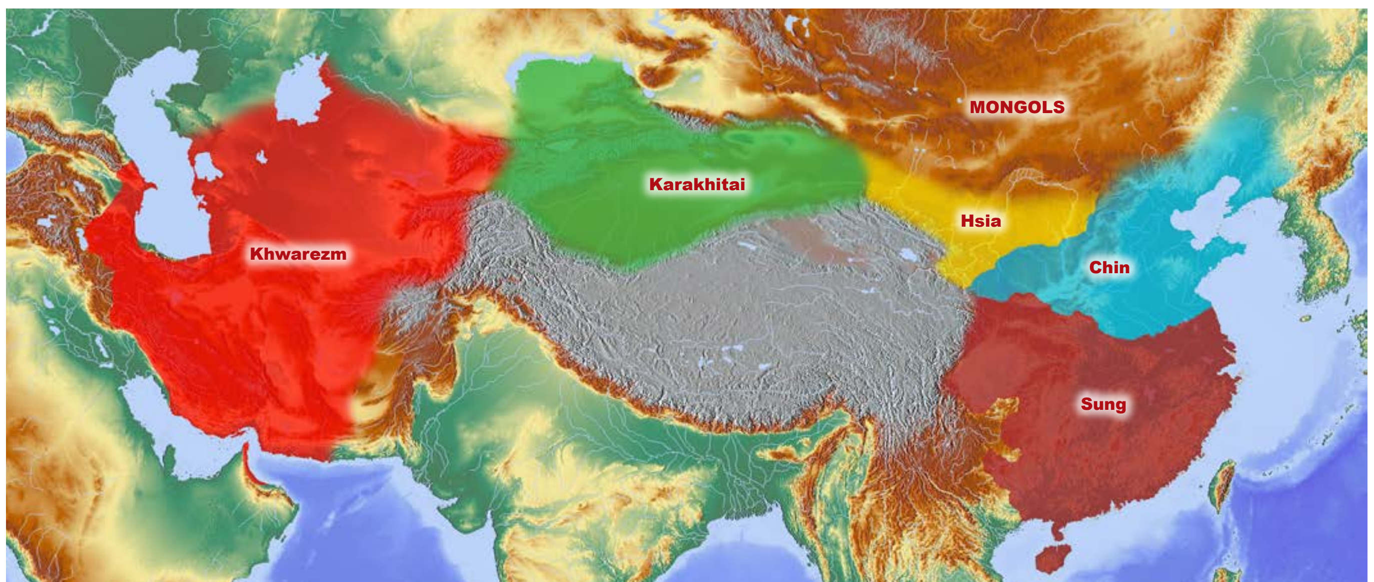
The utility of the traditional nomad strategies is shown by the fact that they remained valid into the thirteenth century AD. Then, however, events took place that eventually would make the customary strategies obsolete. In 1206, the Mongol tribal chief Temuchin was proclaimed Genghis Khan (c. 1165-1227), a title of unclear origin and meaning that possibly signified 'oceanic' (universal) ruler. While the new khan was not yet a universal ruler, he had after many years of warfare managed to unite the Mongols. He had also successfully re-organised the Mongols into a unified army. This not only disrupted the old tribal order and clan system, thereby reducing the power of the traditional chieftains, but also ensured that the leaders appointed by the Great Khan, on the basis of ability, would not be hampered by old clan loyalties. The new discipline turned the Mongol army into a highly efficient military machine.[81]

By the time of Genghis Khan, many other nomad empires had already risen and fallen. Among them were, notably, the Hun, Avar, and Khazar empires on the western steppes, and the Turki, Uighur, and Kirghiz empires on the eastern steppes. All had employed the traditional nomad strategies, occasionally also developing into hybrid frontier states, but by the time of Genghis Khan, all had long since fragmented and disappeared. How much he knew about them remains unknowable, but it would be imprudent to assume that a nomad noble like the Great Khan had never heard anything of their various rulers and policies.

Having united all Mongols into his own nomad empire and re-organised his men into a unified army, Genghis Khan no doubt realised that he faced a dilemma. He suddenly had a large number of warriors at his disposal, but warriors who were idle. Unless he managed to provide them with a proper task, the old tribal animosities would quickly re-emerge and shatter his fledgling empire. Only by keeping his men on the move, and with the prospects of good plunder, could Genghis Khan eliminate the desire of his many new subjects for independence. However, in the east, south, and west, the newly created Mongol empire was hemmed in by powerful hybrid frontier states of the type that was difficult for steppe nomads to defeat (namely, Chin, Hsia, and Karakhitai), while in the north, there were no riches to be had.

Yet, a strong and unified nomad empire could not afford being introverted. It had to direct its efforts outwards, or the empire faced disintegration, a fact of which Genghis Khan no doubt was well aware.

To unite the Mongols had been an achievement in itself, and not only because of the opposition from them and other nomadic groups. Hybrid frontier states of the type that hemmed Genghis Khan in were generally able to manipulate the steppe nomads so as to prevent them from uniting, and the Great Khan had already met strong opposition from the most powerful of the three frontier states, a state for almost a hundred years (since 1115) ruled, under the dynastic name Chin, by a Jurchen dynasty of Manchurian origin.[82] Fortunately for the Mongols, however, this state



Asia at the end of the 12th century A.D..

Reenactment of a Mongol battle. The Mongolian Armed Forces clash in a mock horse-mounted battle during the opening ceremony of Khaan Quest, Aug. 1, 2007. Official U. S. Marine Corps photo by Sgt. G. S. Thomas. Wikimedia Commons Licence.

had spent its main efforts in rivalry with the other two frontier states, and with Sung China further to the south. This is at least the only plausible explanation, beside the pure ability and tenacity of Genghis Khan, on why Chin had not dealt more decisively with the nomads when it became clear that they again were in the process of uniting.

Chin was the easternmost of the three frontier states that separated the steppe from Sung China, which was located south of Sian and the Huai River and was the only remaining part of China under ethnic Chinese (Han) rule. In the time of Genghis Khan, Chin extended from Manchuria in the east to Sian and Lanchou in the west, thus holding all of modern-day China north of the Huai River. To the west of Chin, and to the south of the Mongols, was a Tangut frontier state known under the dynastic name of Hsia, which for some two hundred years (although the Hsia state was formally established only in 1038) ruled the Kansu corridor and the Ordos. The Tanguts, who originated from Tibet, had a highly developed culture with its own writing system, patterned after the Chinese but distinct from this.[83]

Further to the west was Karakhitai, the surviving empire of the Khitans, a Mongolian-speaking Buddhist dynasty from Manchuria which previously had ruled a major part of China under the dynastic name Liao (907-1125). After the downfall of the Liao dynasty at the hands of the Chin, some of the surviving Khitans had moved west in 1130 and founded the Karakhitai empire on the Ili, Chu, and Talas Rivers, and in the region around Kashgar (the region from Lake Balkash up to and including much of the Tarim basin), extending as far west as Transoxania (where they defeated the Karakhanids in 1136). The ruling dynasty of Karakhitai was known in Chinese sources as Western Liao (1124-1211).[84]

These frontier states were no insignificant enemies. However, of the three frontier states, Hsia was the weakest, having accepted Chin suzerainty already in 1124/1125 and since then fundamentally functioned as a Chin ally and dependent.[85]

Genghis Khan Conquers the Borderlands

The fact that Genghis Khan had managed to unite the nomads despite resistance also from the powerful frontier state Chin was, as noted, in itself a striking achievement. Genghis Khan hade thereby, probably unknowingly, broken the pattern from earlier centuries by creating a nomad empire despite intensive opposition from more advanced, hybrid Manchurian states. This achievement, however, also provided Genghis Khan with a fresh problem. He was cut off from the sedentary world in the form of Sung China, with its riches and (for the nomad) proverbially weak defences. There was, in other words, no vulnerable, fully settled state within reach—and thereby no opportunity for Genghis Khan to resort to either of the traditional nomad strategies.

Yet the freshly united Mongol army had to be provided with an objective, or the old tribal rivalries would again re-emerge and Genghis Khan would lose control over his men. Since no other options were open, except to move against one of the frontier states, and since the state of Hsia, as noted, was the weakest of the three, it became the obvious first target of the Mongols.

A further cause of war was that Hsia also may have provided asylum for some of the Great Khan's steppe rivals. In fact, the Mongol leader had ordered his first attack on Hsia already in 1205, the year before he assumed the title Genghis Khan. In 1207, the year following his assump-

Genghis Khan. National Palace Museum, Taipei.

tion of the new title, the Great Khan again moved against Hsia, attacking one of its border posts at Uraqai (Wulahai). The two attacks of 1205 and 1207 were hardly more than probes, probably intended to ascertain whether the Mongol strength was sufficient to take on the full might of Hsia.

A clear indication that this might be possible was the fact that in 1208, Hsia sought Chin assistance against the Mongols. However, no help was forthcoming. Sung China attacked Chin in 1206, in the same year that Temuchin was proclaimed Genghis Khan. The Sung-Chin war had lasted until 1208, when Sung was defeated. In this the Great Khan was lucky, since the rivalry especially between Chin and Sung facilitated the Mongol conquests.

In 1209 Genghis Khan accordingly laid siege to the Hsia capital, until the Hsia government in 1210 agreed to become a Mongol vassal and render aid to Genghis Khan when he so required.[86] While Genghis Khan made the ruler of Hsia his subject, he made no attempts to physically occupy the state of Hsia. Instead Hsia was, despite its being a sedentary state, treated almost like any nomad tribe on the steppe, with orders to provide troops when the Great Khan so needed. The peace agreement suggests that Genghis Khan had not yet fully thought through the implications of his conquest. He had dealt with Hsia as if it had been yet another nomad tribe, not a settled state with both nomad and sedentary components.

Be that as it may, Genghis Khan was no more able to leave his army idle following the subjugation of Hsia than he had been before the war. So his request for troops from Hsia may have come soon, although our sources are silent on this point.

In 1211, Genghis Khan launched a campaign against Chin. In the following year, war also broke out between Chin and Hsia, hostilities that came to last from 1212 to 1223, ostensibly since the former had not come to the aid of the latter when under attack by the Mongols.[87] Yet, despite the silence of our sources, one rather suspects that Hsia thus took part in the Great Khan's war against Chin. Indeed, with Genghis Khan attacking from the north, Chin soon had to fight a war on three fronts, as Hsia began to make incursions from the west while Sung probed (unsuccessfully, as it was) from the south.

By spring 1214, Genghis Khan had defeated most Chin forces north of the Huang-ho River and threatened the Chin capital, Chung-tu (Yen-ching, near present Peking). In adherence with the traditional outer frontier strategy, he accordingly dispatched emissaries to the Chin emperor, Hsüan-tsung, who in response paid a handsome subsidy in the form of gold, silver, silk, five hundred slaves, three thousand horses, and—following the pattern we have already seen in Scythian and Hsiung-nu contexts—an imperial princess as a wife for Genghis Khan. The Mongols then withdrew. In summer the same year, the Chin court hurriedly relocated to its southern capital, Nanking ('Southern Capital', also known as K'ai-feng).[88]

Genghis Khan interpreted the Chin withdrawal as a means to gather new forces for a counter-attack. Besides, he also no doubt needed to keep his army on the move. In winter 1214, Genghis Khan accordingly re-opened hostilities. In 1215, the Mongols starved and captured Chung-tu, which was looted and largely destroyed.[89] Genghis Khan had now broken yet another of the principles that hitherto had guided the dynamics between nomads and agriculturalists; he had not only united the steppe despite resistance from the powerful frontier states, he had even soundly defeated two of them.

While Genghis Khan might not immediately, as noted, have grasped the full uses of a functioning frontier state, he understood strategy and had quickly realised that the geostrategic position of and mutual rivalry among the three frontier states and the Sung empire in their hinterland favoured a piecemeal approach. He had accordingly begun his endeavour by attacking the weakest of the three, which then could be used to his advantage when dealing with in particular Chin.

It was also true that the internal cohesion of the frontier states was less than optimal, made up of not only settled peoples and those of nomad origin but also, in the case of Chin, of nomads of different ethnic background. When pushed hard, they easily fragmented. Not only was the war accompanied by purely domestic quarrels, such as in autumn 1213 when the then Chin emperor was murdered by one of his generals.[90] Genghis Khan also made skillful use of psychological warfare.[91] In addition, he could take advantage of the old steppe tradition according to which

local leaders of a failing empire defected to the new power-to-be. On numerous occasions, Chin commanders and officials responded to the Mongol successes by transferring their allegiance to the new regime.[92]

The Decision to Acquire Territory

How could the Mongol empire so successfully break the continuity of nomad-sedentary interaction which hitherto had guided relations between nomads and agriculturalists? The answer can at least to some extent probably be sought in the personality and prior experiences of Genghis Khan himself. He was talented and tenacious, or he would not have survived his early years of hardship. In addition, the strategic situation of the nomads was no longer what it used to be, and in any case the Great Khan's victories made the two customary nomad strategies unworkable. This forced Genghis Khan to create new solutions. He realised that to make full use of his conquests, he would have to deal with the settled states on their terms, by taking control of their territory and machinery of government. The only alternative, to destroy these states and their inhabitants, would gain him nothing.[93]

This was also the decision Genghis Khan reached after the 1215 fall of Chung-tu. Perhaps influenced by advisors and followers from the frontier states, he then, for the first time, demanded that the Chin emperor cede the conquered territories as well as many of those which had not yet fallen to the Mongols.[94]

Genghis Khan was not the first ruler of a nomad empire who had been hemmed in by powerful hybrid frontier states, and who had responded to this challenge by abandoning the traditional strategies in favour of a policy of territorial acquisition and centralisation. The Saka in Bactria had been thus hemmed in by the Parthians, who ruled most of Iran as a hybrid state under the Arsacid dynasty, which the nomads could not overcome, and some Saka had chosen to emulate them further to the south and east, in India.

The Asii and Tokhari in Bactria had also been hemmed in, again primarily by the Parthians but also to some extent by the Saka in Drangiana, Arachosia, Gandhâra, and India. The Asii nobility therefore responded by territorial acquisition and the creation of a powerful state of their own, the Kushan empire. In 1215, Genghis Khan decided to follow in the footsteps of these predecessors.

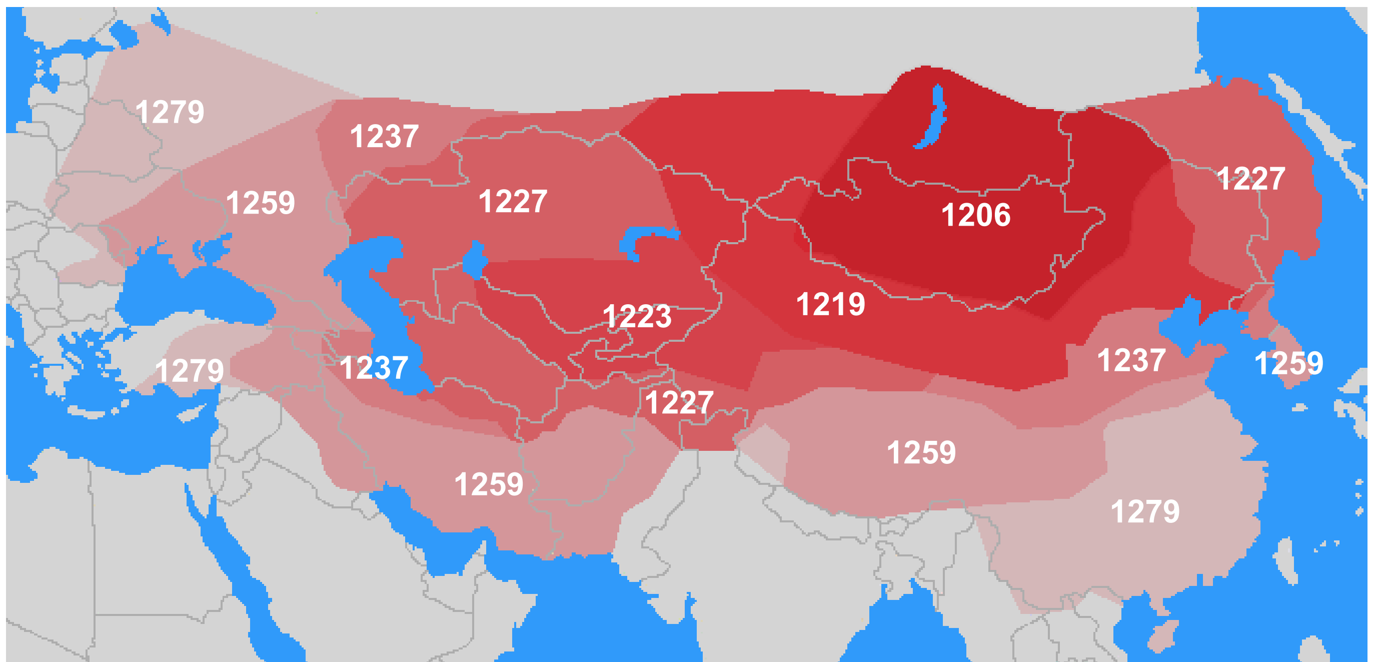
But unlike his Saka and Kushan predecessors, Genghis Khan and his immediate successors did not thereby abandon nomadism. The Great Khan retained full control of the steppe heartland, and his successors did not, in most cases, at once settle down in their newly conquered agrarian states. Settlement only took place later, in the Mongol-conquered periphery, and some Genghisid Mongols never abandoned nomadism.[95] Further Mongol expansion was thus not hindered by the borders of the conquered agrarian states, and the Mongol conquests would therefore grow to unprecedented size.

Indeed, Genghis Khan took the precaution, when later allocating the conquests among his sons, to divide the empire into units (known as *ulus*, a term currently with the meaning of nation, state, or dynasty) which in the early years were not territorial divisions but rather had the character of army groups or fronts within a joint military organisation. Geographical borders between these units were not delineated. The empire remained one entity, under a Great Khan. Each unit was required to provide troops for campaigns decided on by the Great Khan, such as the 1256 conquest of Persia. It was thus not unheard of for one of Genghis Khan's successors to conduct campaigns within the area of operations of another.[96]

The Creation of the Mongol World Empire

Although the war in Chin was by no means over, and indeed would continue for several years, Genghis Khan now found himself distracted by events elsewhere. Karakhitai had already suffered losses due to the Mongols. In 1209, an Uighur ruler, Barchuk (d. c. 1229), who had previously acknowledged Karakhitai as his suzerain and thenceforth guarded the northeast of the Karakhitai empire, instead transferred his allegiance to Genghis Khan. In 1211, so did

Mongol helmets, from the attempted invasion of Japan, 13th century.



Expansion of the Mongol Empire.

Arslan Khan (fl. 1211-1219) and Buzar (d. 1218), two Turki leaders who held territory on the Ili River in the north of Karakhitai.[97] However, effective control of the remaining Karakhitai empire was then gained by Kuchlug (d. 1218), a Naiman prince, who together with a vassal of Karakhitai, Ala al-Din Muhammad (r. 1200-1220), the Shah of Khwarezm, in 1211 overthrew Karakhitai's Khitan rulers.[98]

Kuchlug was an old enemy and rival of Genghis Khan. His ascension to power in Karakhitai thus provided Genghis Khan with a reason to continue his conquests there. Yet there was also a proper cause of war, which could not be ignored: in 1217-1218 Kuchlug attacked and killed a dependent of the Great Khan, the Turki leader Buzar. In 1218, Genghis Khan accordingly dispatched a Mongol army under Jebe (d. 1224) into Karakhitai. Kuchlug took flight but was overtaken and killed. Karakhitai surrendered to the Mongols without resistance.[99]

Genghis Khan had by then decisively left the path of the old nomad strategies. Henceforth, he aimed for conquests and territorial control, not the raiding for loot and subsidies that his ancestors had engaged in. Even so, he would almost certainly have been content with the conquest of Chin and, perhaps, Sung—a task that would have enabled him to emulate the Khitan and the Chin and in any case could not, as it turned out, be concluded in the Great Khan's lifetime. But, to the distress of those historians who expect impersonal forces and general economic trends to explain the past, this could not be. Events elsewhere again diverted Genghis Khan from the conquest of Chin. As is well known, the massacre of a Mongol trading caravan in 1218 and the cold-blooded murder of the Mongol envoy sent to demand retribution for the deed at the hands of Muhammad, the Shah of Khwarezm, in 1219 convinced Genghis Khan of the need to hand over the campaign against Chin to a subordinate. Together with the main Mongol army, he instead set out on what would become a campaign of conquest that eventually resulted in the establishment of what some, not without cause, have termed the Mongol world empire.[100]

Success had acquired a dynamism and momentum of its own. The Mongols went on to achieve vast conquests in the south and west, they destroyed enemy armies and occasionally entire cities. The sons and grandsons of Genghis Khan continued the series of conquests that he had initiated. Together they conquered and united large parts of Eurasia and created the probably greatest land empire that ever existed (Imperial Russia and the Soviet Union was possibly larger with regard to territory, but the Mongol empire controlled more important and populous parts of Eurasia). Genghis Khan's empire reached from the Caspian to the Yellow Sea. His descendants extended the borders of the Mongol world empire to the Black Sea and occupied the whole of China.[101] And unlike other vast empires created by successful generals, Alexander the Great and Napoleon Bonaparte among them, the Mongol empire did not collapse upon the death of its founder.

The Legacy of the Mongol World Empire: China and Russia Refuse to Negotiate

The Mongol dominion over China, the jewel in the nomad crown, lasted until 1368, when a former Buddhist priest turned emperor of the ethnic Chinese Ming ('bright') dynasty rose to assume power. The Mongols, who had ruled China under the dynastic name Yüan, returned to the steppe, where the nomads again split into a number of different, autonomous tribes. After the retreat of the Mongol Yüan dynasty to the steppe, subsequent Mongol leaders reverted, or at least attempted to revert to the outer frontier strategy. They do not seem to have had any particular wish to recover territorial control over China.[102]

In China, however, memories of the Mongol world empire evoked sufficiently strong feelings of resentment to cause the subsequent Ming dynasty to refuse the traditional complimentarity of the sedentary and nomad civilisations. The Ming resolutely refused to take part in the traditional exchange between nomads and agrarian states, at least in so far as the nomads had some claim to kinship with the Yüan, that is, Genghisid dynasty, a lineage that still inspired respect and some degree of loyalty.

This policy, which early on demanded major Ming military expeditions against those nomad rulers whose power seemed to be growing, worked against the formation of a new powerful nomad empire. However, the policy also caused widespread nomad raids into China once the Ming ceased its own military engagement in steppe politics and from at least the 1480s refused to come to any kind of accommodation with the nomads. The Ming leaders, by their unwillingness to deal with the nomads, also lost the strategic initiative. Despite Ming opposition, major parts of the steppe were successfully unified at various times.

The Oirat (western) Mongol khan Esen Taiji (r. 1439-1455) was one such leader. In 1449, he defeated a Ming army and captured the Ming emperor at the battle of T'u-mu, and in 1450 he advanced as far as Peking. Other powerful nomad rulers included the Genghisid, and ultimately more successful, leaders Dayan Khan (1464-1533, r. 1488-1533), and the latter's grandson Altan Khan (1507-1582), who in 1550 encamped his army at the gates of Peking and briefly forced the Chinese to open border horse markets as well as to hand over a large monetary gift.

Each of these leaders attempted to pursue the outer frontier strategy in attempts to extort trade and subsidies from China. Yet, China persisted in its refusal to deal with the Genghisid nomads until 1570, when Ming accepted a treaty with Altan Khan, thereby reverting to the old policy of relying on trade (markets at frontier posts) and gifts to keep the nomads out.[103] This was too late. By then, the non-negotiation policy had caused major losses to China as well as failed to bring protection in the form of friendly or at least mercenary-oriented nomad armies, which could be used against internal threats to the regime. The Ming dynasty was therefore defeated by internal opponents and replaced by the Manchu Ch'ing, a ruling dynasty that began political life as a classical Manchurian hybrid frontier state.[104]

Probably Mongol warriors, as depicted in Rashid ad-Din Hamadani's Jāmiʿ al-tawārīkh ('Compendium of Chronicles'), c. 1300-1325 AD

It was not only in China where memories of the Mongol world empire resulted in anti-nomad policies. In the Russian principalities, there were also widespread feelings that the former complimentarity of settled principalities and nomads should be avoided.

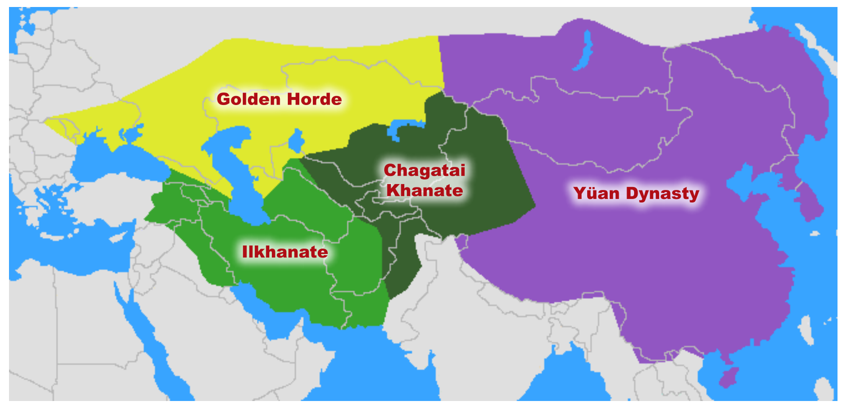
Muscovy, ruled by a Grand Duke or Prince (*velikiy knyaz'*), had in the fourteenth century gained a leading role among the various independent and semi-independent principalities and republics that in time would become Russia. This feat was achieved chiefly by accepting tributary status towards the Mongol Golden Horde (1227-1502). Nonetheless, relations between Moscow and the Horde, and between Moscow and the Horde's successor states, were often unfriendly. In 1481, after a brief confrontation at the Ugra River in 1480, Grand Duke Ivan III (r. 1462-1505) of Muscovy declared independence. By then, Moscow had already established a system of alliances with a number of other steppe rulers to the rear of the nomad principality, which, moreover, during the last three decades had lost most of its former influence.[105]

The grandson of Ivan III, Ivan IV (1530-1584, r. 1533-1584), known (in English) as the Terrible, continued these policies and initiated a series of conquests, aimed at the remnants of the Golden Horde. He conquered the neighbouring khanate of Kazan' in 1552. By 1556 he had also conquered Astrakhan. In 1582, the conquest of the khanate of Sibir' began, although this process was not concluded until 1598. Under Ivan IV, and for another century or two, Moscow's expansion eastwards was often justified as a means of recovering territories that the Muscovites regarded as having been previously lost to the Mongols.[106]

Genghis Khan had decreed a policy of religious tolerance. However, this decree was eventually forgotten, which caused divisions among the Mongols and eventually was a major cause for the fragmentation of the Mongol world empire.[107] In the Islamic world, those Mongols who did not convert to Islam were also eventually pushed out of power. The Mongol Chaghatai khanate (1227-1370), another Mongol successor state, lost most of its territory to Timur Lenk and his descendants, the Timurids (1370-1500), but survived as nominal suzerain in East Turkestan until 1678,[108] after which the Manchus, who by then had already conquered the Ming and gained control over China, assumed control also over the Mongols and their vassals there.[109]

Gunpowder and the End of Nomad Power

By the sixteenth century, the Ottomans in the Middle East, the Safavids in Iran, and the Moghuls in India were the three main powers of their region. An expanding Muscovy soon became the fourth decisive great power. These were powerful, agrarian states that often fought each other. However, all four were also faced with a common threat in the form of the horse archer.



Division of the Mongol Empire

By this time, mounted archers formed the main part of the military forces of the Uzbek Shaibanids, the Crimean Tatars, and the various Turco-Mongolian nomad tribes. In addition, horse archers were ubiquitous throughout the region, and not only among nomads. To counter the threat from the mounted archer, the large sedentary powers for military purposes began to rely on the new gunpowder technology. For this reason, these states have become known as gunpowder empires.[110] Their principal innovation in weaponry became firearms and cannon.

The nomads could, and did, adopt the former in the shape of personal weapons but not the latter. They understood the importance of heavy firearms and artillery, but its adoption would have caused them to lose their traditional mobility.[111] They also did not have the manufacturing facilities, or skills, to make firearms, nor was it possible to set up such facilities within the fluid lifestyle of the nomad world.

The use of gunpowder and cannon tended to centralise political and military power, since these weapons gave a strong advantage to a central power with large resources, as compared to smaller powers with less resources. The reason was that large resources and a certain level of technological proficiency were needed to produce the new weapons in sufficient number for them to make a decisive impact on the field of battle.

The early gunpowder empires have often been dealt with unkindly by modern world historians. Some, especially those with a special interest in Islam, claim that they all emerged from the preceding Mongol world empire and 'two centuries of decline and cultural turmoil' under pastoralist occupation and the 'heavy adverse impact' of the influence of steppe institutions on the Islamic (and, incidentally, Russian) world. They, together with many Russian scholars, tend to see their favourite subjects as having been firmly under the 'Tatar yoke.'[112]

Others have claimed that the Asian gunpowder empires, unlike the European countries, saw no advantage in developing fortifications and new weapons to counter the use of artillery, and that they on the contrary regarded any new inventions or devices that might make existing artillery pieces obsolete as potentially dangerous to those in pow-

er.[113] The failure of the Asian gunpowder empires to adopt European volley tactics as early as the European powers is often seen, by these historians, as an example of the lack of innovation displayed by them.[114]

Such negative, and fundamentally Eurocentric, views on the capabilities of the Asian gunpowder empires are hard to reconcile with the available facts. By the second half of the sixteenth century, the European powers gained oceanic predominance and made great advances in the Americas. Yet, the Europeans made only a limited and fundamentally coastal impact in Asia, and for that matter, Africa. While certain European powers expanded greatly in the seventeenth century, so did several non-European ones, such as the Manchus.[115]

The reasons for decisions on armament taken in an Asian gunpowder empire accordingly must be sought there, not in Europe. The employment of volley tactics made excellent sense in Europe, where most armies consisted of fundamentally the same troop types, lined up one against another. European armies therefore gradually began to emphasise massed, close-range firepower through drill and discipline. By thus exposing their ranks to incoming fire, they ran the risk of suffering high casualties, but their concentrated firepower also enabled them to inflict casualties just as high. In many parts of Asia, however, the tactical situation and the hostile troop types encountered by the early gunpowder empires were quite different.

In Inner Eurasia, for instance, the key enemies of Ottomans, Safavids, Moghuls, and Chinese alike were equestrian nomads, not infantry armies. The nomads fielded dispersed groups of mounted archers, not dense masses of infantry. Even when most enemies were not nomads fresh out of the steppe, such as was the case for the Moghuls, they still had to deal with enemies who primarily fielded good quality cavalry of the type used by nomads.[116]

Against such targets, individual muskets were important, but heavy firearms and artillery, as will be shown, even more so. The rapid introduction of gunpowder weapons among the sedentary, Asian empires (beside the obvious utility of the new weapons technology against other settled empires) is probably most easily explained by the fact that these weapons worked as intended—against nomad horse archers.

In particular the Safavids and Muscovites, shortly afterwards followed by the Manchu Ch'ing dynasty, soon realised that in heavy firearms and cannon, they had finally found a tactical means to negate the traditional military advantages, mobility and firepower, enjoyed by the Inner Eurasian equestrian nomads. The fact that conditions were different from those in Europe also explains why the tactical solutions adopted by these empires were not necessarily identical to those in Europe, yet were tailored to the threats encountered by them. For instance, for reasons that will be explained, the Asian gunpowder empires—for good reason—emphasised the use of heavier firearms than what was preferred in Europe.[117]

The Asian gunpowder empires also diverged from the military-technological developments in Europe in that they did not introduce dense formations of infantry armed with long pikes. This did not happen even when European instructors trained their armies, such as under the Safavid

Confrontation at the Ugra River in 1480, in which Grand Duke Ivan III of Muscovy gains independence from the Horde with the help of artillery and firearms. (Illustrated Chronicle of Ivan IV, 16th century)

ruler, Shah Abbas (1571-1629; r. 1588-1629).[118] Yet, in Europe, it was arguably the pike, not the handgun, that was regarded as the decisive weapon when infantry had to face a cavalry charge.[119] Since heavy cavalry remained militarily very important in all Asian gunpowder empires, why did they not follow this development?

Some might argue that there were social factors that made certain rulers of the gunpowder empires reluctant to introduce professional bodies of trained infantry (although such forces were in fact introduced, in particular by the Ottomans). However, the key reason would seem to be that a dense formation of infantry armed with pikes, however useful it might be in the face of a heavy cavalry charge, was the *least* viable formation when confronted by nomad horse archers. Nomad firepower would in time disrupt and annihilate any such force of enemy infantry, and nomad mobility would ensure that the mounted archers could do this without suffering significant losses. This would be the key reason why such formations were never introduced in the military forces of the gunpowder empires. The only exception was Muscovy, which introduced a limited number of pike formations, but only for warfare against European enemies.[120]

Before the introduction of firearms, most sedentary soldiers had nothing but ordinary bows or weak Chinese-style crossbows with which to confront nomad firepower. These weapons had not made a great impression on the nomads. What had scared the nomads, however, was the very occasional use of siege engines against them.

In 329 BC, Alexander the Great used bolt throwers against nomad cavalry, to secure a river crossing near Alexandria Eschate (present Khujand in Tajikistan). Arrian vividly describes how the siege engines ‘opened up on the Scythians who were riding along the edge of the water on the further side [of the river]. Some of them were hit; one was pierced through both shield and breastplate and fell dead from his horse. The Scythians were taken completely aback by the long range of the [engines], and that, together with the loss of a good man, induced them to withdraw.’[121] However, Alexander’s Macedonian army was in many ways unique in its capability for combined arms operations,[122] and the mobility of the nomads would in any case make them difficult to hit, when they were aware of the danger. Even so, the use of long-range artillery was an efficient means to deny the nomads the use of their own capacity to inflict casualties, unless the nomads were prepared to accept heavy casualties of their own.

There are many other examples of how artillery was employed to keep nomad warriors at a distance. The Chinese employed the handheld crossbow and the crossbow-catapult against nomads. In 169 BC, the Chinese official Ch’ao Ts’o observed that ’The strong crossbow [*ching-nu*] and the crossbow-catapult [shooting] javelins have a long range; something which the bows of the Hsiung-nu can in no way equal.’[123] There was even a Chinese song that went,

> Take heart my lads, for we have got
> The crossbow, and the Hsiung-nu have not.

The Taoist naturalist Ma Yung-ch’ing who noted this song had the following to add:

> *Then Li Ling shot the Shan-yü himself with a crossbow-catapult* [lien-nu]*, and later* [at the time of the Chin state] *Ma Lung captured Liangchou by using formations of crossbowmen* [nu chen]. *All these examples prove what the Chinese can do when they make use of their capacities. Of course, in mounted archery* [using the short bow] *the I and the Ti are skilful, but the Chinese are good at using nu-ch’e* [mobile crossbow-catapults, or pavises on wheels]. *These carriages can be drawn up in the form of a laager which cannot be penetrated by cavalry. Moreover, the crossbows can shoot their bolts to a considerable range, and do more harm* [lit. penetrate deeper] *than those of the short bow. And again, if the crossbow bolts are picked up by the barbarians they have no way of making use of them. Recently the crossbow has unfortunately fallen into some neglect; we must carefully consider this.*[124]

In 1410, the Ming Yung-le Emperor set out on the first of his five campaigns, this time to punish the Eastern Mongols. The Ming guns still fired arrows, but like Alexander and Li Ling before him, the Emperor knew how to put them to good use against Mongols. He ordered his commander ’to lead the way with the guns, and when the guns fired the sound shook for several leagues, and each arrow pierced two people, and then hit the neighbouring horse, and killed them all.’[125]

The same effect was achieved when the Emperor set out in 1414 on his second campaign, this time against the Oirat Mongols. The Ming army was suddenly confronted by the Oirat army on the hilltops surrounding the valley in which they were located. However, according to a Chinese eyewitness, the Ming guns frightened the Oirats to the extent that they abandoned their spare horses and fled.

Later in the day, the Oirat made a second attempt, but the Ming sprang a trap on them with concealed guns. The Ming army encountered the Oirat force again several days later, but the Mongols then avoided battle, ’fearing that the guns had arrived again’ in the words of a Chinese observer.[126]

In 1424, during the Yung-le Emperor’s fifth and last campaign, against the Eastern Mongols, he issued the following order: ’If the enemy arrives, first hit them with the firearms, then follow up with the long bows and strong crossbows.’[127]

Against nomad cavalry, the Chinese soon realised that multiple-barreled weapons provided more firepower than single-barreled weapons, since all the barrels could be fired immediately. This no doubt explains why the ’three-eyed gun’ (*san-yen-ch’ung*), a small and clumsy triple-barrelled gun with several reinforcing bands or ribs on the barrel, loaded with gunpowder and lead and iron pellets which functioned as a kind of matchlock musketoon, was re-

garded as a weapon of the north, where the enemy usually consisted of cavalry. They were rarely used in the south, where the enemy more often consisted of infantry.[128]

Even crude artillery had an effective range (in penetrative power if not accuracy) that far outranged the bow of the mounted archer, and vigorous gunpowder empires such as the Manchu Ch'ing took full advantage of the new technology. Since the Ch'ing empire furthermore grew out of a hybrid frontier state with both nomad and settled population, its leaders knew well the strengths and weaknesses of nomads.

Mongol archer, as depicted by a Ming Chinese artist, 15th to 16th century AD

Besides, while the range and efficiency of ordinary matchlock muskets were perhaps not much more impressive than those of the mounted archer, the Asian gunpower empires were not restricted to the use of only light matchlock muskets and heavy artillery. Their infantry would also carry large numbers of intermediate guns in the form of extremely long and heavy matchlocks, known in English as jingals (gingals) or jazails (both terms derived from Arabic *al-jazâ'il*, a heavy musket fired with a forked rest[129]).

The jingal was known in China under a variety of names, including *t'ai-ch'iang.* This was a long, heavy, large-bore matchlock, originally said to have been introduced by the Manchus. Its barrel was commonly two to three metres long, although both longer and shorter versions existed. The shot was smaller in diameter than the bore, but often contained several bullets. The jingal was, in the opinion of contemporary observers, the Chinese gun least liable to burst. Its range could reach a thousand metres, although its aiming mechanism was very poor. Even small jingals had a range of around five hundred metres.

As late as in the nineteenth century, British soldiers had high opinions of these weapons, which they regarded as 'a species of light field artillery' which in rough terrain was more easily transported than regular European field artillery.[130] This made the jingals far more suitable than earlier forms of support weapons in the fluid tactical situations which characterised the wars against equestrian nomads. Even some cavalry units fielded jingals. These were carried slung between two horses, so that the stand trailed along the ground, or if dismantled, with the jingal carried on one horse and its stand on another. Jingals were also carried, or even mounted on camels. The jingal was crewed by from two to five men and fired from a rest, in the early days commonly a four-wheeled stand. Another possibility was often a man's shoulders. A jingal was commonly borne on the shoulders of two men and fired by a third.[131]

While jingals were used in large numbers by the Manchus, similar weapons were employed by all Asian gunpowder states, including the Safavids, who called a jingal mounted on a camel *zambûrak* ('little wasp'), and the Moghuls, who among other terms referred to the jingal as *zarbzan* ('blow-striker') and the camel gun as *shutarnâl* ('camel-gun barrel').[132] What appears to have been an early form of jingal was also used by the Ming dynasty Chinese. The *Wu Pei Chih* ('Treatise of Armament Technology') by Mao Yüan-i of 1621 depicts a long gun, slightly more than 1.3 metres long, attached to a handle slightly over 0.5 metres long and bent in a scroll-like curve. This may have been an ancestor of the jingal. This gun, known as *ta-chui-feng-ch'iang* ('large blowing-away-the-enemy lance-gun'), was operated by two soldiers using a tripod support. It had a stated range of more than two hundred paces.[133]

How did the range and firepower of heavy gunpowder weapons compare with the nomad bow? Two contemporary sources may be helpful in answering this question.

In 1558, an English merchant named Anthony Jenkinson (d. 1611) on his way from Moscow to Bukhara, travelling with a caravan consisting of some forty men, was attacked by a group of thirty-seven Uzbek brigands, 'well armed, and appointed with bows, arrows and swords.' The brigands ordered to merchants to stand and deliver, but as Jenkinson related,

we defied them, wherewith they shot at us all at once, and we at them very hotly, and so continued our fight from morning until two hours within night, divers men, horses and camels being wounded and slain on both parts: and had it not been for 4 hand guns which I and my company had and used, we had been overcome and destroyed: for the thieves were better armed, and were also better archers than we; but after we had slain divers of their men and horses with our guns, they durst not approach so nigh, which caused them to come to a truce with us...[134]

In the early 1630s, the French military engineer and cartographer Guillaume Le Vasseur de Beauplan (1600-1673) travelled across the Ukraine. There he was attacked by Crimean Tatars, whose military system was not unlike that of earlier or later equestrian nomads. Beauplan reported that the Tatars could shoot accurately to sixty or a hundred paces (by which he most likely meant about fifty to ninety metres). He also made the following observation:

I have encountered them many times in the country to the number of a good five hundred Tatars who wished to attack us in our tabor [wagon fort]*, and even though I was accompanied by only fifty or sixty cossacks, they could do nothing to us nor could we best them because they would not approach within the range of our weapons; but after making numerous feints to attack us and trouble us with clouds of arrows on the head because they shot in arcade easily at twice the range of our weapons, they retired...*[135]

Shooting in arcade is to shoot at a steep angle, of about 45 degrees, to extend the range as far as possible. The result is that the arrows drop almost vertically on the target, as indeed Beauplan makes clear. Such shooting is of course very inaccurate; however, a massed enemy of the type the horse archers often confronted is very vulnerable to such archery.

A sixteenth-century Arabic treatise on archery confirms the range of archery mentioned by Beauplan, pointing out that while the extreme range for accurate fire is 45 bow lengths, the range for effective (in penetrative power) although frequently inaccurate fire is more than twice this.[136]

In the fourteenth century, the Mamluks were expected to hit a circle somewhat less than one meter in diameter at a range of 60 bow lengths.[137] Again, we can assume that the range for effective but inaccurate fire was longer.

The bows used by nomads and soldiers of settled states in Inner Eurasia were not that different from one another. In other words, it was not the missile power of the nomad bow that had led to the many centuries of nomad victories, but the nomad mobility. The nomads had been able to harass the infantry of the settled states until it lost morale, cohesion, and thus became vulnerable to a traditional cavalry charge. Yet more important, the nomads could do this to their enemy without suffering excessive losses themselves.

On the strategic level, the mobility of the nomads had of course been even more decisive, since they could then outmanoeuvre slower-moving enemies, hit them where they were weak, and avoid contact when the tactical situation was disadvantageous.

But with the introduction of heavy firearms and artillery, the nomads became vulnerable to the weapons of the settled states. The nomads no longer held a decisive edge in tactics. This was obvious to contemporary and near-contemporary observers. Edward Gibbon (1737-1794), writing in the 1770s, concluded: ‘The military art has been changed by the invention of gunpowder . . . Cannon and fortifications now form an impregnable barrier against the Tartar horse; and Europe is secure from any future irruption of Barbarians; since, before they can conquer, they must cease to be barbarous.’[138]

In other words, for a nomad ruler to make himself master of a settled empire, the new strategic context demanded that he took the decision to cease being a nomad. The nomad military system had reached a dead end. The nomads retained superior mobility, but they had lost their offensive capability in the form of firepower that was at least no worse, and often far superior, to that of non-nomad pre-gunpowder armies.

The new armament in the form of gunpowder weapons, and in particular heavy muskets and artillery, had a sufficiently long effective range that the nomad cavalry no longer could count on defeating the soldiers of the settled state without themselves suffering major casualties. However, the nomads could not absorb such losses, since their total manpower invariably was far below that of the agrarian states. The agriculture of a settled state supported a larger population and thus possessed the resources for armed forces far more numerous than the nomads could raise. It was thus not the mere introduction of new weaponry that changed the strategic situation. The prowess of the individual horse archer remained as high as in the past, and the rate of fire, accuracy, and penetration of the nomad bow did not compare badly with the early firearms. However, the aggregate firepower of close-order formations armed with sufficient numbers of heavy firearms did make a difference.

The individual nomad remained as good, if not better, a fighter than the individual non-nomad soldier, but in time even the personal musket acquired the range of heavier jingals and developed into a far more powerful weapon than the nomad bow. That the individual nomad remained as able as his settled adversary was then simply not good enough, even if the nomad traded in his bow for a new weapon. The old nomad strategies thus gradually lost their former utility, as the military and technological development relegated the nomads to the place of have-beens.

In the west, the Muscovites, Safavids, and their successors were finally able to defeat and, in Muscovy’s case, even conquer the nomads, although this shift in the balance of power depended more on demography than weapons tech-

nology. Colonisation in time caused the settlers to greatly outnumber the nomads even in the latter's traditional steppe habitats.[139]

In the east, the Chinese Ming dynasty, as noted, had adopted a defensive attitude to the nomads and often refused even to deal with them. While the Ming developed mobile artillery in the 1570s and adapted existing fortifications for the use of firearms, their military strength remained primarily in the size of the army, which continued to be chiefly armed with traditional weapons, and in their fortifications.[140]

The succeeding Manchu Ch'ing dynasty took full advantage of the new gunpowder technology. Henceforth, the nomads could only—without excessive risk—attack and loot mere caravans, such as the ones in which Jenkinson and Beauplan travelled. That the introduction of firearms was a decisive military-technological factor is also indicated by the fact that the steppe nomads were able to unite even then, under for instance Altan Khan who raided beneath the walls of Peking in 1550, in fact raided China almost every year for decades, and ambushed and defeated a Chinese army led by Ch'iu Lu-an (1505-1552) on the steppe north of Ta-t'ing in April 1552,[141] but even so failed to achieve their old military and political superiority viz-a-viz their settled neighbours.

Meanwhile, also in 1552, the Tsar of Muscovy, as noted, conquered the Mongol successor state of Kazan', reportedly with the help of 150 heavy cannon and mortars as well as many field guns.[142] Soon Muscovite settlers moved east to consolidate the conquest and incorporate it into the Tsar's empire by the construction of a series of forts to impede nomad mobility.[143] The age of nomad empires had passed, never to return.[144]

Early 20th-century photograph of a nomad hunting with an eagle.

Notes

81. Ratchnevsky, *Genghis Khan*, 89-94, 171, 175-6.

82. See, e.g., Herbert Franke, 'The Forest Peoples of Manchuria: Kitans and Jurchens', Denis Sinor (ed.), *The Cambridge History of Early Inner Asia* (Cambridge: Cambridge University Press, 1990), 400-423, on 414-22; Hoyt Cleveland Tillman and Stephen H. West, *China under Jurchen Rule: Essays on Chin Intellectual and Cultural History* (Albany, New York: State University of New York Press, 1995). On Chin opposition to nomad unity, see Ratchnevsky, *Genghis Khan*, 10-11.

83. See, e.g., Ruth W. Dunnell, *The Great State of White and High: Buddhism and State Formation in Eleventh-Century Hsia* (Honolulu: University of Hawai'i Press, 1996), xxii.

84. See, e.g., Franke, 'Forest Peoples of Manchuria', 401-12.

85. Dunnell, *Great State,* xxiv.

86. Dunnell, *Great State*, xxv; Ratchnevsky, *Genghis Khan*, 103-5.

87. Dunnell, *Great State*, xxv.

88. Ratchnevsky, *Genghis Khan*, 112-14.

89. Ratchnevsky, *Genghis Khan,* 114-15.

90. Ratchnevsky, *Genghis Khan*, 112.

91. Ratchnevsky, *Genghis Khan*, 173.

92. See, e.g., Ratchnevsky, *Genghis Khan*, 106-7, 109-12.

93. According to a probably apocryphal story, Genghis Khan at first toyed with the idea to have all settled inhabitants killed and the entire region converted into pasture. Morgan, *Mongols*, 74.

94. Ratchnevsky, *Genghis Khan*, 115-16.

95. See, e.g., Morgan, *Mongols*, 199-200.

96. Ratchnevsky, *Genghis Khan*, 176-7.

97. Juvaini, *Genghis Khan* 1.10. p.75-77; Ratchnevsky, *Genghis Khan*, 102-3.

98. See, e.g., Ratchnevsky, *Genghis Khan*, 118.

99. See, e.g., Ratchnevsky, *Genghis Khan*, 118-19.

100. See, e.g., Ratchnevsky, *Genghis Khan*, 122-3.

101. See, e.g., Morgan, *Mongols*, xii-xiii. They also introduced regular taxation among the nomads. Ratchnevsky, *Genghis Khan*, 203.

102. See, e.g., Barfield, *Perilous Frontier*, 224-5, 230-33.

103. Barfield, *Perilous Frontier*, 231-47. On the battle of T'u-mu, see Frederick W. Mote, 'The T'u-mu Incident of 1449', Frank A. Kierman, Jr., and John K. Fairbank (eds.), *Chinese Ways in Warfare* (Cambridge, Massachusetts: Harvard University Press, 1974), 243-72.

104. Barfield, *Perilous Frontier*, 250-57.

105. See, e.g., Michael Fredholm von Essen, 'From Muscovy to Russia: The Emergence of the Russian Army, 1462-1689', *Arquebusier* 24: 4 (1998), 2-11, on 2; Michael Fredholm von Essen, *Muscovy's Soldiers: The Emergence of the Russian Army 1462-1689* (Warwick: Helion, 2018).

106. Ira M. Lapidus, *A History of Islamic Societies* (Cambridge: Cambridge University Press, 1988), 416-17, 420-23; James Forsyth, *A History of the Peoples of Siberia: Russia's North Asian Colony 1581-1990* (Cambridge: Cambridge University Press, 1994), 26-35. See also Terence Armstrong (ed.), *Yermak's Campaign in Siberia* (London: Hakluyt Society, 1975).

107. Ratchnevsky, *Genghis Khan*, 209.

108. Lapidus, *History*, 416-17.

109. See, e.g., Michael Fredholm von Essen, *The Army of the Manchu Empire and Qing China*, 1600-1850 (n.p.: Pirate Press International, 1997), 5-8; Michael Fredholm von Essen, *Eight Banners and Green Flag: The Army of the Manchu Empire and Qing China, 1600-1850* (Farnham, Surrey: Pike and Shot Society, 2009).

110. The term gunpowder empire was first used by the historians Marshall G. S. Hodgson and William H. McNeill, who applied it to the large 16th- and 17th-century Muslim states of the Ottomans, Safavids, and Moghuls. Marshall G. S. Hodgson, *The Venture of Islam-Conscience and History in a World Civilization 3: The Gunpowder Empires and Modern Times* (Chicago: University of Chicago Press, 1974 (published posthumously)). To the gunpowder empires are also usually counted the Muscovite empire as well as (to some extent) Ming China and (following the first Western contacts) Japan. The Portuguese and Spanish overseas empires are also typically included in this group—but not the European possessions of Portugal and Spain, or indeed any other European state. William H. McNeill, *The Pursuit of Power: Technology, Armed Force, and Society Since AD 1000* (Chicago: University of Chicago Press, 1984), 95-99.

111. See, e.g., Jeremy Black, *The Cambridge Illustrated Atlas of Warfare: Renaissance to Revolution 1492-1792* (Cambridge: Cambridge University Press, 1996), 10-11; Jeremy Black (ed.), *War in the Early Modern World: 1450-1815* (Boulder: Westview, 1999), 4-6; Jeremy Black, *War and the World: Military Power and the Fate of Continents* (New Haven: Yale University Press, 1998), 30-32.

112. Edmund Burke III, 'Introduction: Marshall G. S. Hodgson and World History', Marshall G. S. Hodgson, *Rethinking World History: Essays on Europe, Islam, and World History* (Cambridge: Cambridge University Press, 1993 (edited by Edmund Burke III)), ix-xxi, on xvii-xviii. On the 'Tatar yoke', see, e.g., Charles J. Halperin, *Russia and the Golden Horde: The Mongol Impact on Medieval Russian History* (Bloomington: Indiana University Press, 1987), 7.

113. McNeill, *Pursuit of Power*, 95-99.

114. However, it should be noted that even European soldiers occasionally remained unconvinced of the supposedly great value of firing in volleys. The experienced soldier Maurice de Saxe, in his *Mes réveries*, written in 1732, criticised a reliance on volley fire alone and instead advocated a combination of firepower and shock. 'I have seen entire salvos fail to kill four men. And I have never seen, and neither has anyone else, I believe, a single discharge do enough violence to keep the troops from continuing forward and avenging themselves with bayonet and shot at close quarters. It is then that men are killed, and it is the victorious who do the killing.' Saxe also made it clear that he preferred individually aimed fire to volleys: 'The present practice is worthless because it is impossible for the soldier to aim while his attention is distracted awaiting the command. How can all these soldiers who have been commanded to get ready to fire continue to aim until they receive the word to fire?' Maurice de Saxe, 'My Reveries upon the Art of War', in Thomas R. Phillips, *Roots of Strategy* (Harrisburg, Pennsylvania: Stackpole, 1985), 177-300, on 206, 218.

115. See, e.g., Black, *War and the World,* 32-33, 60-61, 94-5.

116. Jos Gommans, 'Warhorse and Gunpowder in India c.1000-1850', Jeremy Black (ed.), *War in the Early Modern World: 1450-1815* (Boulder: Westview, 1999), 105-27.

117. Some regard the 'slow' development of light firearms within the Asian gunpowder empires (as compared to western Europe and Japan) as an effect of (or even response to) the threat these empires faced from equestrian nomads. Kenneth Chase, F*irearms: A Global History to 1700* (Cambridge: Cambridge University Press, 2003), 197-8. Insofar as this view acknowledges the identification of the mounted archer as the primary threat in firearms doctrine, this would seem correct. However, such a conclusion would also disregard the fact that firearms doctrine in these empires did not, in fact, fail to develop, but developed along fundamentally different lines from those in Europe.

118. See, e.g., George Gush, *Renaissance Armies 1480-1650* (Cambridge: Patrick Stephens, 1975), 92.

119. See, e.g., David Eltis, *The Military Revolution in Sixteenth-Century Europe* (New York. Barnes & Noble, 1998), 45-7.

120. See, e.g., Fredholm von Essen, 'From Muscovy to Russia', 2-11; Fredholm von Essen, *Muscovy's Soldiers*.

121. Arrian (Flavius Arrianus Xenophon), *Campaigns of Alexander* 4.4. Tr. by Aubrey de Sélincourt in Arrian, *The Campaigns of Alexander* (Harmondsworth, Middlesex: Penguin, 1971), 206.

122. John F. C. Fuller, *The Generalship of Alexander the Great* (New Brunswick, New Jersey: Rutgers University Press, 1960; Da Capo reprint 1989), in particular 296. General Fuller was himself a First World War pioneer of mechanised warfare.

123. Joseph Needham et al.*, Science and Civilisation in China 5, Part 6: Military Technology-Missiles and Sieges* (Cambridge: Cambridge University Press, 1994), 125.

124. Ibid., 123.

125. Kenneth Chase, *Firearms: A Global History to 1700* (Cambridge: Cambridge University Press, 2003), 44, 45-6.

126. Ibid., 44-5.

127. Ibid., 45.

128. Ibid., 148.

129. Henry Yule and A. C. Burnell. *Hobson-Jobson: The Anglo-Indian Dictionary* (2nd edn 1902, reprinted 1996 by Wordsworth, Ware, Hertfordshire), 373, 474.

130. Ian Heath, *Armies of the Nineteenth Century, Asia 2: China* (Guernsey: Foundry Books, 1998), 47.

131. Fredholm von Essen, *Army of the Manchu Empire,* 39-40; Fredholm von Essen, *Eight Banners and Green Flag.*

132. William Irvine, *The Army of the Indian Moghuls: Its Organisation and Administration* (London, 1903; facsimile reprint by Pallas Armata, Tonbridge, Kent, 1996), 109-11, 113, 134-7.

133. Joseph Needham et al., *Science and Civilisation in China 5, Part 7: Military Technology-The Gunpowder Epic* Cambridge: Cambridge University Press, 1986), 455.

134. Richard Hakluyt (ed.), *Voyages and Discoveries: The Principal Navigations, Voyages, Traffiques and Discoveries of the English Nation* (Harmondsworth, Middlesex: Penguin, 1985), 83-4.

135. Guillaume Le Vasseur, Chevalier de Beauplan, *Description de l'Ukranie depuis les confins de la Moscovie jusqu'aux limites de la Transylvanie* (Paris: J. Techener, 1861), 95-6.

136. *Arab Archery: An Arabic Manuscript of About A.D. 1500: A Book on the Excellence of the Bow and Arrow and the Description Thereof* (Princeton: Princeton University Press, 1945). Translated and edited by N. A. Faris and R. P. Elmer. The translators interpret 45 bow lengths as about 75 metres, which seems excessive. See the following note.

137. J. D. Latham and W. F. Paterson, *Saracen Archery: An English Version and Exposition of a Mameluke Work on Archery (ca. A.D. 1368)* (London: The Holland Press, 1970), 138. The translators interpret 60 bow lengths as about 75 m, which suggests a bow length of 1.25 m. However, elsewhere the Mamluk bow is recommended to be of the same length as the arrow and correspond to the length which the archer is able to draw, which suggests a bow length of roughly 1 m.

138. Edward Gibbon, *The History of the Decline and Fall of the Roman Empire* 4 (London: Methuen & Co., 1898), 166, 167. Edited by J. B. Bury.

139. See, e.g., Lapidus, *History*, 420-23.

140. Peter Lorge, 'War and Warfare in China 1450-1815', Black, *War in the Early Modern World*, 87-103; Black, *War and the World*, 52-3.

141. Frederick W. Mote and Denis Twitchett (eds.), *The Cambridge History of China* 7, Part 1: The Ming Dynasty, 1368-1644 (Cambridge: Cambridge University Press, 1988), 476-9.

142. According to Prince Andrey Kurbskiy, who was there, but writing some twenty years after the event. J. L. I. Fennell (ed.), *Prince A. M. Kurbsky's History of Ivan IV* (Cambridge: Cambridge University Press, 1965), 41.

143. See, e.g., Forsyth, *History of the Peoples of Siberia*, 29-30.

144. David Christian argues that with the 1991 collapse of the Soviet Union, Inner Eurasia lost its special claim to the status of a distinct unit of world history, and that 'we should not expect the revival of large Inner Eurasian empires in the future.' Christian, 'Inner Eurasia', 210-11. For sure, we should not expect any future such empires to be based on equestrian nomadism. Yet, it would seem more worthwhile to search for the end of the period of Inner Eurasia as a distinct unit of world history with the emergence of the gunpowder empires rather than the recent setback for what to all effects was the Russian (gunpowder) empire. In the same vein, it would seem futile to argue that Inner Eurasia acquired the special status of a unit of world history as early as in the Palaeolithic, as Christian argues. Before the rise of equestrian nomadism, the archaeological records indicate that Inner Eurasia was not that different from other parts of Eurasia. See, e.g., Cosmo, *Ancient China*, 22-31. Pastoralism *per se* was not unusual in prehistoric Eurasia, but equestrian nomadism was unique to certain geographical regions and periods of history. In other words, Inner Eurasia enjoys its special status for world history not as a geographical, but as a geo-temporal unit. As such, the building block of region and period of equestrian nomad empires retains its value as a distinct unit of historical research.