challenge. War is not the determining factor in history; it always occurs in the context of demographic changes, technological inventions, commercialization, and the development of organizational skills.

But neither should war, qua war, be neglected. Peter Paret issues an important warning in a review of writings on warfare in the West. Historians of war, Paret argues, should not only study the connection of war with state-building, the family, demographic change, and social values. The study of war also quite properly includes the analysis of battles, of strategy and tactics, command, and weapons.[42] Important differences exist between wars and their consequences in China and Europe, and of course between these and other areas in the world. As John Fairbank wrote two decades ago: 'Among China's contributions to today's world is a distinctive military record that has been too little studied.'[43] This volume is offered in the hope that it makes a beginning with this.

[42] Paret, 'The new military history,' in *Understanding War*, p. 222.
[43] Fairbank, 'Introduction,' in Frank Kierman and John Fairbank (eds), *Chinese Ways in Warfare* (Cambridge, Mass.: Harvard University Press, 1974), p. 1.

Military Mobilization in Seventeenth and Eighteenth-Century China, Russia, and Mongolia

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Introduction

From the mid-seventeenth to the late eighteenth centuries three agrarian states—Chinese, Mongolian, and Russian—struggled for power over the heartland of the Eurasian continent. Each had dynamic central leaders mobilizing agrarian surpluses based on drastically different ecologies, institutions, and military structures. When the dust cleared, by 1760, only two survived.

Why three? Everyone has heard of the expansion of the Russian state into Siberia, and many scholars know that at the same time the Qing empire, under Manchu rule, expanded in an unprecedented fashion into the oases, deserts, and steppes of Central Asia. But the third contender for power, the Zunghar state of the Western Mongols, is relatively unknown. Its expansion represented the last of a series of efforts at hegemony over the steppe by nomadic rulers which had begun at least as early as the Xiongnu confederation of the second century B.C. (Barfield, 1989).

The Great Game of the nineteenth century pitted the British and Russian empires against each other for domination of Central Asia at the cost of the indigenous peoples of Afghanistan, Tibet, and Xinjiang, and of the weakening Chinese state. Likewise, the collapse of the Soviet Union in the twentieth century will ignite new contests for power in this region, whose players include Russians, Chinese, Kazakhs, Iranians, Turks, among others. The eighteenth-century game played out a similar drama with a different cast. It deserves attention for several reasons: it marked the elimination of independent nomad power; it offers comparisons of forms of agrarian mobilization outside the European context; it was one of the last major

international competitions based almost exclusively on agrarian, not industrial economies. (Cf. McNeill, 1982).

In 1644, the Manchu rulers of the newly established Qing dynasty (A.D. 1644–1911) took control of North China from the Chinese-ruled Ming (A.D. 1368–1644) as the first stage of their 'Great Enterprise'. (Wakeman, 1985) From 1644 to 1683 they were preoccupied first with driving out the loyalists of the fallen Ming and secondly with suppressing revolts in South and Southeast China. (Struve 1984; Spence & Wills, eds 1979). In 1674, the twenty-year-old Kangxi emperor, having thrown off the regency of his uncles, suppressed revolts by three enfeoffed Manchu nobles who had supported the conquest, but who subsequently created autonomous appanages in the South (the Three Feudatories Revolt). (Kessler 1976) He then put down the unruly peasantry of Taiwan who had found allies in seaborne merchant pirates, Dutch traders, and Ming loyalists. (Wills, in Spence & Wills, eds 1979; Shepherd 1993) Having secured the Southeast, the Manchus turned their attention to the region which had constantly been the greatest threat to Chinese imperial security—the arid Northwest. Here a revitalized nomadic state-building project, led by the Western Mongol (Oirat, Eleuth) chieftain Galdan (r. 1671–1697), claimed control over the vast reaches of present-day Xinjiang, Inner and Outer Mongolia, and parts of present day Qinghai, Tibet, and Kazakhstan. Galdan drew on active support from the Tibetan Lamaist regime in Lhasa, at least passive acquiescence from most of the oasis-dwelling Turkish peoples of the Tarim Basin, and on varying degrees of personal, tribal, and ethnic loyalty from other Mongolian, Turkish, and Tibetan peoples extending from Hami and Kokonor in the East to Lhasa in the West.

Meanwhile, the rulers of Muscovy had engaged in constant warfare on both their Eastern and Western frontiers. In the East, the taking of Kazan and Astrakhan in the 1550s was followed by further attacks on the Tatars. Russians had also begun commercial and military expansion into Siberia after 1580. In the seventeenth and eighteenth centuries, under Peter the Great (r. 1689–1725) and his successors, Russian rulers entered into contact with all the other players in the Central Asian Great Game: Kazakhs, Turkestanis, Chinese, Siberian tribal leaders, Mongols, etc. Treaty negotiations with the Chinese in 1689 (Nerchinsk) and 1727 (Kiakhta) had delimited the border in Siberia and Manchuria between the Russian and Chinese empires and ensured regulated border trade. (Mancall 1971; Foust 1969)

These are still the 'legitimate' borders which the Chinese claim in principle today (a principle denied by the Russians).

In all three states, military expansion, increased 'stateness', and commercial expansion went hand in hand. Ultimately, however, the resources of men, food, money, weaponry, and prestige had to be extracted, purchased, or produced from the agrarian substructure. Each of these huge agrarian empires had to transform the production relations, trading networks, and extractive techniques of their peasantries in order to mobilize the maximum possible military force. Their mutual competition and negotiation significantly shaped the political and social evolution of all three regimes.

It was a life-or-death struggle. In the end, of course, only two states survived. The Zunghar state was crushed by an extended series of Chinese military campaigns, from the Kangxi emperor's three wars against Galdan (1690–97) to the Qianlong emperor's campaigns of 1755–1760. The Zunghar state and people, perhaps one million of them, vanished from the historical stage, obliterated by a combination of starvation, battlefield death, Chinese massacres, epidemic disease, dispersal through flight, and enslavement to Chinese, Russian, Kazakh, and other overlords. Russian tacit acquiescence to the extermination of the Zunghar state was critical to Chinese success. Even though at times they offered refuge or material support to Zunghar state builders, in the end the Russians refused to intervene directly. The elimination of the Mongolian state gave the Chinese imperial rulers the largest area they ever had controlled, including the present boundaries of the People's Republic plus the present-day Mongolian Republic, the Ili valley in Kazakhstan, part of Kirghizia, and parts of Siberia north of the Amur River. The Qing maintained nominal control of this region (although losing *de facto* sovereignty over the Ili valley and other regions to Russia after 1870) until the collapse of the empire in 1911. This was the longest period in history of extended control by a unified regime over both the Chinese heartland and the Central Asian steppe.

Western social scientists have developed a sophisticated literature which analyzes comparatively and historically the linkages between state formation, military power, the rise of capitalism, and agrarian production. (Anderson 1979; Tilly 1990; Wallerstein 1974) Nearly all of this literature focuses exclusively on the European experience. Debates revolve around time-honoured issues of Western sociology and history: the significance of class relations, the systematic

interrelation of capitalist economies with state power; the nexus of war, economy, and power. Useful as it is, their perspective remains too narrow. Conversely, although historians of China have developed a rich fund of related concepts and narratives to examine the rise, fall, and rise of the Ming and Qing dynasties from the sixteenth to nineteenth centuries, they have nearly always examined China in isolation from the global context. Parallels to the Western European experience have been noted, but few convincing explanations found. Only a few bold 'world historians' have speculated on the links integrating global processes during this period. (Atwell 1982, 1986, 1988; Fletcher 1985; Goldstone 1988, 1991; McNeill 1981; Wakeman 1986) But empirical demonstration of posited parallels is still scarce.

Furthermore, even comparative study of China and Europe is too confining. The cores of both of these regions have long been dominated by settled agriculturalists. Nomadic pastoralism has, however, been the dominant social formation in the expanse of Central Asia roughly east of the Urals, north of the Iranian plateau, south of the Siberian forests, and north to northwest of the Great Wall. Although the heartland of China, North and South, has been based on settled peasantry, the interaction with nomadism, the looming presence and shadowy existence of an alien other, has always been crucial to China's social, political, and cultural development. K. N. Chaudhuri has recently argued that the entire history of Asia cannot be understood independently of the history of the steppe, and much the same can be said for Russia and Ukraine. (Chaudhuri 1990, 138–48; McNeill 1964; Ostrowski 1990; Vernadsky 1953) When we look at the seventeenth to eighteenth centuries, we see the last time when nomads and settled regimes interacted as equal, autonomous presences. After the mid-eighteenth century, nomads were reduced to a subordinate status as internal colonies of the Russian and Chinese empires—an equally fascinating, but different story. Analyzing this final phase of steppe-settled interaction leads to fresh insights about the relationships between agrarian and pastoral ecology and state formation.

The available secondary or theoretical literature on this particular time and place is not large. No satisfactory English-language synthetic account has ever been written of this process. Why has it been neglected? Several underlying preconceptions of both Western and non-Western history and social theory are exposed by this neglect. Eurocentrism, mentioned above, is only one. Sinocentrism, by both Chinese and Westerners, privileges the 'core' eighteen provinces of

predominantly Han China, assigning the rest to a remote, peripheral frontier. Studies of modern Chinese history focused on China's 'response to the West' concentrate overwhelmingly on the maritime contact with Western Europeans, Americans, and Japanese, subordinating the equally significant and longer-lasting overland links with Russia and Central Asia. Orientalism, in its Chinese guise, past and present, sees nomads, Turks, Tibetans, Muslims, Mongols—all the diverse populations of Central Asia—as either irredeemably alien, or comprehensible only to the extent that they assimilate to Han Chinese categories ('cooked' barbarians). (Gladney 1991; Crossley 1990) Central Asian specialists wrestle with individual pieces of a vast and confusing linguistic, religious, and geographic realm. For most of them, the Mongol empire of Chingis Khan and Kublai Khan is the high point; after that it is all downhill.[1]

Finally, nationalist historiography, a product of the nineteenth century which pervades the historical writing of all contemporary nation-states, implies that the domination of Russia and China over this region was to be expected, a natural and inevitable product of a historical process driven by great leaders like Kangxi and Peter the Great. Losers are relegated to the dustbin of history.[2] For example, the chapter on the Northwest in the 'General History of the Qing' by the PRC historian Dai Yi begins with a quote from Mao Zedong: 'China is a country with a large population formed from the union of many nationalities', and continues: 'After the Qing dynasty established complete control over the entire country, the minority peoples distributed on our country's broad western and northern borders—Mongols, Tibetans, Hui (Chinese Muslims), Uighurs, Kazakhs, Burut, etc.—began to establish political and economic links with the central Qing government, and increasingly became inseparable members of our country's multinational state'. (Dai 1981, vol. 2, 136)

Necessity, totalization, and finality: these basically Hegelian principles of historical interpretation suited the era of the rising nation state. (Chartier 1988, 57) Today, however, contingency, fragmenta-

[1] The chapter on the post-Mongol period in Denis Sinor's bibliography of Central Asia is entitled 'L'époque de la décadence'. (Sinor, 1963)
[2] The resurrection of an autonomous Mongolian state in the twentieth century only partially disproves this tendency, since Mongolian historiography very closely follows the Russian Marxist-nationalist line. But it does have interesting variations, e.g. on the interpretation of the significance of Chingis Khan, and an even stronger anti-Chinese tone than in Russian historiography after the Sino-Soviet split.

tion, and diversity seem like far more useful interpretive principles than the immanency, determinism, and monist politico-cultural unity of the nineteenth century. The collapse of the Soviet Union and its domination of Central Asia is only one example. The whole analysis of state-building world-wide needs greater attention to the contingent political and social construction of nation-states. We must subvert inherited nationalist historiography by discovering new organizing themes.[3]

Historians of technology, another field strongly marked by the classically Whiggish notion of inevitable progress, have offered several guidelines for undermining these assumptions: 1) pay as much attention to technological failures as to successes; 2) examine similar technological developments in several different cultural contexts; 3) look closely at the interrelationships of personality, political environment, technical determinants, and social structure. (Staudenmeier 1985; Smith & Marx, eds. 1994) Analogously, in examining the agrarian foundations of state-building, we need to focus now on the accidents of leadership (succession to power matters), failed efforts, and cross-cultural (especially non-Western) perspectives. Central Asia is an excellent place to look.

Of necessity, in this limited space, I can only sketch a few features. In what follows, I first provide a brief narrative account which emphasizes the global interactions between the three contending powers. Since the Russian and Chinese stories are much better known, I give more attention to the Mongolian state. Then I examine two critical links between state-building and agrarian ecology: grain provisioning and population mobility.[4] I conclude with a discussion of the Chinese use of inscriptions in consolidating hegemony over Central Asia.

A Note on Scale: It is roughly 4000 kilometers from the Ural mountains to the Great Wall, and 2400 kilometers from the southern end of the Siberian forest to the northern rim of the Himalayan plateau. Central Asia, broadly defined, covers nearly ten million square kilometers, equivalent to the size of the entire People's Republic, Europe, or the United States. State-building here takes place on a continental scale, without any of the conveniences offered by water

[3] Cf. a similar approach to the history of the Chinese revolution by Joseph Esherick (1995).

[4] I do not mean to rule out other factors as less important. Others which deserve greater treatment are disease transmission, commercial integration, military technology, and religio-cultural change.

transport, or boundaries defined by valleys and mountain ranges. Grasslands, forests, deserts, and high mountains define an extremely fragmented, inhospitable ecology. Chinese expeditions into the Northwest exceeded the distance of Napoleon's march on Russia, over much more hostile terrain. Nomadic state builders had nowhere near the concentration of resources available to their settled competitors, but all state builders in the steppe had to compensate for its poverty and fragmentation. (Christian 1994)

Historically, Central Asia had usually been fragmented. Only rarely did a nomadic empire builder succeed in unifying the vast disparate region, and these empires seldom lasted long. Chingis Khan's Mongol empire was a rare exception, as Thomas Barfield has argued. (Barfield 1989) Essentially, the resources of the steppe were inadequate to support a large imperial military or bureaucratic apparatus. Successful nomadic empire builders had to rely on resources from outside, extracting wealth through trade, tribute, or plunder.
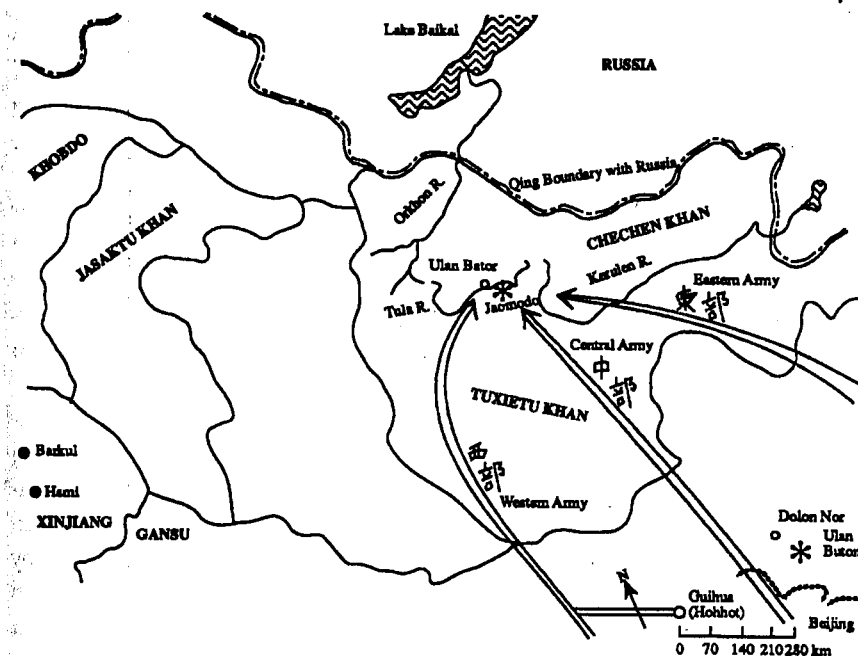
I. The Rise and Fall of the Zunghars

Galdan's father, Batur Hongtaiji (r. 1634–1653), began the building of the Zunghars into a major military power. Dominating the Tarbagatai and Urumqi region, he obtained weapons and livestock from the Russians, built a permanent capital, and embraced the Lamaist religion. On Batur's death in 1653, his son Sengge succeeded him, but was murdered in 1671. Galdan, learning of his brother's murder, returned from Lhasa in 1673 and soon gained authority over the Zunghar chiefs. By 1679 he had taken over Eastern Turkestan, Hami, and Turfan, and requested confirmation of his title of Bushuktu Khan by Kangxi.

Disputes among two Khans of the Eastern Mongols (Khalkhas) offered both Galdan and Kangxi opportunities to extend their influence into Mongolia. Galdan conducted a major expedition eastward in 1688, in which he crushed the 5,000 Khalkha troops opposing him. Reports of Galdan's men plundering and burning temples in Khalkha territory sent tens of thousands of starving refugees fleeing to ask for Kangxi's protection. The emperor generously provided relief supplies to the Khalkha refugees, but he was preoccupied with negotiations with the Russians to prevent them aiding Galdan. In 1688, he was prepared to take only defensive action, but by 1690/6,

after the signing of the Treaty of Nerchinsk, he was prepared to launch his first personal expedition against Galdan. Kangxi's first expedition against Galdan was provoked by Galdan's effort to invade Outer Mongolia in search of booty for his troops. The decisive battle of Ulan Butong took place 300 kilometers north of Beijing, on 1690/8/1.[5] Galdan's forces hid in the forests and used Russian cannon to put up stiff resistance, but Qing artillery damaged them badly. Galdan was allowed to retreat after negotiations mediated by the Dalai Lama's representatives. Although Galdan swore an oath of allegiance to Kangxi, the emperor clearly did not trust him. From this point on, Kangxi was determined to crush Galdan, but illness had forced the emperor to return to the capital on 7/24. After his defeat at Ulan Butong, Galdan retreated to the Khobdo region of Western Mongolia, 2500 kilometers from Beijing, well out of Kangxi's reach. There he was able to repress internal opposition and rebuild his forces. The vastness of the steppe and the Qing's logistical limitations were Galdan's major protectors. Kangxi's main strategy became one of luring Galdan closer to China so that he could strike at him again. For the second expedition, he spent over a year preparing three large armies which could travel 1200 kilometers away from Beijing. By 1695/6 Galdan was on the move east again, driven partly by poor harvests in Zungharia. First he headed for Hami, then for the Kerulen River (near present-day Ulan Bator). Kangxi enticed him there with invitations from the Kolchin princes, who pretended to be on Galdan's side. Galdan's army arrived at the Tula River with nearly 20,000 men and horses. On 1695/10/3 Kangxi announced his intention to lead a second major expedition against Galdan. Noting that he had hoped to draw Galdan closer in, he nevertheless insisted on sending the armies far across the desert, despite objections from his generals. The Central Army, 37,000 men led by Kangxi himself, would travel from Beijing 1100 kilometers across the Gobi desert; the East Route army would leave from Shengjing (Fengtian) with 35,000 men and head for the Kerulen, a distance of 1300 kilometers; the West Route army of 35,000 men would set out from Guihua in Ningxia and travel a shorter route of 900–1100 kilometers to the Tula River (see map 1).

The armies gathered huge amounts of food, horses, donkeys, carts, armor, weaponry and uniforms in preparation for the decisive con-

[5] Dates are given in the following format: Western year/ Chinese lunar month/ lunar day.

Map 1. Kangxi's second Zunghar campaign, 1696. Source: based on Tan Qixiang (ed), *Zhongguo Lishi Dituji* (Beijing, 1975), vol. 8.

frontation. The Central Route army set out from Beijing on 1696/2/29. Kangxi wrote detailed letters to his sons along the way describing the terrain, the supplies of water and grass, and the mood of the army. (Okada, 1979; Cimeddorji 1991) Rumors of a Russian army of 60,000 men supporting Galdan aroused strong objections to Kangxi's expedition, but he firmly rejected proposals for retreat. By 4/22, after 50 days of marching, the Central Army arrived at Kerulen. As planned, they had marched through the snows and arrived in time for the greening of the grasses in spring. The support troops were, however, slow in arriving with extra food supplies and baggage. Kangxi aimed to lure Galdan into battle and prevent him from fleeing before the West army had arrived at Tula to block his escape. By 5/7, worried about the lack of water in the region for his troops, he launched an intensive search for new springs. He had still found no traces of Galdan's camp. But in the next two days he discovered that Galdan, realizing the size of the Qing army, had fled in haste, abandoning much of his weaponry and gear. Kangxi, in hot pursuit, drove Galdan directly into the Western army of Feiyanggu, which destroyed the Mongol army at the famed battle of Jaomodo

on 1695/5/13. Qing cannon shattered the Zunghar army of 7000 men because it had not had time to set up a fixed defense. Kangxi was greatly relieved, especially since food supplies were growing short for both the West and Central armies. He quickly returned to the capital, where he arrived on 6/9.

The campaign had lasted 99 days; a 3000 kilometer round trip for Kangxi. It was much longer in duration and in length than the first one, but Kangxi had ample time to prepare his army. The preparations for actual battle turned out to be nearly superfluous: his greatest achievement had been to equip three large armies and send them out directly into the steppe.

Galdan, nevertheless, escaped again, this time with only a few hundred famished followers. Meanwhile, Galdan's nephew, Tsewang Rabtan, took advantage of his absence to occupy the heart of Zungharia. With secret Qing support, he made it impossible for Galdan to flee West. Galdan's only option was to head for Hami and thereby to refuge in Tibet. Kangxi's third expedition was explicitly designed as a 'hunting expedition' for Galdan's head. He set out on 9/19 with a small force, lightly armed, carrying only small amounts of supplies. Galdan failed to obtain food supplies for himself and his 1500 men when he attacked the Qing garrison. Kangxi urged Galdan to surrender, pointing out that his cause was hopeless without food and men. The emperor crossed the frozen Yellow River and moved into the Ordos region by 11/25, but he turned back at this point for unclear reasons. A curious incident indicates that he may have been running short of supplies in the winter cold. A bondservant called out to Kangxi that the army must return, because food had nearly been exhausted. The furious emperor ordered the bondservant executed and vowed to eat snow if necessary to run Galdan down. Nevertheless, the army did turn back. This expedition lasted 91 days.

Galdan had still escaped capture, but Kangxi had prevented him from reaching Hami and moving into Tibet. All the Qing leaders realized that Galdan, isolated, deserted by his followers, short of food in the vicious winters of the steppe, had only a short time to live. Yet Kangxi, still unsatisfied, began a fourth expedition against him, rejecting the advice of his senior counsellors. He reached Ningxia, where he stayed for eighteen days before turning back on 4/1. Finally, in the middle of the fourth lunar month of 1697, he received Feiyanggu's report announcing Galdan's death.

Kangxi's relentless pursuit of Galdan went far beyond the bounds of strategic necessity. Each expedition put great burdens on the local

people, burdens that Kangxi tried to alleviate, but not at the cost of calling off the expedition. Resistance to each expedition grew stiffer, clearly reflecting official concerns about alienating the local population besides their publicly expressed concern for the emperor's health. Kangxi's great force of will, and his endurance of harsh military conditions, have impressed all observers, but we may well suspect him of an excessive thirst for vengeance. Putting the conflict in such personal terms, aiming at the elimination of one leader, reveals Central Asian strategic thinking showing through his Confucian veneer. The Galdan campaigns combined the Chinese genius for logistic planning with a Central Asian thirst for personal vengeance. Hence they were large in scale, heavily burdensome to the local people, and strategically inappropriate.

The Yongzheng emperor's reign (1722–35) forms an interesting interlude, which I do not have room to describe. Yongzheng is best known for his active promotion of institutional reform, including the full development of the Grand Council advisory body in preparation for a new frontier campaign. (Bartlett 1991) Yet at the same time, Yongzheng was the only Qing emperor to lose a major battle to the Zunghars in 1731, when Mongol warriors eliminated all but two thousand of the fifty-thousand man Qing army. I believe it can be argued that, once again, logistical limitations combined with Yongzheng's excessive attention to internal affairs and neglect of preparation for frontier warfare were the main causes of this defeat.

Qianlong's Final Blows, 1755–1760

The remoteness of Zungharia and the limitations of Qing mobilization still protected the Zunghars. Their years of expansion were over, but they could doggedly survive until a much more massive Qing mobilization could reach them. Internal dissension, an endemic feature of nomadic polities, doomed the Zunghars in the end. After Galdan Tseren's death in 1745, disputes over the succession led to war between two rival princes, Dawaci and Amursana. Dawaci succeeded in driving out Amursana in 1753/5 and naming himself Khan, but Amursana sought Qing support to regain power. This was the opportunity Qianlong had been waiting for. In 1754/5 he decided on a major military expedition, the first of the Three Great Campaigns waged in Central Asia. Thirty thousand men in the Northern Route army set out from Uliyasutai, with Amursana as assistant

commander, while twenty thousand men in the West Route army left from Hami and Barkul. They defeated Dawaci at the Ili River, captured him drunk, and delivered him to Qianlong in Beijing on 1755/10/17. Amursana, however, revolted against the Qing soon after, leading to Qianlong's second campaign, begun on 1755/6/28 and ending on 1757/6, when Amursana was driven over the Russian border and died there. The third expedition, from 1757 to 1759, extended Qing conquests into Eastern Turkestan.

This kind of narrative account could go much further. The story so far has been told through the eyes of two actors: the Chinese emperor and Mongol Khan, each used metonymically as representatives of the decision-making apparatus of the Qing and Zunghar states. By itself it does not really undercut the standard account at all, except that different narrative perspectives challenge each other. The conflict seen through the eyes of the Zunghar leaders, or by the Russian tsars, is not the same as seen through the eyes of the Chinese. We should also note the critical parallel role of the vigorous leaders in both acts of the drama: Galdan, Kangxi, and Peter I in the 1690s; Qianlong and Tsewang Rabdan in the 1750s. Without Kangxi's forceful advocacy, Qing armies would probably never have marched so far against Galdan or driven him to his death. The importance of personality undermines any confident assertions of necessity.

Other sources, other narratives can be brought to play. But we also need to go beyond narrative. The essential assumption of personal agency needs to be challenged. Comparable evolution of socio-economic structures in all three states undergirded the activities of the imperial leaders. Let us dig deeper.

II. Socio-Economic Parallels: The Seventeenth-century Crisis

All three states were restructured after the seventeenth-century world crisis. The extensive series of economic, political, and social crises in seventeenth-century Europe included population decline, economic depression, fiscal crises, and peasant revolts. (Aston, ed. 1967) Other scholars have extended the idea of a seventeenth-century crisis to include the rest of the world, pointing out at least roughly analogous occurrences in China, Japan, and the Ottoman Empire. (Atwell, 1986; Wakeman, 1986) Although they have discovered parallel developments, the explanations for these parallels

remain speculative and inadequate. Some posit a change in the global climate, but evidence of climatic change is lacking for much of the world. More convincing evidence exists for an alteration of currency flows, especially the movement of silver from New World mines, through Spain, Amsterdam, and England, into the large China market. A cutoff of this silver flow is credited with inflicting economic crisis on late Ming China. (Atwell 1982) Unfortunately, the volume of silver trade in relation to the entire monetized sector of the Chinese economy is too small to have had more than regional or temporary effects. Goldstone provides a more convincing general explanation in terms of population growth and mobility straining the fiscal, subsistence, and control resources of early modern states. (Goldstone, 1988, 1991) I explore briefly here the parallels between Russia, China, and Mongolia in this perspective.

During the early to mid-sixteenth century, Russia and China seemed to follow parallel tracks of increasing commercial prosperity and internal trade, rising populations, rising agricultural specialization and productivity. (Hellie 1971, 88) The expansion of Muscovy into the steppe began during this period with the capture of Kazan in 1552 and Astrakhan in 1556. During the second half of the sixteenth century trouble set in. Economic decline, depopulation of the centre of Muscovy, famines, high taxes, Tatar invasions, the disasters of Ivan IV's Livonian War (1558–83) and Oprichnina (1565–72) all reversed the earlier favourable trends. They also set the Russian peasanty on the road to serfdom. (Hellie, 93) Ming China, too, faced rising tax burdens, increased frontier threats, exhaustion of productivity gains, decline of irrigation works, and a series of epidemics. These troubles culminated in the growth of the Manchu state in the Northeast, the rebellions in the West and South, eventually leading to the collapse of the Ming regime in 1644. Russia suffered the Time of Troubles succession crisis (1605–1613) the Bolotnikov peasant revolts (1606–07), followed by the Smolensk War (1632–34). The legal consolidation of peasant serfdom culminated in the Ulozhenie of 1649.

Old Russia's military forces, clearly inadequate when turned West, were much better suited to nomadic cavalry warfare. The successful expansion of the sixteenth century was interrupted by economic and political crisis. Russia could only resume the drive East after an implicit compact between monarchy, great nobles, and middle service class sealed the solidity of the absolutist regime on the backs of a securely enserfed peasantry. (Anderson 1979; Hellie 1971)

Likewise, the Manchu conquerors first had to negotiate a compact with the Chinese landed elite, ensuring their local dominance by maintaining Ming structures of taxation and bureaucracy, abolishing the late Ming surtaxes, repressing peasant revolt and rent resistance, in return for yielding the top authority to the Manchus. Once the domestic enemies were repressed, peace brought further economic expansion, the restoration of wasteland, surpluses in the treasury, and the revival of trade. Then the push to the Northwest could begin.

II. 1. Mobility

For all three states, the mobility of their agrarian subjects was a key concern. As they expanded their territories, the rulers faced the problem inherent in the dialectics of conquest of land-based empires: Larger boundaries offered space for peasants to flee exploitation at the core by moving to the frontier. Unlike seaborne colonial empires, where movement was difficult, the Central Asian imperial rulers had no secure control of transportation routes. Also, since the areas they conquered were less populated than the core regions, a population density gradient pushed marginal settlers from the core to the periphery. In Russia, especially, there was no sharp cultural or ecological divide between core settlement areas of Muscovy and newly conquered frontier areas. In China, the boundaries were more sharply drawn on the Northwest frontier. Owen Lattimore has argued that the Great Wall was at least as much an effort to keep Han settlers within the boundaries of a settled civilized realm as it was an effort to keep nomads out. (Lattimore, 1962) Even so, this boundary was too porous, culturally and physically, to prevent substantial migration, trade, and even acculturation.

Rulers had ambivalent stances towards the increased mobility resulting from expansion. On the one hand, sponsored settlement could tame frontier regions by introducing settled agricultural life. On the other hand, these frontier regions were the least subject to control by the center and most likely to produce rebellions in times of hardship. The major rebellions which broke out in China from the mid-seventeenth to the end of the eighteenth century were all located in peripheral areas only incompletely subdued by the imperial bureaucratic apparatus—Taiwan, Gansu, Northwest Hubei, West Hunan, Guangxi (later the origin of the Taiping rebellion), etc. Likewise, in Russia, the great revolts of Bolotnikov (1606–07), Stepan

Razin (1670–71), and Pugachev (1773–75) flourished in the borderlands of Southern Russia—Ukraine and Cossack territory. (Anderson, 1979, 344) For self-preservation, these expanding regimes had to monitor and control the movement of their rural populations to the new frontiers.

The notorious Russian solution was, of course, serfdom. Richard Hellie traces the rise and consolidation of enserfment in parallel with the rising military power of the Muscovite state. (Hellie, 1971) He interprets serfdom as a solution to the control problems faced by an expanding military agrarian empire. The middle service class, created by the Tsars as the key military arm of the state, in effect were guaranteed unlimited personal power over their peasantry by the state in return for unconditional military service to it. From 1455 to 1649 the legal bonds on the peasant were progressively tightened as the state built up its military and bureaucratic apparatus and expanded its boundaries against its rivals to East and West.

Countervailing interests which might defend peasant freedom included the large magnates, who preferred mobility, because it allowed them to steal scarce labor from their neighbouring landlords, and the peasantry themselves, heavily oppressed by increasing tax and labor burdens, who fled to underpopulated areas when given the opportunity. Notably, it was not the most destitute who fled, but the more well-to-do. Flight was well-organized, done in family units, clearly a consciously planned resistance to landlord oppression. Lords faced with the loss of their most productive farmers turned to the state to enforce increasingly rigid restrictions on mobility. The process was completely codified by the Ulozhenie declared in the General Assembly of 1649. Peter I, for all his radical reforms, built on the Muscovite legacy in several respects: increasing the size of a bureaucratic and military structure totally dependent on the Tsar, and reinforcing the ties binding the peasant to the land. As the empire expanded further in the eighteenth century, it took serfdom with it.

The Chinese, by contrast, combined local control of population movement with officially sponsored migration over long distances to newly settled regions. State controls over local migration turned out to be surprisingly weak. Although the Qing rulers preferred local stability, they never enforced bondage to the land. Some scholars have argued that from the Song through mid-Ming (10th–15th centuries), bondage to the land was characteristic of Chinese rural society—an argument I do not accept. (Elvin 1973; cf. Mcdermott

1984; Wiens 1980) In any case, by the mid-seventeenth century at the latest, everyone agrees that bondage to the land, if it ever existed, had nearly vanished.

The *baojia*, a decimal registration of peasants in all villages into units of 10 and 100 families, increased the monitoring capacity of the state and enforced local militia service by its members, but it did not prevent migration. By the seventeenth century, unlike the fourteenth, taxes were levied individually by household, not collectively on the *bao* unit. Neighbors and fellow *baojia* members no longer suffered payment of increased burdens if one household left. *Baojia* registration was transferable for certain migrants to cities. (Rowe 1984) The *baojia* registration became increasingly ineffective as a check on population movement, although it became increasingly accurate as a measure of population size.[6] The Russian state, by contrast, introduced communal tax responsibility independently but concomitantly with serfdom.

A second policy of indirect local mobility control was the famine relief system. Qing officials devised an elaborate complex of policies to encourage refugees uprooted by famine to return to their homes. They set up rice gruel feeding stations in towns for temporary relief and provided travel grants for refugees to return to their fields after the subsistence crisis had passed. (Perdue 1987; Wong and Will 1991) An empire-wide network of evernormal granaries sold their supplies during high-price periods and restocked during low-price periods every year, thus levelling out annual price fluctuations. Often these efforts proved surprisingly effective, as case studies of a famine in North China in 1744 and in Northwest China in 1810 demonstrate. (Will 1990; Wong & Perdue 1983)

When effective, these policies, by ensuring rural stability, staved off threats of revolt by mobile, destitute peasant mobs. Is it merely coincidental that the great expansion in the scale of the empire-wide granary system begins in the mid-eighteenth century, just as the Central Asian campaigns are ending? Not if the relief system is seen as a response to the increased mobility made possible by the greatly expanded size of the empire.

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[6] Our best annual statistics on the total size of the Chinese population cover the period from 1776 to 1850, when population registers were based on baojia records instead of tax rolls. (Ho 1959) Paradoxically, the less useful the baojia became for the imperial officials, the more useful they became for historians, because of the removal of incentives to distort the numbers.

Even these policies had their limits. Peasants were just as likely to use state travel grants to move on further in pursuit of better lands as they were to return to their ruined fields. By the early eighteenth century, the Yongzheng emperor expressed concern about long-distance migration of entire families who moved up the Yangzi river from the overcrowded Jiangnan delta to the new territory of Sichuan. (Perdue 1987) His ambivalence is revealing. His main concern was not peasant flight in itself; he mainly worried that the new arrivals to Sichuan would not find the land they sought, and turn to banditry instead. At the same time, aware of the increased demand for land by a growing population, he and his successor, the Qianlong emperor, encouraged the clearance of new lands on hillsides, the conversion of entire lakes to paddy fields, and the improvement of yields on existing lands. The Northwest conquest concluded in 1760 offered grand new vistas for Han colonization. With military escorts and grants of seeds, tools, and animals, combined with intensive investment in irrigation, the Manchu rulers shipped out thousands of poor peasants from Gansu to the newly acquired territories in Xinjiang. They wanted a heavy Han presence in order to 'create facts on the ground'; a clear way to ensure that Chinese presence in this region would never retreat.

Xinjiang's oases had long been a terrain of shifting settlement. For many centuries great cities had grown and collapsed in the desert. In the early twentieth century, its ancient ruined cities attracted imperialist archaeological adventurers like Sven Hedin, Aurel Stein, and Albert von le Coq. No more. From the eighteenth century forward, state-sponsored settlement has ensured a large Han presence there. The same policy has been enacted in recent times in Tibet, with much less success. In 1982, civilian Han constituted eighty-five percent of Inner Mongolia, ten percent of Xinjiang's population, but only 4.8 per cent of Tibet. (Bannister, 325) Although China had stationed garrisons in Central Asia since the Han dynasty, mass state-sponsored civilian migration to the region began in the eighteenth century.

Nineteenth-century European scholars, of whom Marx is typical, enshrined an image of the static, unmoving, ignorant peasant, satisfied with his tiny plot and miserable dwelling, unwilling to move unless forced by desperation. He was polarized against the mobile industrial worker, seen as the source of dynamism. Modern demographic work on early modern Europe has sabotaged this image by revealing great mobility on all levels of rural society. (McCants

1992) Even a cursory look at China confirms the picture of a mobile peasantry, ready to seize on opportunities to improve its welfare. And even the Russian case can support this view. Only the combined weight of state, landlord, military, and legal apparatus could succeed in tying down the Russian peasant, to whom was ascribed an 'essentially nomadic nature' before enserfment. (Hellie 1971; Blum 1961, 112–13, 155) Both empires aimed to control rural population movement in the interest of the preservation of class domination and state power, but each faced resistance and internal contradictions of enforcement.

Both empires virally replicated their social formations in newly conquered territories with similar ecologies. The Chinese agrarian formation of densely populated, irrigated, high-yielding commercialized agriculture proved viable even in arid steppe lands, but at immense cost to the state budget. The Russian regime—sparse population, low yield, shifting cultivation, vulnerable to subsistence crises—fit better the pre-existing steppe ecology, required little state investment in productivity, and blurred the cultural boundary between settler and nomad. In both cases, state-directed policies of settlement shifted the direction of agrarian development of Central Asia.

Mobility control also proved crucial in the struggle for Mongol domination. Nomadic federations face centripetal tensions because of the essential economic independence of their component parts. Tribal chieftains can always move away from exploitative demands of would-be Khans, if there is free pasture land available. The authority of a Khan is only personal; it cannot be translated into permanent bureaucratic authority unless subordinate chiefs' autonomous choice of pasture lands is controlled. The Zunghar state-builders recognized that they had to build bureaucratic apparatuses in order to protect themselves against their Chinese enemies. To do so, they had to extract resources from subordinate tribes and wrest from their chiefs the right to allocate seasonal pasturelands. But the Manchus could play this game too. The Qing successfully competed for Mongol support by offering their aid in settling disputes over pasturelands, thus winning many of the Eastern Mongols to their side. Khalkhas who accepted the emperor's suzerainty acknowledged his right to allocate pastures and levy troops and horses from them, in return receiving honorary titles, access to marriage to the Manchu nobility, and food and economic goods. It was not a 'natural' sedentarization process but a strategic choice. Nomads resisting

Zunghar or Chinese domination could flee into the steppe, but it became increasingly difficult to survive on one's own there. Perhaps increasing populations of men and grazing flocks put great pressure on grassland supplies, although evidence is slim. We do know that Chinese armies incorporated large numbers of nomad refugees whose food supplies had been exhausted. Food supply thus became a second crucial weapon in the war for the steppe.

II. 2. Food

Previous Chinese empires had repeatedly tried to mount large-scale military expeditions into Central Asia and repeatedly failed, because of the immense cost in money and food. Han expeditions of the second century B.C., including the search for the famous 'blood-sweating horses' of Ferghana, lost 60 to 70 per cent of their troops and up to 100,000 horses in steppe campaigns. (Barfield 1989, 56) The Tang dynasty (A.D. 618–906) launched an aggressive expansion movement into the Northwest in its early years, but Chinese rule here remained unchallenged for only a short time. Neither the Northern nor Southern Song dynasties (A.D. 960–1279) even tried: they had enough trouble warding off threats to the North China plain. During the Ming dynasty, the Yongle emperor (r. 1403–1424) launched five major campaigns against the Mongols and died in the middle of the last one. (Franke 1945) But the last replay before the Qing of these sporadic expeditions ended in black comedy: One Ming emperor personally ventured west of Beijing in 1449 against the Mongol Esen Khan, and ended up being captured by Esen. Life went on as usual back home in Beijing until he was finally returned. (Mote 1974)
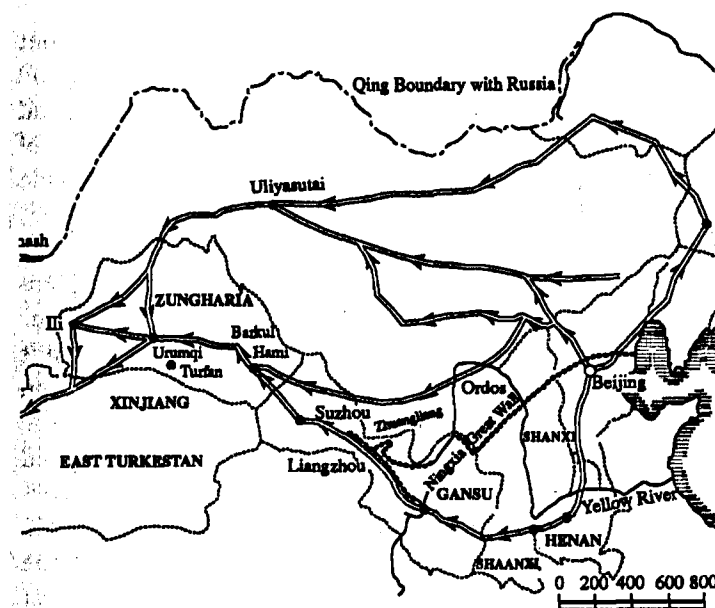
What made the Qing different? They were the first dynasty with its base in the heartland of China to pursue consistently relentless expansion into Inner Asia.[7] The Manchu rulers of the Qing were much more oriented toward Central Asia than the Han-ruled dynasties of the Song or Ming. The Manchus, many of whom had close kinship links to the Eastern Mongols, understood the dynamics of steppe politics far better than their Han co-partners. In addition to

[7] Chingis Khan, of course, conquered both the steppe and China, but was never rooted in China. By the 1250s, his legacy had split into the Yuan dynasty (1279–1368) based in settled China, and a separate entity centered on Karakorum in the steppe. (Barfield, 1989, 187–229)

military campaigns, they pursued a brilliantly successful diplomatic campaign to divide and conquer the rival Mongol tribes.

Equally fundamental, however, was the Manchus' ability to solve the logistical problem of steppe warfare. Ever since the days of the Scythians, the most effective nomadic military tactic when faced by vastly superior armies from settled empires was to withdraw further into the steppe. If the settled army pursued, it eventually outran its supply lines, making it vulnerable to devastating ambushes. If it turned back, the nomads simply recouped their losses. Nomadic warfare shares with guerrilla warfare the need to use geographic advantage to the utmost to counteract inferior strength in numbers and weaponry. Hence the Maoist slogans, 'When the enemy advances we withdraw . . .' apply equally well to nomads. The inability to stretch supply lines thousands of kilometers into barren territory and the necessity of feeding a large infantry with transported food constrained the ability of settled states to launch permanent expeditions into Inner Asia. The nomads, who lived off the grasslands, grouped in small mobile cavalry units, and moved their entire society with them, faced no such constraints. This long-standing stalemate forced the Chinese to adopt other techniques of control, including trade and tribute relations (Yu 1967; Jagchid & Symons 1989) or the building of defensive walls (Waldron 1990).

Even the Kangxi emperor, in his campaigns against Galdan in the late seventeenth century, could not break through this logistical barrier. Reading his own accounts of the campaigns, in which he personally participated, reveals constant worries about supplies of food and water. On each of his campaigns, he could stay only about ninety days maximum away from home, the same time limit faced by his predecessors in the Han dynasty. (Barfield, 1981; Cimeddorji 1991; Okada 1979) He never did capture Galdan, who simply moved beyond his reach. Kangxi only won when Galdan died, probably of smallpox, after retreating from his last loss in battle. The story that Galdan committed suicide out of despair certainly salved imperial pride, but even the emperor, a stern empiricist, did not believe it. Not until the Qianlong emperor broke through the logistical barrier by constructing a supply route leading through the Gansu corridor into Xinjiang could the Chinese support large armies in the steppe for several years at a time. The campaigns of 1755–60 included three main armies, totalling 50,000 men each, who stayed on each campaign for one to two years.

Map 2. Qianlong's Zunghar campaigns, 1755–1760. Source: Lai Fushun, *Qianlong Zhongyao Zhanzheng zhi Junxu Yanjiu* (Taipei, 1984).

Conveying supplies to the troops depended on a chain of magazine posts set up along two main roads, one for the North Route army via Uliyasutai and one for the West Route Army via Barkul (see map 2). Gansu Governor-General Yong Chang prepared six months' worth of supplies for the twenty thousand men of the West Route Army: 11,200 *shi* of grain, 2.25 million *jin* of noodles, 750,000 *jin* of bread, and 20,000 *jin* of mutton.[8] Animals also moved from Gansu markets to Hami: 40,000 oxen and 20,000 head of sheep bought in Liangzhou and Zhuangliang to provide 300,000 *jin* of dried meat in Hami, plus 30,000 head of sheep to be pastured in Hami. (Lai 1984, 219–22)

Both armies needed large amounts of grain for their own rations and additional supplies to feed Mongol tribes who surrendered to the Qing. The North route army at Uliyasutai and the West route army at Barkul both drew on supplies from Gansu, Shaanxi, Shanxi, and even Henan, but Gansu provided the largest amounts. Besides grain, Gansu also provided tea, essential for trade with friendly nomadic tribes. Garrison lands in Hami and Barkul became an

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[8] One shi is approximately 110 liters of grain; one jin is approximately 0.6 kilos.

increasingly important source of grain for the later campaigns, but the oxen to plow these fields had to come from Gansu. The demand for oxen clearly strained the local market: after four thousand head were purchased in Gansu, the official price of 4.4 taels (ounces of silver) per head had to be raised by two taels in order to provide enough.

Transportation of these supplies also relied heavily on the interior China markets. To cut down the demand for carts and mules, General Bandi planned to have the troops themselves carry three to four months of rations with them beyond the Great Wall. This meant over 55 kilos of raw millet, dried noodles, and dried meat, in addition to weapons, per soldier. No army could move quickly this way, so the requirement was changed to forty days of rations per soldier carried by himself, and eighty days by transport.

Transport costs escalated astronomically beyond the Great Wall. Interior overland transport costs were 0.2 taels per 100 *li* in the Northwest, very high by Chinese standards already. In the first Zunghar campaign, it cost 251,000 taels to carry 100,000 *shi* of grain from districts west of the Yellow River in Gansu to Suzhou in Gansu, a straight-line distance of five to six hundred kilometers. The route from Suzhou to Hami, by contrast, a straight-line distance of 600 kilometers, in actuality was over 1000 kilometers (1760 *li*) long, took one month to travel, and cost 7.7 taels per *shi*. Thus the total cost of moving 100,000 *shi* of grain from the core production areas in western Gansu to Hami was nearly one million taels, up to ten times the purchase cost of the grain itself. Furthermore, the mules, camels, carts, porters and rations for these porters had to be bought on China's interior markets, because population in the steppe was so sparse. During the second campaign, surpluses remained in Barkul from the first campaign, and officials made efforts to avoid transporting large amounts from the interior. They gave tea to troops in Urumqi to exchange for mutton and bread and supplied silver for purchases of grain, tobacco, and other goods. Even so, they needed to ship large amounts from Shanxi and Gansu. The third campaign once again required shipment of 100,000 *shi* of grain from Suzhou to Hami, using 3,800 carts. These figures indicate the enormous logistical problems for the Qing armies simply to move supplies from grain producing areas in the Northwest to the major military storehouses at Hami and Barkul. Travel conditions beyond Hami were even more difficult.

The ability to supply up to fifty thousand soldiers for several years with grain, meat, weapons, and horses transported over thousands of miles of steppe, desert, and steep mountains represented an amazing feat of organization. By contrast, European armies at this time wriggled instead of marching on their stomachs. As Martin van Creveld remarks of European armies before the nineteenth century: 'In no instance that I have come across is there any question of a force on the move being supplied solely by convoys regularly shuttling between it and its base, and it has even been claimed that the mathematics involved in this kind of operation were too sophisticated for the military commander of the age to tackle'. (van Creveld 1977, p. 25) Although Louis XIV's forces could exceed 100,000 men, he could move them only slowly, and he could not feed them from his own supply lines. Armies had to prey on the local population in order to survive. The Qing armies, by contrast, moved quickly across the vast reaches of the steppes supported by relay posts which shipped rations to the men and fodder to the horses. The Qing commanders made careful efforts to spare the local population the burdens of military supply, either by having soldiers carry their rations with them, or by giving them money to buy grain at market prices. The real victory of the early Qing rulers was their ability to draw off the resources of a rapidly commercializing economy to serve national defense needs without inflicting excessive damage on the rural economy. The links they exploited between commercial growth and military supply explain why the Chinese empire at its apex led the world in both geographical and demographic size.

Are the Qing figures plausible? We know that figures in published Qing sources are based on detailed archival accounts, because the Qing commanders kept very detailed records of military supplies. Van Creveld's discussion provides only a few quantitative estimates, which emphasize the extreme difficulty of supplying eighteenth-century European armies in the field. In a typical army of 60,000 men and 40,000 horses, the soldiers consumed 120,000 pounds of bread and 60,000 pounds of other food per day, and the horses required a total of 800,000 pounds of fodder per day. Of the total consumption of 980,000 pounds per day, only 120,000 pounds could be stored in magazines or moved in convoys. European armies thus could only be fed as long as they did not stop for too long in one place. Napoleon's Russian campaign was in fact based on careful planning of military supplies, and he knew well that he had to avoid sieges and plan rapid strategic marches. But his most insoluble

problem was the provision of fodder for his 250,000 horses. (van Creveld, pp. 40–74)

Rations for Qing troops, by these measures, seem small: an average of 1.08 pounds of bread and noodles and 1.85 ounces of meat per man per day, compared to more than two pounds of bread per day for European soldiers. But these were preliminary figures, to be supplemented by purchases of animal products on the markets after the army's arrival. Mongolian and Manchu soldiers in the Chinese army could get a substantial caloric supply from steppe products like mare's milk, horse's blood, horsemeat, and marmots. (Masson Smith, Jr. 1982). Most important, the enormous grasslands of Mongolia were more than adequate to feed the Qing army's horses. Estimates of the area needed to support a horse for one year vary enormously, for example, from seven acres in tenth-century North China to 25 acres in the Hungarian plain to 120 acres in nineteenth-century Mongolia and Turkestan. (Smith 1991; Lindner 1981; Sinor 1972) In Western Europe seven acres of green fodder could feed one horse for a year, much like North China. (van Creveld p. 34) In any case, the 1.5 million square kilometers (371 million acres) of Mongolian grasslands, which supported 1.15 million horses in 1918, could potentially provide grazing lands for a very large number of horses. Western Europe clearly had no such large pasture lands, and this was the major limitation on its armies' mobility. The Qing in these campaigns achieved an impressive and believable logistical triumph by combining careful exploitation of grassland resources with convoys shipped from the interior.

What allowed this great development of logistical support? The major change in the socio-economic structure of interior China in the eighteenth century was the extensive development of a commercialized agrarian economy on an empire-wide scale. Agrarian specialization, the spread of money, the multiplication of market towns, growing local and interregional trade, the proliferation of brokers, peddlers, and long-distance merchants, all began to knit together the villages and regions of China on a larger scale than ever before. We can test the degree of growing market integration in China at this time by examining memorials which report the monthly prices of major grains in the 150-odd prefectures of interior China from 1746 to 1911. Correlations between price series from adjacent prefectures are remarkably high, even in the underdeveloped Northwest. (Perdue, in Rawski and Li 1992) Price correlations also define a recognizable marketing structure linking prefectures to each other.

The campaigns of 1755–60 drew most of their grain supplies from Gansu, and the army purchased its supplies on the market. The local effect was to drive prices up by a factor of three, but so far as I know at this point, no major subsistence crisis ensued. Mobilization of the ever-normal granary stocks, plus relief campaigns, combined with the more important impact of the private grain market to ensure regular flows of grain following established marketing links. In this way the establishment of the commercial grain economy of the Northwest served as the foundation for the conquest of Inner Asia.

The Zunghars, by comparison, were severely deprived of food resources. Nomads do not depend primarily on agricultural settlement, but they often combine pastoral and agricultural forms of production. A small population could survive on grassland production alone, but as the state grew, incorporating the oases of Turkestan and the lamaseries of Tibet and Qinghai, it turned more bureaucratic and more dependent on its settled bases. Russian and Chinese supplies through tribute and trade systems became increasingly critical components of the expanding state. The Zunghars replayed the dynamic of a nomadic empire symbiotically using a strengthened Chinese empire as their major resource arena, a repeated pattern seen in the parallel rise of Han and Xiongnu, Tang and Uighur, or Song and Jurched. Unlike their predecessors, the Zunghars had a second empire (Russia) to prey on. But both the Chinese and Russians manipulated trade and food weapons to lure away allies from the Zunghars, and ultimately, to starve them into submission.

The Muscovite state faced similar problems of provisioning created by the expansion of its military and bureaucracy. In the region south of Moscow in the mid-seventeenth century, it solved them by settling soldiers on newly cleared agricultural lands, creating a series of provincial granary stores, and levying a household grain tax on the region. (Stevens 1995) All seem very analogous to Qing policies, but my current limited and rather chauvinist impression is that the Qing state was much more successful than Muscovy. Russian state provisioning remained almost exclusively military; there seems to have been no concern about sparing the civilian population the burdens of provisioning or with giving it regular relief. The Muscovite grain trade had such a low level of commercialization that market purchases only rarely proved possible. Agricultural yields improved in the southern region, but at the cost of the extension of serfdom. More work is needed to explain why similar imperatives of expanding agrarian states created different means of grain extraction.

Our discussion so far extends beyond personal agency to longer-term structural developments. But it remains rooted in material interests. Explanations to this point invoke only practical reason. But hegemony requires cultural as well as material resources. As the Chinese proverb has it, 'You may conquer the empire on horseback, but you cannot rule it on horseback'. Permanent control of Inner Asia required symbolic as well as material investment.

III. The Hegemony of Inscriptions

In the mid-1970s, Bruno Latour, a young French anthropologist, entered a scientific laboratory in the United States. (Latour & Woolgar, 1986; Latour 1987) There he found large numbers of people busily engaged in—writing. They created scientific papers, wrote down numbers seen on laboratory instruments, collected printouts of graphs, and tabulated numbers in charts. Eventually they published and distributed a small fraction of this written material, claiming that these inscriptions represented new 'discoveries' of 'science' about the 'natural world'. Latour wanted to understand what beliefs characterized this community and what gave their beliefs such power over outsiders to the laboratory community that they compelled almost irresistible conviction. He concluded that the essence of the process was the mobilization of 'inscription devices'; the entire array of scientists, technicians, administrators, secretaries, machines, buildings, publishers was aimed at the goal of producing inscribed knowledge. There was nothing mysterious about the process; it was simply a special form of the social production of knowledge.

What if an obstreperous outsider tried to resist the efforts of this community to convince him that they had discovered new facts about the natural world? First he would be shown a scientific paper, clotted with footnotes, charts, numbers, and impenetrable prose. The paper mobilized a community of references to past work and inscriptions obtained from laboratory devices against the questioner. Suppose he refused to believe some of the data cited in the paper? Then he would be shown further instruments of torture. The laboratory devices themselves are brought out: now, if you question their accuracy, you must either learn the technical details of the machinery or build yourself an equivalent machine. At each stage, the cost of resistance rises. If you push your skepticism farther, you will eventually have no choice but to build an entirely new laboratory yourself.

Few people have the time, skill, or money to do this. Therefore, scientific communities in a given field, tightly bound by commonly understood rules, common training, and investment in costly laboratories, almost always achieve effortless domination over lay outsiders. For Latour, the 'superiority of science' lies not in special rules of scientific method (no specific rules can be devised that are not routinely violated in scientific practice), superior intellect of the scientific researcher (lone ranger scientific heroes are a media myth), or in unusually lawlike behavior of the natural world as opposed to the human. It lies in the near monopoly of inscription devices by the researchers and their consistent deployment to achieve domination over resisters.

Latour's approach, part of a school studying the social production of scientific knowledge, has, unsurprisingly, generated heated controversy. (Woolgar 1988; Bunge 1991) Without wading into the midst of these debates, I return from this remote intellectual territory with a few nuggets of insight that may be of use to students of agrarian empires. Latour's metaphors are explicitly military:

> By and large, technoscience is part of a war machine and should be studied as such. . . . To fully grasp it, it is necessary to consider more generally the *mobilisation* of resources, whereby I mean the ability to make a configuration of a maximal number of allies act as a single whole in one place . . . Most technoscience is concerned with facilitating this mobilisation of resources. (Latour, 172; emphasis in original)

Latour gains intellectual leverage by applying the military terminology of combat, strategy, deployment, and organization, to the seemingly pacific terrain of the quest for truth. Thus he produces a shock of estrangement, a necessary maneuver to uproot us from unexamined assumptions about the heavily science-laden culture we live in. Here I repatriate the military metaphors of Latour back into historical terrain in order to produce an analogous shock. I want to demonstrate that military conquest was not sufficient for Chinese domination of Central Asia. Long-term hegemony over the region depended on convincing both Han and non-Han subjects that the conquest was 'natural', foreordained, and irresistible. The Chinese state's military capacity could dominate the nomads in the short term, but it did not have decisive long-term superiority. Where the bureaucratic empires of China always had superiority was in their inscription apparatuses. The vast flow of written communications from the field to the capital and back tied together the Manchu, Han, and Mongolian servants of the Qing in a network of messages

which presupposed a common exposure to a written language. They need not have been literate in classical Chinese: many official documents were issued in both Chinese and Manchu, some in Mongolian as well. It was the predominance of the written language, not the Chinese language in particular, that ensured Qing hegemony over the steppe.

The nomads, by contrast, relied primarily on oral communication, in, for example, the frequent conferences between Galdan and his allies. The unreliability of the Zunghar coalition was a result of its personal nature: the various tribal chiefs among the Oirats shared little of a common heritage in written form. The legacy of Chingis Khan was too distant to unite them. Oral traditions had faded. A Khan succeeded if his material gains in battle attracted followers to share the loot; but if he lost once, they dispersed.

The power of writing is demonstrated by the efforts of Central Asians to resist it. To resist the scientist you must build your own lab; to resist the Chinese bureaucratic empire you must design your own script. Almost all of the major steppe empires from the Turks of the seventh century forward created their own writing systems. The Turkish Orkhon inscriptions, the Xixia kingdom's script, the Uighur and Jurchen scripts, the Mongolian script, and finally the written Manchu language were techniques used to assure an autonomous governmental structure, regularize communications, and hold off the encroachments of the settled Chinese. We should not see the development of these scripts as the natural outcome of a general process of 'sedentarization' or assimilation. The goal of writing the Central Asian languages was not to become more Chinese, but to enforce the boundary. Here, of course, was the contradiction: how can you use the enemies' weapons to fight him off? This contradiction was faced in different ways by all of China's East Asian neighbors.

Some states adopted the Chinese character system, but created new characters for their language, like Vietnamese *nom* and the still mainly indecipherable Tangut script. The family history of Chingis Khan survives in a Mongolian version transcribed with Chinese characters used for their phonetic values only, as does the early Japanese poetry collection, the Manyōshū. A more successful approach in Central Asia was to adapt the syllabic script of Sogdian, the prime trading language of Central Asia in the medieval period, to the Manchu and Mongolian language. But devising a script did not create a literary tradition. Mongolian writings remained mainly

family chronicles or biographies, private writings for personal genealogical use, not means of communication of a bureaucratic state. Manchu survived until the fall of the Qing as a translation language, but not a living scriptural tradition after the eighteenth century. The overwhelming weight of the Chinese classical tradition embedded in its script encompassed its rivals or pushed them to the periphery.

Note that the Qing state had the same advantage over its native Han peasant population. During the major uprisings of the mid-nineteenth century, the Manchu dynasty saved itself by enrolling the literate Han degree-holders to organize the local militia groups that fought off the mass Taiping armies. What held them together was their common background in the classical Chinese tradition, their school and family ties, and their mastery of the classical script. Once again, the Taiping rebels, too, tried to devise their own, similar script to counter the classical hegemony. They also experimented with wall-paintings and popular drama to bypass the scriptural communication system entirely. Communist party organizers used both tactics during the resistance war of the 1930s: scriptorial simplification and the use of drama and visual messages.[9]

Where the mid-Qing surpassed all its predecessors was in the density of its communication network. Even though the total size of the bureaucracy was not much bigger than 500 years earlier, the quantity of written communication was much larger, and constantly expanding. Beatrice Bartlett's magnificent new study demonstrates in great detail the intricate functioning of only one piece of this gigantic inscription machinery: the Grand Council. (Bartlett 1991) The inscription apparatus included officials, record keepers, scribes, paper makers, ink manufacturers, the buildings of the Forbidden City and ancillary institutions, and a whole array of artisans: special craftsmen to design the sandalwood boxes, the gold brocade, the vermilion ink, and stones for the emperor and his advisors.

This machinery created a nearly insurmountable obstacle for illiterate peoples who wanted to carve out autonomous cultural space. Message-passing was not merely a tool for transmitting orders to military conquerors. It aimed to create an all-encompassing symbolic space that reinforced the inevitability of Qing domination. In the final stage, paper inscriptions were transferred to stone, engraved in

[9] The recently discovered women's syllabic script of Hunan is another example: resistance to patriarchy by creating a separate written and oral domain of culture. (Silber 1994)

giant stele all over the country, demonstrating the universality of the imperial will which reached to every temple, school, government office, and *pailou* (memorial arch) in the country. The Qing rulers covered the country with multilingual inscriptions in Chinese, Manchu, Mongolian, Tibetan, Uighur Turkish, and other languages. They expanded on the precedent set by the last Yuan emperor, who ordered the construction of the famous multilingual arch at the Juyongguan gate of the Great Wall. (Waldron 1990, p. 146) Thus they reinforced their claim to encompass all cultural systems under one universal emperor with many faces.

The Qing mobilized other cultural battalions. Monumental architecture built in mid-Qing Beijing included Tiananmen gate in front and the Tibetan Dagoba behind the Imperial Palace. Multilingual lexicons asserted the Qing ambition to penetrate the knowledge of remote territories. Ethnography, another colonialist tool, flourished in the eighteenth century in the guise of encyclopedias of the customs of conquered non-Han peoples. It continues today in China in the guise of anthropology and minority studies. Anthropology is perpetrated by Han Chinese on minorities, but is not reflexively applied to the Han themselves. (Neither, of course, until very recently, has Western ethnography been turned back on Western society itself, as Latour has done.) (Clifford and Marcus 1986)

How distinctive was the Qing practice? I cannot say for sure at this point, but I have the impression that the Tsarist state used writing for bureaucratic and military communication, but seldom for cultural domination. Its presence in Siberia and Inner Asia was in the form of isolated garrison towns, and it did not aim to penetrate culturally the surrounding peoples until the nineteenth century. Its control was more coercive than hegemonic. But this topic remains to be investigated comparatively. (cf. Slezkine 1994)

After the troops had left, the historians and archivists moved in. Hegemony over the past was the final act of naturalization of the contingency of conquest. Again, Latour's view of science can be applied here. While scientists are pushing the envelope, they are constructing new facts, interpreting readings that are inconsistent and ambiguous. After consensus is reached, however, the newly constructed 'fact' is inscribed as unquestionable, placed in a tradition of discovery, and—tragically for historians—nearly all traces of groping, argument, errors, wild surmises, and failed experiments, are erased. The new fact or theory now looks like a natural outcome,

obvious to everyone. Those who resisted it now look deluded. The new knowledge is reproduced by being taught to beginning science students. If they are not 'stood up against a wall and shot', in Barrington Moore's brutal version of the reproduction of knowledge, they are at least forced to wade through very ponderous textbooks. Thus the juggernaut of science presents its relentless accumulation of knowledge.

Historians of science have, with much effort, succeeded in uncovering many of the eradicated paths. They pore through lab notes, diaries, unpublished memoirs, and oral histories in order to recapture the contingency that existed before the 'right' solution was found. They must struggle constantly against the Whig interpretation, endemic to the history of science more than any other historical field, which follows the inevitable unfolding of a path of reason.

The historian of China has an equivalent task before him. Nationalist historiography, Marxist or anti-Marxist, imposes the same Whig interpretation on the expansion of the empire. The conquest is made to seem inevitable, the resisters are turned into 'bandits', the boundaries are seen as sacred, the incorporated peoples as inescapable parts of modern China. This process of naturalization, however, did not begin with the twentieth-century formulation of modern Chinese nationalism. The eighteenth-century Qianlong emperor gave his nationalist successors a great head start. He had compiled collections of documents glorifying his Ten Great Campaigns (*Shiquan*). The imperially sponsored collection, *Pingding Zhunge'er Fanglue* (Record of the Campaigns to Pacify the Zunghars), which covers the three Central Asia campaigns from 1716 to 1760, comprises 171 Chinese volumes (*juan*), 3000 pages in reprint, or approximately 1,400,000 characters. This collection is only the middle stratum of a huge documentary iceberg. At its base are the voluminous archival sources, and at its tip is the most widely read survey of the campaigns, Wei Yuan's *Shengwuji* (Record of Sacred Military Victories), and its popularized versions in movies, novels, and comic books today.

Inscriptions, scientific or historical, do not survive unless they are repeatedly cited, rewritten and incorporated into other accounts. Knowledge as a social process requires further transmission to other communities through the generations. New communities will inevitably change the message, misread it or deliberately distort it for their purposes. Other things equal, however, where contested accounts exist, the dominant one will usually be the one that

mobilizes the largest community of literate people. Other versions will be relegated to folklore, underground traditions, or hidden transcripts.

James Scott has argued strongly against acceptance of the hegemony thesis. Even though a conqueror appears to have monopolized the space for symbolic expression in public, subordinated peoples always find, he argues, places 'off stage' or underground to express the 'hidden transcript' of resistance to domination. (Scott 1990) Even though the Qing rulers crushed the Zunghar state, exterminated the population, eradicated their ethnic identity, and made strenuous efforts to broadcast the legitimacy of the conquest, we should not assume that all dissident voices disappeared. It is better to view Qing colonial activity as a hegemonic *project* with incomplete results than as a successful effort at total monopolization of cultural space. In fact, in the late nineteenth century, Russian visitors to Mongolia discovered folk poetry that praised the heroism of the Zunghar princes who resisted Qing rule. (Vladimirtsov 1927) Was this underground tradition kept alive for two centuries, or renovated in the late nineteenth century shortly before Mongolia regained its independence? The Zunghar resistance and its memory, in either case, was available as a cultural resource in opposition to the Chinese continual reaffirmation of the legitimacy of conquest. Recovering their history separate from the dominant Chinese tradition requires innovative methods: the use of folk poetry, oral tradition, or ethnography, for example. But the sheer bulk of the Chinese records alone allows many possibilities for reading against the record, multivocality, and deconstruction.

Conclusion: Three Views of the Conquest

We opened with a narrative sketch of the clash of aggressive imperial leaders. Secondly, we examined their necessary dependence on social and economic resources, interpreting the outcome as the result of longer-term processes transcending individual agency. Finally, we found inscription processes, sometimes used consciously, but often acting as unintended consequences.

Stephen Jay Gould cites the example of the panda's thumb as proof that natural evolution does not always lead to predetermined, functionally efficient directions. (Gould, 1980) It contains byproducts, evolutionary leftovers of particular contingencies of time and

place. The great Chinese bureaucratic system, rationalized to its highest extent in the course of eighteenth-century military campaigns, survives to this day as one of the great incubi of China's modern development. But if it is a historical creation, its end as well as its beginning is delimited. And all historical resources, monumental or literary, are repeatedly subjected to reworking—witness the transformations of Tiananmen from 1644 to 1989. In a modern world of collapsing empires, revived ethnic identities, trans-national and sub-national challenges open new possibilities of diversity or tragic conflict. Rereading the past alerts us to the open-ended character of social processes. Hence the importance of paths not taken.

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A Note on Sources

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Comments by Kangxi on Galdan are translated in Spence (1974), but only from Kangxi's Chinese, not Manchu language sources. Okada (1979) translates from Manchu excerpts from Kangxi's letters to his son during the Galdan campaign of 1696–97, but the most

complete translation from Manchu is the German one of Cimeddorji (1991). Bartlett (1991) describes the impact of Yongzheng's Zunghar campaigns on the formation of the Grand Council.

The main primary source for Kangxi's campaign is *Pingding Shuomo Fanglüe* (Siku Quanshu reprint, Taiwan, vol. 354–5), which compiles a large number of documents, most of which are also found in *Qing-shilu*. Likewise, for Qianlong's campaigns, *Pingding Zhunge'er Fanglüe* (Siku Quanshu reprint, Taiwan, vols 357–9, or reprint by Xizang Shehui Kexueyuan, 1990) compiles a huge amount of documentary sources. Chiba (1986), is an excellent popular Japanese account based on these two sources. Zhungeer Shilue Bianxiezu (1985, 1986) selects materials from the Qingshilu related to the Zunghars, and provides a short account based on these materials.

Recent Chinese studies include: Lai Fushun (1984), which analyzes military supply in all of Qianlong's ten great campaigns; Luo Yunzhi (1983) and Ma Ruheng & Ma Dazheng (1984). Other papers of mine (1989, 1990, 1991) examine other aspects of the campaigns. These will be incorporated in a forthcoming study of the expansion of the Qing empire into Central Asia.

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