

Mughals at War: Babur, Akbar and the Indian Military Revolution, 1500 - 1605

A Dissertation

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Abstract

This doctoral dissertation, *Mughals at War: Babur, Akbar and the Indian Military Revolution*, examines the transformation of warfare in South Asia during the foundation and consolidation of the Mughal Empire. It emphasizes the practical specifics of how the Imperial army waged war and prepared for war—technology, tactics, operations, training and logistics. These are topics poorly covered in the existing Mughal historiography, which primarily addresses military affairs through their background and context—cultural, political and economic. I argue that events in India during this period in many ways paralleled the early stages of the ongoing “Military Revolution” in early modern Europe. The Mughals effectively combined the martial implements and practices of Europe, Central Asia and India into a model that was well suited for the unique demands and challenges of their setting.

Dedication

This document is dedicated to John Nira.

Acknowledgments

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Introduction

The Mughal Empire was one of the great powers of the early modern era. It eventually grew to include almost the entirety of South Asia, from Afghanistan to the southern tip of India and from the Indus River to the frontiers of Burma. It accounted for more than a fifth of the world's total economic output. This great expansion in both political and economic wealth was due in large part to success on the battlefield. The Mughal Empire was a conquest state dominated by its military elite, with a government where military and civilian administration were closely interconnected. It devoted a substantial portion of its total resources to expansion and defense. War and readiness for war were essential elements in the shaping of the Mughals' political, social and cultural identity. Despite these basic facts there have only been a handful of books dedicated to Mughal military history ever written, with a gap of nearly a century between William Irvine's colonial-era study and the works of later scholars like Jos Gommans and Dirk Kolff. Most general works on the Empire devote relatively little space to military matters, and even dedicated works of military history in this period primarily address background and context—how an army was funded, its social and cultural foundations, the political implications of its expenses and actions. There has been little exploration of how the Mughals and their enemies actually fought.

The primary purpose of this work is to bridge that gap. It explores the creation of a new military system by the Empire's founder, Babur, its continued evolution under successors like Humayun and the Afghan usurper Sher Shah Suri and its growth into a mature institution during the reign of Akbar. The emphasis is on the practical aspects of Mughal warfare—technology, tactics, operations, recruitment, training and logistics. I argue that events in India during this period in many ways paralleled the early stages of the ongoing “Military Revolution” in early modern Europe. The Mughals effectively combined the martial implements and practices of Europe, Central Asia and India into a model that was well suited for the particular demands and challenges of their setting. Contrary to conventional wisdom based on the idea of Western exceptionalism, South Asia during this era was no backwater. It was a center of military innovation and achievement. Likewise, the Mughal Empire was not simply a loosely confederated medieval kingdom expanded to enormous size. It was a highly capable and organized early modern state, as evidenced by its successful integration of new concepts and technology and its mastery of complex systems.

This dissertation addresses a number of key questions:

- *Technology*: From what sources did the Mughals acquire new technology? How was it integrated and implemented? How did it affect tactics and the conduct of war?
- *Tactics*: How exactly did the Mughals conduct battles? How were these processes learned and/or invented? Did they change over time?
- *Operations*: How did the Mughals manage campaigns and other events larger than a single battle?

- *Recruitment and training:* Who fought in the Mughal army? How were they recruited and organized? How were they trained? How was military knowledge preserved and transmitted?
- *Logistics and support:* How did the Mughals support their forces in the field? How were weapons, equipment and other supplies manufactured or procured?
- *Comparisons:* India experienced a revolution in military affairs under the Mughals. How similar was this process to the European “Military Revolution?” How did it differ? Why did India and the Mughals evolve differently and why did they fail to reach the “mature stage” of their military and political transformations as Europe would do in the 18th century and beyond?

The text starts with a chapter on theory. The second chapter is devoted to narrative. The succeeding chapters are thematic, covering different facets of the Mughal military system.

- Chapter 1 places the Mughals within the context of existing theory and literature. It discusses the evolution of concepts such as the Military Revolution, Western Way of War and Gunpowder Empires and how those theories support the idea of emerging European exceptionalism in the early modern era and corresponding qualitative deficiencies in contemporary non-Western military establishments. It also examines the first efforts to expand the Military Revolution narrative to include similar events in Asia. I assess the military historiography of South Asia in general and of the Mughals in particular and argue that this body of work has two important flaws. It mostly focuses on the context of warfare instead of its actual execution, and it greatly underestimates the military achievements of the

Mughal Empire and the magnitude of the revolution in military affairs that took place in India during its foundation and consolidation.

- Chapter 2 relates the essential narrative of the early Mughal Empire. It sets the stage, describing the important developments in military technology and practice in Europe, Central Asia and other parts of the world that would greatly influence later events in India. It recounts the career of Babur, the founder of the Mughal Empire, recounting his growth as a commander and his eventual adoption of new technology and tactics. The chapter describes Babur's conquest of India, the reversals suffered by his successor Humayun, the rise of Sher Shah Suri and the eventual re-conquest and consolidation of the Empire by Akbar. It explains how a new military system emerged and matured over the course of these events.
- Chapter 3 discusses technology and weaponry. It starts with "traditional" edged weapons and armor and then moves on to missile weapons, which were most profoundly affected by the introduction of gunpowder. It describes the evolution, role and capabilities of bows, crossbows and eventually, the musket. The chapter also discusses the various types of artillery introduced during this period, including heavy siege cannon, lighter field pieces and more novel weapons like "camel guns," rockets and grenades. I argue that the large number of missile weapons available—both small arms and artillery—and the resulting volume of fire on Indian battlefields profoundly altered tactics.
- Chapter 4 covers tactics and operations. It discusses the personnel employed by Mughal armies—both cavalry and infantry—their roles and how those roles evolved. It explains the traditional Central Asian tactics initially used by Babur

and how he modified these methods after the introduction of gunpowder weaponry. The chapter describes how Babur's system was further refined by Akbar as the Mughal military machine continued to grow. It includes a number of examples from specific battles and campaigns to illustrate this process. I argue that conditions unique to India caused tactics to evolve differently than in Europe during this era. An abundance of trained archers—especially horse archers—and the large numbers of missile weapons available—not just bows, muskets and conventional artillery but also highly mobile and lethal devices like rockets and camel guns—created a battlefield saturated by fire. This environment precluded the development of linear formations and forced an emphasis on small unit tactics, field fortifications and the tactical defensive. The remainder of the chapter describes how the Mughals managed naval operations, sieges, counterinsurgency and guerrilla warfare.

- Chapter 5 describes recruitment and training. It discusses how the Mughal army was organized, the various classifications of officers and enlisted men and how these soldiers were recruited. It explains what sort of people actually joined this organization and the role of the India's military labor market and its martial ethic. The chapter describes how soldiers prepared themselves for war. It examines the role of combative sports like martial arts and hunting in both the physical and mental preparation of warriors and the creation of a unifying martial culture. It continues on to assess the role of more formal military training, drill and maneuvers and concludes with a discussion of more intellectual exercises like strategy games and the preparation of military manuals and other instructional

literature.

- Chapter 6 is devoted to logistics and support. It explains the role of various support personnel like pioneers, porters, craftsmen and engineers. It describes how the Mughal military camp was organized and how the Empire kept its troops fed, supplied and sheltered in the field and how it manufactured or procured their supplies and equipment. The chapter also discusses how they handled medical care for the wounded and sick, dealt with prisoners, performed police duties and gathered intelligence.
- Chapter 7 is a brief conclusion. It assesses the Mughals' military achievements and compares them with the contemporary developments in Europe that have been described by other scholars as the exemplar of a "Military Revolution." I recount how the Mughal military system, shaped by its unique environment, evolved differently than its Western counterparts. I also examine possible reasons for its ultimate failure, including the decline of the horse archer and technological limitations. The chapter ends with a discussion of the Empire's decline and fall—an outcome that led later historians to question and discount its previous accomplishments. I conclude that contingency and human error, not inherent flaws, were the primary causes. Most problematic were the afflictions of success. The Mughal Empire eventually achieved a position of such dominance that it was no longer driven to evolve and innovate. When it was finally torn apart by mismanagement and internal divisions, it left a vacuum too profound for any of its Indian successors to fill.

This work addresses significant omissions in both military historiography and the

historiography of South Asia in general. Hopefully it will stimulate further examination and discussion of not only the Mughal military system and Indian warfare in the early modern period but also of the ongoing technological, social and intellectual developments in the region. The Mughal Empire should take its deserving place as one of the major players in a world moving slowly but surely towards modernity.

Chapter 1: A Mughal Military Revolution?

The aging general looked on and saw his doom advancing towards him across the plain. All the clans and tribes of the enemy were arrayed there, an untold multitude of warriors fierce and well-armed, adorned in savage finery and shouting for the blood of the invaders. As one survivor later recounted, “like ants they swarmed... thousands upon thousands.”¹ How many were there? 100,000? 200,000? No one seemed to know. Later chroniclers would suggest that the commander was prone to exaggerate the number of his enemies as a way to magnify his achievements and prestige. At this moment however, any errors in calculation were more likely due to inexperience than to vanity. Even after more than four decades of campaigning, he had never seen an army nearly as large as this. He had fought and led in almost every possible capacity—as a knight, as a mercenary, as a brigand, even as a prince—but once the inevitable happened and his terribly outnumbered army was swept away, the best he could hope for was to leave his last battlefield as a captive. More likely than not, he would be buried there.

It had seemed like a perfect plan. The great kingdom to the south—a land of legendary wealth and wonders—was in disarray. His spies had informed him of strife between the nobles and their king. Soon enough some of those same chieftains approached him to enlist his aid in overthrowing a ruler they now saw as an insufferable tyrant. The commander, however, had much greater ambitions than that. He meant to take

the kingdom for his own and claim power and riches almost beyond imagination. At first things went well. From advance bases in the northwest his forces raced towards the enemy capital. Not far from that city, the king moved to intercept them. The royal army, however, was greatly weakened by the absence of disaffected nobles and their contingents. The loyalists were routed and their sovereign died on the battlefield. The commander was now a king—but not for long. Another great native warlord, who had long aspired to claim the throne for himself, saw the invasion as a golden opportunity. He mobilized all the clans and war bands of his tribal confederation along with the remnants of the rebellious nobility and marched on the capital. Less than a year after his conquest, the new ruler received word of a vast horde approaching from the west.

Now the commander faced the end of all his dreams. At the last moment, he turned to his God for assistance. A man well known for his vices and a self-confessed drunkard, he swore to never drink again if the Lord saved him and his army. Soon, however, the time for prayer was over, and battle was joined. The enemy launched a furious frontal assault. For a time it appeared that they would prevail through simple brute force. The commander, however, had one precious advantage—gunpowder. His cannon and muskets inflicted terrible punishment on the enemy as they advanced. Even though they had never faced such weapons, the native warriors fought on with reckless courage. Yet in the end, mere bravery was not enough to overcome firepower and the invaders' superior discipline. As the assault began to slacken, the commander's infantry left the shelter of their entrenchments and began to methodically push the enemy back. At the same time his cavalry emerged from the rear and swept around the flanks. These coordinated maneuvers left the enemy exposed on three sides, and they were forced to retreat. As

their casualties mounted, that retreat became a rout. The native army scattered, and its leader fled for his life. At the end of a long, long day, the commander had not just survived—he had conquered.

Who was this great captain? Hernan Cortes? Francisco Pizarro? Afonso de Albuquerque? This battle involved none of those men, and it did not take place in Cuzco or Aceh or at the gates of Tenochtitlan but at the small Indian town of Khanua, on the approaches to Delhi. It was fought by another great figure from the age of exploration and conquest—one whose story and achievements are even more remarkable. Zahir-ud-Din Muhammad, better known as Babur, was a descendant of Timur and Chingiz Khan. Denied the Central Asian kingdom he had claimed as his birthright, he instead launched an invasion of India in the year 1526. There he defeated the last dynasty of the Delhi Sultanate and Rana Sanga's Rajput confederation, enemies far more formidable than the empires of the Aztec or the Inca. This he did against odds as terrible as those faced by the conquistadors, leading a force that at times may have been fewer than 10,000 against vast armies of native warriors—men who were armed with steel weapons, horses and fully functional immune systems. Babur's conquest yielded more than wealth and personal glory. It also laid the foundations of the Mughal Empire, one of the great powers of the early modern world.

The creation of the Empire was more than a political transition. The achievements of Babur and his successors—and even those of their enemies—irrevocably changed the nature of warfare in South Asia. A new style of combat built around gunpowder, infantry and combined arms tactics replaced an old order based on the warhorse and elephant. This process changed not only how Indian armies fought on the battlefield but how they

were assembled, deployed, supported and financed. As these armies evolved they posed unique challenges to the states that maintained them and required the creation of new civilian institutions—political, administrative and economic. The transformation reached its culmination in the 17th century, when the Mughal Empire emerged as what was arguably the world’s most powerful state—guarding borders from Central Asia to the southern tip of India, keeping more than a million soldiers under arms and controlling nearly a quarter of the world’s economic output. What had started as a ragtag band of fallen nobles and soldiers of fortune armed with a few newfangled weapons and clever tactics had become the “Moguls” of myth and legend, regarded with awe and fascination by their Western contemporaries and enshrined in their languages as the very embodiment of wealth and success.

Surprisingly, however, the Mughals did not maintain such a prestigious place in the estimation of the West’s military historians. Their eventual decline and fall, followed by the colonization of India, had much to do with this. More than two centuries after Babur, the soldiers of the British East India Company began to dismember what remained of the Mughal Empire. In a series of battles they defeated the chieftains who had arisen to rule its various provinces—warlords whose allegiance to the Emperor was more theoretical than factual. Time and again small forces of Europeans and European-trained Indians triumphed over seemingly impossible odds, routing vastly larger native armies, just as Babur had done at Panipat and Khanua. In 1757, at Plassey, a contingent of 3,000 British soldiers and sepoys defeated the supposed Mughal governor of Bengal and his army—a force that may have exceeded 50,000—in an engagement that at times seemed closer to low comedy than legendary battle. Beyond setting the stage for a new order in India, this

engagement and others like it overshadowed the earlier accomplishments of the Mughals in the collective memory of the West. Indian failures at the onset of the colonial era were assumed to be the culmination of decades and centuries of ineptitude. The earlier, revolutionary achievements of Babur and his successors would be overlooked in a narrative of the early modern period emphasizing an exclusively European “Military Revolution.”

The Military Revolution is a theory intended to explain the military, political and economic transformation of Europe during the Early Modern period and by extension explain that region’s eventual rise to world dominance. The timeframe and specifics vary from author to author, but the basic principles remain the same. In the period between the 14th and 18th centuries a series of innovations in military technology and organization reshaped not only the conduct of warfare but also the whole of European society. These changes included the introduction of more lethal missile weapons—especially those powered by gunpowder—and the resulting rise of infantry as a decisive force. There was also a new science of organization at all levels, from drill and small unit tactics to logistics and grand strategy. The management of such sophisticated machinery and complex systems demanded standardization and extensive training—hastening the emergence of a truly professional military class. The human and economic costs of maintaining these new model armies led to the development of more advanced methods of civil administration and social control—the elements required to create truly centralized “military-bureaucratic” modern states. Order led to prosperity as unified nations created more efficient systems of industry and trade. Emerging European powers

refined their tools of war, commerce and statecraft in their conflicts with each other—and then used them to impose their will on the Americas, Africa and Asia.

The idea of the Military Revolution has roots dating back to at least the early 20th century, and is hinted at by authors like Hans Delbruck and CWC Oman. Its first formal presentation, however, was in Michael Roberts' seminal essay, "The Military Revolution 1560 – 1660." Roberts argues that tactical innovations and the development of linear formations increased the relative power of infantry, allowing for and eventually mandating the development of larger and larger armies. Rationality and discipline became essential qualities, both at the army level where an increased level of competence was required to master new doctrine and tactics, and at the state level where governments had to develop new institutions and expand their powers in order to manage growing manpower and resource demands. Military advances also fostered economic advances. The tremendous expense of this new style of warfare encouraged the development of banking and credit. Some scholars, most recently Jan Glete in his study *War and the State in Early Modern Europe*, even describe acts of violence and protection as quantifiable commodities that are the basis of negotiation and contract between the rulers and ruled in emerging "fiscal-military states." New career opportunities also opened for individuals outside of traditional elites, not just as soldiers but in a number of support capacities—as clerks, logisticians and technicians.

Other authors produced revised versions of Roberts' theory. The most notable is Geoffrey Parker. In the essay "The Military Revolution 1560 – 1660: A Myth?" and his later book-length treatment, he argues that Roberts' timeframe is incorrect and that significant changes were already underway by at least 1520. He claims that the tactical

innovations Roberts has credited to figures like Maurice of Orange and Gustavus Adolphus actually had their origins in the Spanish military practice of this earlier period. Parker also gives special emphasis to the emergence of new *trace italienne* fortresses. He asserts that these structures lie at the root of a number of the revolution's signature elements. Artillery and infantry were required in large numbers both for defending and besieging them. Their extreme cost forced governments to adopt new administrative and economic tools. Their durability encouraged the adoption of conservative, defensive-minded tactics.

Jeremy Black, in his article "A Military Revolution? A 1660-1792 Perspective" and book *European Warfare, 1494 – 1660*, diverges even further from the original timeframe. While acknowledging the importance of earlier developments, he argues that the truly decisive revolution happened during the creation of the *ancien regime* armies of the late 17th and 18th centuries. He cites specific developments such as close-order drill, flintlocks, socket bayonets, and more powerful field artillery that led to a definitive advantage for infantry over cavalry and fire over shock. More generally he argues that this is the period in which governments attained an effective monopoly on violence and technical advances became truly decisive. There was no longer a realistic chance for a technologically inferior force to prevail through superior leadership or motivation. Not coincidentally, this is the era in which Western armies and states finally achieved clear superiority over their Asian and African enemies.

Western superiority, even if it was slow in coming, is often described as an inevitable outcome of this process. Discussion of the Military Revolution is frequently accompanied by assertions of European exceptionalism and references to another

recurrent meme in recent military history—the “Western Way of War.” This is a theory devised to explain the rise to worldwide military and political dominance of Europe and, eventually, North America. This paradigm is most closely associated with Victor Davis Hanson, who outlined its basic tenets in his books *The Western Way of War* and *Carnage and Culture*. Hanson argues that key elements of Western culture provided a foundation for military prowess and that these values have persisted virtually without interruption since they were first expressed by the citizen hoplites of Ancient Greece.

In *Carnage and Culture*, Hanson uses a series of case studies to explore the cardinal virtues of Western soldiers and armies. Perhaps the most important of these is *freedom*. This is the concept of soldier as citizen and stakeholder, one who fights not merely out of obedience or self preservation but to protect the state of which he is an integral part. The armies of the West also fight with *discipline*. Teamwork is valued over individual prowess—it is the difference between simple warriors and true soldiers. *Rationality*, an outgrowth of rich Western intellectual traditions extending from Classical scholars to the Enlightenment and beyond, allows European armies to outsmart their foes. A devotion to problem solving leads to critical advances in tactics and technology. Closely related virtues are *initiative*, the ability to improvise in the face of unexpected events and *self-criticism*, which allows Westerners to learn from mistakes and turn rare defeats into a foundation for future victories. Freedom and rationality promoted the evolution of *capitalism*, an economic system that promoted innovation through competition and most efficiently turned resources into military strength. Westerners also valued *decisiveness*—the ability to achieve total victory and win a so-called “battle of annihilation.” While Western armies were fearsome in victory, they were equally resolute

in defeat. The states that they served showed remarkable *resiliency*, a synergy derived from other key traits—the devotion of free citizens, agile, flexible systems of government and commerce and the intellectual wherewithal to adapt to adversity.

A number of other authors have made similar claims. The most notable of these is John Keegan. In *A History of Warfare*, he argues that culture and war are inextricably connected. While Hanson emphasizes the individual's relation with the state—as its owner in the Western case and as its property in the East—Keegan describes the individual combatant more explicitly as a product of his culture. He asserts that, like religion and ethnicity, war was a cultural construction that actually predated the creation of the state. In its elemental form it had as much to do with taboo, myth and ritual as with self defense or material gain. Keegan contrasts “Western” and “Oriental” ways of war—the former based on directness and decision, the latter on evasion and misdirection. Central Asian nomads, the predecessors of the Mughals, figure prominently in this narrative, serving as the proverbial villains of the piece. Their mode of warfare is not just ultimately ineffective—it is seen as treacherous and even immoral. Keegan goes on to state that an essential source of the West's military superiority was its ability to adapt, to transform warfare from a cultural norm to a practical and constructive tool of statecraft. A system based on individuality, flexibility and aggression triumphed over societies that emphasized obedience, tradition and restraint.

Another related theory, as explained by William McNeill in *The Pursuit of Power* and elsewhere, describes so-called “Gunpowder Empires.” He asserts that while Asian powers such as the Mughals, Safavids and Ottomans achieved a superficial technological parity with Western states, they never completely integrated new inventions into their

military and political systems. Firearms and other modern gadgets were simply used as force multipliers for decidedly old-fashioned armies and administrations. Whenever an Oriental army encountered an immovable object—such as a fortified city—the great siege guns were brought out to smash it apart. Once that was done, the soldiers and their leaders returned to business as usual, going about their duties much as they had in centuries previous.

Such arguments have their problems. In light of the terrible challenge that they offered to the West, it is very difficult to write off the Ottomans as a simple “gunpowder empire.” This contradiction is often resolved by inducting the Ottoman Empire into the ranks of European states and including its accomplishments in the narrative of the Military Revolution, but such a solution cannot be applied to developments further afield. There were in fact parallel military transformations in regions not under the direct control of or in direct opposition to Europe. One of the most notable of these was the shogunate of Sengoku-era Japan. Geoffrey Parker, in his book *The Military Revolution: Military Innovation and the Rise of the West 1500-1800*, addresses Japan’s military transformation in considerable detail. He argues that while their gunpowder weapons were based on designs imported from Europe, the Japanese were informed consumers, not mere imitators. They adapted their new weaponry to the unique demands of their environment, and they were fully aware of the advantages and limitations of these devices. Parker notes that the Japanese independently produced such innovations as the artillery fortress and volley fire at the same time—or in some cases even earlier—than they were introduced in the West. Mastery of these technologies allowed leaders like Oda Nobunaga, Toyotomi Hideyoshi and Tokugawa Ieyasu to impose central authority and bring an end to the era

of warring states. The menacing presence of a unified, well-armed and expansionist Japan in turn prompted its neighbors Korea and Ming China to make great advances in artillery and naval tactics and technology.

In *The Asian Military Revolution: From Gunpowder to the Bomb*, Peter A. Lorge makes even more provocative arguments about the development of warfare in the East. He asserts that the military revolution in Europe was not the first of its kind—that a similar transformation, based on gunpowder, fortifications, expanding armies and their attendant civilian infrastructure had already taken place in Asia several hundred years earlier. “Early modern warfare was invented in China during the twelfth and thirteenth centuries,” Lorge bluntly states. “The significance of the European military revolution was that European military practice, and possibly government institutions as well, became more Chinese before they could take full advantage of guns.”² He argues strenuously against the prevailing wisdom of European exceptionalism and the assumption that inherent flaws in the cultures of China and other Asian societies led to their defeat by the West at the onset of the modern era. Their failures during this period were the result of very specific circumstances—as the pace of technological progress accelerated, even the subtlest of deficits and the slightest of mistakes could have catastrophic consequences. While the eventual outcome was decisive, it was by no means predetermined, and it did not invalidate Asia’s long previous history of military innovation and excellence.

While the reputation of early modern China and its East Asian contemporaries has undergone something of a rehabilitation in current military historiography, India has not been so fortunate. Many historians actually dispute whether or not an early modern

period ever happened in South Asia.³ Instead they describe a medieval era that continued uninterrupted from the advent of the first Muslim invaders to the foundation of the British Raj and its imposition of modernity. In this narrative, the development of the state in India remained stunted. Even the remarkable success of the Mughals fails to impress. As described by Stephen Blake, the Mughal Empire was a “patrimonial-bureaucratic” state in which power was primarily exercised through personal relationships. Loyalty was owed to and enforced by the sovereign and individual patrons, not a state or a nation.⁴ While it did produce complex military and civilian administrative systems, the Empire remained cumbersome and inefficient compared to its contemporaries in Europe or elsewhere in Asia. It was still a medieval kingdom, albeit a remarkably expansive one, led by unusually shrewd and perceptive rulers. As powerful as it was, it represented only an evolutionary change, not a revolutionary improvement over previous Muslim and Hindu regimes. This outlook is aptly summed up by Pradeep Barua, in his survey *The State at War in South Asia*. Without hesitation or qualification, he states that, “a military or bureaucratic revolution did not occur in the Mughal Empire.”⁵ Stephen Peter Rosen, in his comprehensive work *Societies and Military Power: India and its Armies*, also argues that there was no real transformation. He describes a military establishment that was both shaped and restrained by its social and cultural context—one that, unlike its European contemporaries, was unable to transcend these limitations and fully embrace new technology, new techniques and a new outlook.

Lorge focuses primarily on East and Southeast Asia, but he does devote several chapters to South Asia. While he is more charitable towards the Mughals than Barua or Blake, he still holds important reservations. He acknowledges the technological, tactical

and administrative achievements of the Mughal military and takes care to rebut the “Gunpowder Empire” theory. Mughal success was built on more than the brute force of massive siege guns and overwhelming manpower. It was based on the informed and flexible application of a number of elements—artillery, small arms, infantry, cavalry and logistics. Beyond their mastery of tactics and operations, the Mughals were also expert in their manipulation of politics and diplomacy. Despite these accomplishments Lorge is still skeptical about the rise of the Empire as a truly revolutionary development. He describes the Mughals as a military and political elite that ruled India effectively but that did little to influence its societies and its prevailing warrior culture. While their government controlled fortresses, ports, capital cities and other centers of military and economic power it did not profoundly change the lives of ordinary Indians. A surprising number of those ordinary Indians were already full or part time soldiers. Shaped by decades of civil disorder and low intensity warfare during the decline of the Delhi Sultanate, South Asian societies had become among the most militarized on earth. For members of all social classes, acquisition of arms and training allowed entry into an honorable and lucrative career—and for many communities they were necessary for simple survival. This warrior society continued on after the advent of the Mughals. Even at the height of the Empire, millions of Indians remained in arms—not on the Mughal payroll but in service to local leaders and remaining faithful to native martial traditions.

As Lorge, Barua and other Mughal critics note, no Indian power was able to impose a true monopoly on organized violence until the foundation of the British Raj. In their opinion the true South Asian military revolution did not take place during the Mughal “false dawn” but during the colonial era.⁶ The British East India Company—and to a

lesser extent, its native rivals and imitators—brought more than just military innovations. Standardization, drill, new technology and the growing power of infantry influenced outcomes on the battlefield, but political transformations—the marginalization of local leaders and their armed followers, the rise of a truly pervasive state and loyalty to laws and institutions instead of individuals—made the consequences of victory or defeat much more final.

The Mughals' failings in comparison to later achievements in colonial India and in Europe have led to an enduring skepticism about their place and significance in military history. They did not attain a true monopoly on organized violence. They did not create a fully centralized and standardized military system. They did not build a state and a national identity independent of any individual ruler or dynasty. Yet how fair is it to judge them against these standards—against the accomplishments of truly modern polities? A better test would be a comparison of the Mughals with their actual contemporaries, the European powers at the center of the Military Revolution debate. Did the Spanish and Dutch states described in Rogers' and Parker's narratives—or even the *ancien regime* governments of Black's "mature" military revolution—meet such high standards? In fact early modern European states were confronted by many of the same challenges and shortcomings faced by the Mughals. They had to contend with persistent factions based on ethnicity, religion and loyalty to individual leaders or dynastic families. Standing armies were by necessity supplemented with the contingents of nobles and other local notables and with recruitment of mercenaries and armed citizens. This meant that any monopoly on the organized use of force by central governments was tenuous at best. Criminal violence was endemic. Local rebellions and other outbreaks of civil disorder

were all too frequent. These problems only grew worse for European powers that maintained large land and maritime empires. At their most distant outposts, central authority existed more in theory than in practice. In the worst case, all of these factors converged to precipitate crippling civil wars. The Habsburgs endured decades of peasant revolts and religious strife, culminating in the catastrophe of the Thirty Years War. France was afflicted by Wars of Religion and the *fronde*. A struggle between the forces of Parliament and the monarchy, as well as the forcible assimilation of ethnic groups like the Irish and Scots, led to decades of mayhem in the British Isles. The absence of true nationalism or any other great unifying cause only compounded these conflicts.

The period is referred to as *early* modern for a reason. European states did not reach crucial milestones—unquestioned central authority, disarmed populations, citizenry united by a shared purpose and the rule of law over the rule of men—until much later. This process arguably was not complete everywhere until after 1815—or perhaps after 1848 or even after 1871. Yet the achievements of the 19th and 20th centuries are often applied retroactively when making comparisons between Western and non-Western states in the early modern era. It is assumed—not without good reason—that true modernity was latent in the European polities of the 16th and 17th centuries. Despite serious flaws and periodic reverses they were making progress towards truly integrated political, military and economic systems—towards what we now understand as the modern state. By contrast the Mughals are found wanting because they had no modern successors, because centuries later India would not match the political and military accomplishments of Western powers. Some unique inherent weaknesses in their state and system must account for these later failures. Is this really true? In this case does a *lack* of correlation

really imply causation? Was the decline of the Empire in particular and South Asia in general predetermined? Was there no way that a modern state or states could have emerged in that part of the world? Were there no contingent factors or other possible outcomes?

Despite later events, it can be argued that at its peak the Mughal Empire was more than competitive with its European contemporaries—that it was superior. It fielded larger armies, controlled greater populations and gathered more wealth than any of them. Beyond mere quantitative measures, it gained the unchallenged dominance in its region that the Habsburgs, Valois and Ottomans fought for but never achieved. It was a diverse, cosmopolitan state that successfully integrated a multitude of ethnic and religious groups and checked the growth of persistent factions. Trade flowed freely and subjects were governed by a code of laws as comprehensive and humane as any in the world. Social mobility, at least by the constrained standards of the era, was relatively high. Mughal government and administration were based on a meritocracy in which all offices short of Emperor were open to anyone with the talent and ambition to earn them. The Empire was a magnet for fortune-seekers and adventurers from all over Asia, Europe and even Africa—not just soldiers, merchants and craftsmen but also scholars, artists and missionaries. It was more than a great military and political power—it was a global center of economic and intellectual activity.

Even at its zenith, however, the Empire spawned many false hopes and unfulfilled ambitions. It never quite lived up to the high ideals proclaimed in public or written down on paper—the idea of a perfect state led by uniquely gifted, divinely favored ruler who offered his subjects tolerance, security, prosperity and justice. Eventually its expansion

was constrained both by the limits of geography and the limitations of human nature. Corruption, complacency, intolerance and poor choices by its leaders led to decline and eventually to dissolution. Yet it should be noted that many of its most powerful contemporaries—titans of the European military revolution like Spain, Portugal, Holland and the Ottoman Empire—fared little better as the early modern period gave way to the modern age. Even if they survived as states, they were reduced to the status of second or third rate powers. Western leaders were no more immune to the consequences of arrogance, misjudgment and inflexibility than Asian ones. If these states were judged by the same harsh standard usually applied to the Mughals they could very well be demoted to the ranks of failed “gunpowder empires.” Whatever they did to plant the seeds of modernity, it would be other nations that claimed most of the fruits of their accomplishments.

There is another essential reason that outside observers tend to discount the Mughals’ military achievements. In many cases they simply lack the data needed to make informed judgments about the Empire and its armies, and all too frequently they assume that this absence of information implies an absence of meaningful events. The current Mughal military historiography is skeletal at best. Most discussions on this topic are merely digressions or isolated chapters in works with a broad thematic or regional scope like the aforementioned books by Parker, Lorge and others or in general surveys of Mughal history written by authors like John F. Richards or Douglas Streusand. Even where dedicated works on Mughal-era military history do exist, they tend to focus more on the foundations of the Imperial army—political, economic and cultural—than its actual function. This reflects a more general trend in Asian and South Asian military

history, a specialty that has evolved in a very different direction from its Western counterpart. Over the course of the twentieth and early twenty first centuries, works of military history on European and North American topics have gradually shifted in orientation, from the traditional model based on operational narratives, accounts of important commanders and technological developments to a more nuanced approach based on economy, society and culture. Underlying structures and processes were emphasized over decision and contingency. These changes were paralleled by an increasing interest in non-Western subjects. As a post-colonial South Asian military historiography emerged it took on the so-called “new” military history as its default state. Later its practitioners would make tentative forays into the more tangible, practical realm of “traditional” military history, but this process is still incomplete and ongoing.

There has been only one significant book-length study of Mughal military history produced in the last century—*Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500 – 1700*, written by Jos Gommans. As its title suggests, this work focuses more on context than on specific events and actions. It describes the geographic and cultural setting, explaining India’s importance as a marginal zone between arid and fertile terrain and, correspondingly, between nomadic and sedentary peoples. Gommans explains how the Mughals adroitly mobilized and combined the assets of both of these regions. From the wilderness frontier came horses and the skilled nomadic cavalymen who could employ them effectively. The heartland provided agricultural products, manufactured goods, administrators and infantrymen. Resource management is an ongoing theme of this book. Gommans describes in depth how all of the necessities of military operations were sourced and assembled—manpower, muskets, artillery and other

weaponry, horses, elephants and assorted draft animals, ships and fortifications. This process involved more than the simple buying or seizing of goods—it required complex negotiation and accommodation with powerful individuals and entire communities. The Mughal army was sustained not just by logistics but by a complex web of political, diplomatic and cultural relationships. Yet while Gommans describes in great detail how the army was recruited, how it was supplied and equipped, the demands that it made on the state and its people and how these impositions were supported and justified he spends comparatively little time explaining how this army actually fought. This book is not about battles, tactics or operational history.

Several other books, not written specifically about the Mughal Empire, offer important insights about warfare in South Asia during this era. In *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450 – 1850* by Dirk A. H. Kolff explains how the highly militarized society that the Mughals encountered in India evolved. He describes a nearly lawless land in which communities of all sorts—towns, villages, guilds and religious orders—were forced to band together and arm themselves for mutual protection. Skill at arms, however, was more than a means of self defense—it was a vocation. Constant violence and low-level warfare meant a high demand for fighting men. Both individually and in groups, members of local war bands offered their services as mercenaries. For the Mughals and other organized states that claimed these territories, the overabundance of trained and half-trained soldiers was both a blessing and a curse. They were able to recruit these men in large numbers, vastly increasing the size of their own armies, but they also had to contend with the private militias of local leaders and communities. Most of these groups did submit to central

authority, but only with conditions. The threat of rebellion was used to negotiate concessions from the state. In turn the state had to exercise caution in its use of force. A rebellion suppressed was still a defeat—by destroying rebels on the battlefield the state also destroyed its own peasants, craftsmen and taxpayers. Kolff also describes how India's military culture promoted social mobility. Military service, even as an enlisted man, was an honorable and lucrative profession. Success as a soldier meant more than simple wealth—troopers often transcended humble origins by taking on the superior caste, tribal or ethnic identities of their units or commanders. This narrative makes it clear that the common conceptions of India as a pacifist society and one bound by irrevocable assignments of caste and identity are myths. Like Gommans, however, Kolff offers little discussion of how these fighting men actually performed their duties in the field during operations and combat.

Gunpowder and Firearms: Warfare in Medieval India, by Iqtidar Alam Khan, examines the introduction and development of muskets, cannon and rockets in South Asia from the 15th through the 18th centuries. It places India within a complex international network of military technology and innovation that linked Europe, Asia and the Middle East. While Indians adopted inventions from all of these places, they also refined and improved on them. Khan also confronts the Gunpowder Empires thesis. He argues that the Mughals and other South Asian powers imposed their will through mobility and mastery of the battlefield, not by attrition and sieges. Small arms and field artillery, not the great siege guns, were decisive. Such decisions, however, were not always binding. Khan explains that as gunpowder technology matured, it shifted from a centralizing force to a decentralizing one. When muskets and cannon were new to the

scene only the state had the financial and technical resources to afford and understand them. Over time the dispersal of knowledge and improvements in manufacturing techniques brought these weapons within the reach of regional rivals and local notables, with potentially dire consequences for central authority. This book is an invaluable reference, offering intricately detailed, encyclopedic coverage of the subject matter. Unlike other related works, it addresses function as well as context, describing how these devices were actually used in military operations. Khan's work, however, does not pretend to be a comprehensive analysis of the Mughal army. While it includes a number of examples and case studies from the Mughal era, it is both too narrow and too broad in scope to fit that description. It chronicles the evolution of a very specific element of military power—technology—over a period of over 400 years, from before the Empire's creation until well after its decline.

Existing works of military history—on the Mughals in particular and early modern India in general—do answer a number of important questions. Yet while it is important to understand the origins of military technology, how and why certain groups were recruited as soldiers, the cultural implications of warfare or the army's role as both beneficiary and creator of political and economic institutions, there is one essential question that has not been fully answered. How did the Mughal army fight? How did it conduct battles, operations and campaigns? How did it prepare for and wage war? How did all of the aforementioned technological, economic, political and cultural elements contribute to success or failure on the battlefield? John F. Guilmartin famously described the battlefield as the “vanishing point” in military history.⁷ While it may remain in the background, like the vanishing point in a painting, it is an essential element of the

composition, one that should inevitably draw the viewer's eye. In South Asian military historiography, however, the vanishing point often remains obscured. Traditional Western military histories were frequently burdened with an overabundance of detail and trivia on tactics, operations and doctrine, but newer works in non-Western fields often suffer from a lack of attention to these topics. It is not enough to understand how an army is built if there is no appreciation of how that army actually *works*.

The last significant work on the Mughal army as a fighting force was written more than a century ago. William Irvine's *The Army of the Indian Mughals: Its Organization and Administration* was published in 1903, during the heyday of both the British Raj and traditional European military history. This is a deeply flawed work, and its limitations were apparent even as it went to press. As a contemporary reviewer noted, "in its present form the work is less an account of the Moghul army than a rich storehouse of raw materiel to be used by future labourers in the same field... rather the work of a scholiast than a historian."⁸ It contains an encyclopedic listing of information on tactics, operations, doctrine, equipment and logistics but less in the way of substantive analysis. What arguments the author does make are hindered by poor methodology and the prejudice and preconceptions of his era. Data points from the entire history of the empire, along with information about later successor states and principalities that were Mughal only by the loosest interpretation, are drawn together with little logic or discernment to describe a single theoretical military organization. Irvine's assessment of topics like fortifications, field artillery and cavalry tactics draws upon examples centuries apart to make a single point, with little consideration of change over time.

His ultimate assessment of the Mughals' military capability—one shared even by many of his critics—is far from charitable. Irvine's work reflects the conventional wisdom of members of a colonial culture that based their judgment of the Empire mostly on encounters with its ineffectual remnants, from a time when what passed for a Mughal army really was "a body of mercenaries ready to desert or sell itself to the highest bidder... infantry a rabble of half-armed scarecrows of no account... cavalry fearful of sacrificing their horses... dispersing at once on the death or flight of their leader."⁹ During the 19th and early 20th centuries this outlook was shared by a number of the most prominent custodians of primary sources and most prolific producers of secondary sources on the Empire. The dire assessments of Irvine and his compatriots would negatively influence Mughal historiography—relating to matters both military and civilian—for many decades to come. Later works by Indian historians after Independence offered a somewhat more sympathetic outlook on the Mughals, but continued their predecessors' antiquarian approach. *Armies of the Great Mughals: 1526 -1707*, by Raj Kumar Phul, is a notable example. It serves as a sort of almanac of the Imperial army, and it is rich in facts, figures and useful anecdotes. Yet the book has very little in the way of argument or analysis. Jadunath Sarkar, another prominent Indian scholar, produced more critical and analytical works on the Mughal military, but his texts focus primarily on the later history of the Empire. They discuss the Empire's crisis, decline and fall, but they do little to explain the transformative events of its foundation.

Yet the scarcity of scholarly works about the Mughal army and, more specifically, its function in operations and combat is due to more than prejudice, disinterest or the disdain of academic historians towards "guns and trumpets" military history. The most

significant problem is a lack of sources. Unlike those of contemporaries like Habsburg Spain or the Ottoman Empire, the archives of the Mughal Empire did not survive its fall. While the Mughal bureaucracy produced literally millions of pages of correspondence, forms, requisitions and other government documents, most of that paperwork no longer exists. Cities—and the archives and libraries they sheltered—fared poorly during the chaos that accompanied the Empire’s collapse and the rise of British colonial power. Battles, riots and pervasive lawlessness and looting took their toll. Delhi, the capital and administrative center of the later Empire, was destroyed twice in little more than a century—by the Persians in 1739 and by the British in 1857.¹⁰ Two types of primary source tended to survive these disasters. The first is composed of canonical works—memoirs and biographies of Emperors and other great men, official and semi-official histories, literature and poetry—that were reproduced in quantity and that might be found on the bookshelves of many educated and prominent men. Given the realities of Mughal government and politics, books of this type often touched on military topics. These works, however, were frequently written by scholars with little personal experience of war or soldiering. Their descriptions of battles, campaigns and military life in general tend to be stilted and lacking in detail. The other type is composed of documents that were stored in remote areas, in the custody of regional administrators, landlords and local notables. Most of these deal with property rights, taxation, agricultural production and other topics subject to negotiation and dispute by local leaders and the central authority. Those same issues also prompted the creation of local militias and even the occasional outright rebellion, but accounts of such events do little to explain how the Mughal military at the center functioned.

Most of the army's practical documentation—muster rolls, supply requisitions, intelligence surveys, after-action reports, training manuals—has been lost. This paperwork did not rank high on the priorities of the British Orientalist scholars who were responsible for recovering primary sources from the ruins of the Empire. Such mundane but essential documents—requests for a hundred muskets or five hundred pairs of boots, reports on the whereabouts of an enemy column or instructions on how to best construct field fortifications or deploy pickets—did not have the same scholarly or intellectual appeal as Persian poetry, religious and philosophical theses or treatises on statecraft. Undoubtedly, many primary sources relating to military matters that could have been saved from the wreckage were instead left to rot.

Despite these problems, there is still useful data available. Among the hagiographies and thinly disguised works of propaganda there is intelligent commentary on military affairs by well-informed, observant individuals. In some cases there are surviving first-hand accounts by participants in critical battles and campaigns. While most of the paperwork from the Imperial government's military and civilian administrations has disappeared, a number of examples have been saved. While the task of producing a work of practical military history on the Mughal Empire is a difficult one, it is by no means an impossible one. It is more than possible—it is necessary. There are few more essential measurements of both an army's and a state's fitness than its ability to prepare for, prosecute and win wars. Warfare is an activity that occurs at the intersection of politics, economics, technology and intellectual development, and consistent success in that endeavor requires excellence in all of those fields. A thorough assessment of the Mughals' technical expertise, tactical innovations and operational art will provide much

more than antiquarian trivia or thrilling anecdotes for military enthusiasts. It will establish data points that can be used to establish the Mughal Empire's—and South Asia's—proper place within the early modern narrative of revolutionary military, political and social change.

Such an exploration, focusing on the foundation and consolidation of the Empire—the period in which its army evolved from a novel experiment to a mature institution—will confirm that the rise of the Mughals did bring about a revolutionary transformation in Indian warfare. This change is consistent with much of the process described by scholars of the Military Revolution and with the more recent, practical model used by military professionals, the so-called “Revolution in Military Affairs.” It certainly meets the latter's definition of a “discontinuous increase in military capability and effectiveness arising from simultaneous and mutually supportive change in technology, systems, operational methods, and military organizations” that takes place “when the potential latent in technological, conceptual, political, economic, social, and organizational changes that have occurred or are occurring is recognized and converted to augment combat effectiveness.”¹¹ This revolution incorporated technology and expertise from Europe, the Middle East, Central Asia and India. Its practitioners did not invent most of these components themselves, but they were informed consumers, not simple imitators. They cleverly combined and adapted all of these elements—artillery, small arms, infantry, cavalry, combined arms tactics, organization—to fit the particular demands and challenges of the South Asian setting, building not just powerful armies but the political, economic and administrative institutions needed to support them. While they may have had little understanding of the “Western Way of War,” they could draw upon an even

more successful Central Asian military tradition of adaptability, innovation and excellence. Even when the leaders of the emerging Empire faced failure or defeat, their reverses were not due to any resurgence of the old military order but instead caused by their enemies' adaptation and refinement of the new system. As in Europe, the South Asian military revolution was not the work of a singular genius or great power. It was shaped both by the Mughals and by their rivals. Ironically it was the Mughals' eventual defeat of those rivals and their establishment of a dominance of their region more total than that achieved by any contemporary European state that eventually checked the progress of that revolution. Once the Mughals were left with no true equals—and nothing even resembling an existential threat—the pace of innovation slowed. The later Empire's loss of technological and institutional parity with the West and its eventual decline were caused not by fundamental flaws or continual failure but by the perils of success.

Notes for Chapter 1

1. Zahiruddin Muhammad Babur, *The Baburnama*, trans. Wheeler M. Thackston (New York: Oxford, 1996), 382.
2. Peter A Lorge, *The Asian Military Revolution: From Gunpowder to the Bomb* (New York: Cambridge, 2008), 1 and 21
3. Iqtidar Alam Khan's *Gunpowder and Firearms: Warfare in Medieval India* (New Delhi: Oxford, 2004), one of the most important secondary sources for this era, is a prominent example of that idea.
4. See Stephen P. Blake, "The Patrimonial-Bureaucratic Empire of the Mughals." *The Journal of Asian Studies* 39, no. 1 (Nov. 1979): 77-94
5. Pradeep Barua, *The State at War in South Asia* (Lincoln: University of Nebraska, 2005), 46
6. The "false dawn" metaphor is used repeatedly by Lorge in Chapter 5, where he discusses early modern South Asia. Use of the term "military revolution" is reserved for the next chapter, on the colonial era.
7. From a currently unpublished Guilmartin essay.
8. H.S. Jarrett, "Review of *The Army of the Indian Moghuls* by W. Irvine," *Journal of the Asiatic Society of Great Britain and Ireland* (1904): 344
9. Ibid, 345
10. The loss of urban archives during this time may account for another significant gap in Mughal historiography—there have been relatively few works published about city life in the Empire.
11. Steven Metz and James Kievit, "Strategy and Revolution in Military Affairs: From Theory to Policy" *United States Army War College Studies* (June 1995): 13
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Chapter 2: Changing Ways of War

India and the emerging Mughal Empire did not exist in isolation. They were embedded in international and intercontinental networks of commerce, trade and intellectual activity. Many of the goods exchanged—both tangible and intangible—had military applications. The growing Mughal army employed diverse weapons, equipment and tactics that had their origins in places as distant as Central Europe, the Middle East, the city states of Central Asia and the steppes of Mongolia and Russia. It was situated at the convergence of several changing military cultures, and was able to build on all of their accomplishments. Its success was based on developments in the military art that had been ongoing for decades and centuries before the emergence of Babur. During his rise to power the first Mughal Emperor greatly accelerated the pace of innovation by combining the traditional Central Asian way of war with new technology and tactics from the West. This novel military system would be further refined and adapted to the unique environment of India by Babur's successors Humayun, Sher Shah Suri and Akbar. By the end of Akbar's reign the Mughal Empire had assembled one of the world's largest and most technically advanced armies and taken its place as one of the great powers of the early modern period.

Towards a European Military Revolution

By the early 16th century a number of ongoing trends in European warfare had come to fruition, most notably a growing reliance on missile weapons—especially those powered by gunpowder—and a resultant increase in the effectiveness of infantry vs. cavalry. These changes had their origins as far back as the Hundred Years War, where the English effectively used mixed formations of longbowmen and dismounted men at arms against traditional French armies built around heavy cavalry. Their so-called “harrow” array was essentially the first “pike and shot” formation and established the general principles followed by later medieval and early modern armies. The enemy force was forced to approach under a hail of missile fire, losing momentum and cohesion. Any attempt to close with and destroy their tormentors would be frustrated by a wall of spear points. Eventually the punishment would be so severe that the enemy would have no choice but to retreat or disperse, and at this point would be vulnerable to counterattack.¹

Elsewhere in Europe, in the Low Countries and most notably in Switzerland, the lances used by dismounted cavalry gave way to units of fulltime infantry using true pikes—weapons 14 to 18 feet long that formed an effective mobile barricade. Where trained archers were not available these formations were supplemented by skirmishers equipped with crossbows and early firearms. An even more elaborate system of defense for infantry was the wagon laager. This tactic, pioneered by the Hussite revolutionaries in Bohemia, involved a formation of specially constructed carts used as a mobile fortress. Infantrymen, using crossbows, muskets and light cannon fought in relative safety from behind their wagons. When the enemy assault faltered against their barricades, they would emerge and counterattack. In some cases small reserves of cavalry were kept

hidden inside, to be used at an opportune moment. In other instances the entire formation was moved in order to find a safer position or to maintain pressure on a retreating enemy. Heavy infantry—formations of pikemen, or in the case of Ireland and Scotland, columns of foot armed with polearms and broadswords—were also used increasingly on the offensive, disrupting enemy formations by shock action. Groups like the Highlanders, Swiss or Hussites—usually of common, not noble, origin—developed novel infantry tactics in large part because they lacked significant numbers of their own knights and trained cavalry. Yet when these groups were incorporated into other European armies as allies or mercenaries they proved to be quite effective in combined arms operations.²

Their efforts were furthered by advances in gunpowder technology. Cannon and “hand guns” had been in use since the late Middle Ages, but the earliest versions of these weapons were more of a novelty than a difference maker. Their range and striking power was often inferior to that of traditional artillery and small arms like trebuchets and longbows. The one niche where gunpowder excelled was in siege warfare. Aside from its use in mining and demolition charges, it could be employed effectively in gigantic cannon—where the sheer size of the powder charge and projectile allowed significant energy to be transferred to the target. During much of the 15th century—in the closing campaigns of the Hundred Years War, the wars of consolidation in Spain or the final Ottoman conquest of Byzantium—the “Gunpowder Empires” paradigm was actually in play. “Traditional” armies settled their disputes in the open field with archery and edged weapons; the massive, cumbersome guns were brought out only when they encountered an immovable obstacle like a fortress. This state of affairs would not persist for long,

however—in Europe or in Asia—once truly effective gunpowder weapons were introduced for other applications.³

The emergence of such weapons in the late 15th century was not prompted initially by advances in engineering or metallurgy but by changes in the manufacture of the gunpowder that they consumed. European chemists learned how to produce the precursor components of gunpowder—especially saltpeter—more efficiently and in greater quantities. An even greater innovation was the process of “corning”—producing gunpowder in the form of larger, consistently sized grains instead of fine dust. Corned powder was more resistant to moisture and easier to store safely. More importantly, upon ignition its grains burned faster and more evenly, imparting much greater energy to a projectile. This meant that siege guns became even more powerful and that lighter artillery pieces and muskets were now truly dangerous. Now that gunpowder was cheaper, more widely available and easier to store and transport, such weapons were used with abandon.

A revolution in small arms had significant tactical implications. The matchlock arquebus, unlike the primitive “hand guns” of the previous century, was a weapon that could compete on an even footing with longbows and crossbows. More effective gunpowder and higher muzzle velocities meant that its range and lethality were now comparable to those of traditional missile weapons. It was generally less accurate than a bow, but at close range its penetrating power and stopping power were even greater. It was much easier to master than a longbow and simpler mechanically and therefore much cheaper to manufacture than a crossbow. Such savings in equipment costs and training time made it possible to field much larger contingents of effective infantry. For the same

reasons, the musket was uniquely dangerous in the hands of amateurs. It became the weapon of choice for urban militias, especially in places like Germany or Italy, where central authority was weak and communities had to provide for their own defense. ⁴

The introduction of lighter, more portable artillery was also beneficial to infantry, providing a further deterrent to cavalry or superior numbers of enemy foot soldiers. The creation of more powerful heavy artillery had significant implications for siege warfare. Traditional medieval castles, with their high, thin stone walls, were virtually defenseless. For a brief period, near the turn of the 16th century, the advantage swung overwhelmingly to the attacker. The introduction of a new style of fortress—the so-called *trace italienne*—built around lower but more massive and resilient sloped earthworks and equipped with emplacements for defensive artillery eventually restored the balance between defender and besieger. The growing availability of cannon also led to the construction of specialized, heavily armed warships and the emergence of true navies.

All of these trends converged during the rise of the Spanish empire, the European power whose development most closely paralleled that of the Mughals. Entering the final decades of the 15th century Spain was a minor player in European affairs, its territory divided between several Christian and Muslim kingdoms. Within two generations it had become a true world power, with an empire on which the sun literally never set. Much of this achievement arose from political and diplomatic developments such as the union of Ferdinand and Isabella and the alliance with the Habsburgs. Yet none of it would have been possible without success on the battlefield. Those battles were won with a highly developed combination of technology, tactics and organization.

This system, however, was not created without trial and error. The Spanish armies of the 15th century were in many ways more similar to those of Central Asia than their counterparts in northern and central Europe. They were dominated by large formations of light cavalry—the *jinetes*. Jinetes filled the same role as horse archers, although the vast majority of them were armed with javelins instead of composite bows. These troops were complimented by smaller contingents of heavy cavalry and light infantry. Spanish tactics also conformed to the Central Asian model—they emphasized misdirection, feigned retreats, flanking maneuvers and envelopment. Most fighting took place on the southern frontier with Muslim Spain, but Christians also made war on each other. The emphasis was on raiding and small unit actions—large battles were relatively rare. A strategic stalemate prevailed for most of this period. Neither Castille and Aragon or their Muslim rival Granada was able to make any significant gains at the others' expense. Wars were usually “more parades than crusades.”⁵

This deadlock was broken by the introduction of gunpowder weaponry. The Spaniards learned the use of artillery from their neighbors in France and Burgundy. The aggressive anti-Muslim ideology of the “Catholic Monarchs” Ferdinand and Isabella provided obvious targets for these new weapons. In a single decade-long war the Spaniards overwhelmed the fortress kingdom of Granada, which had resisted Christian conquest for over two centuries. Time and again their artillery breached mountain forts and walled cities that were previously assumed to be impregnable. The surrender of the Granadan capital in 1492 marked the end of Muslim power in Spain and the final completion of the *reconquista*.⁶

Yet the Spaniards would soon learn the limits of their new weapons. In Spain they had faced Muslim rivals very much like themselves—nearly identical in equipment, tactics and training. In a contest between essentially equal combatants, the introduction of artillery had been decisive. During their ensuing contests with France for control of the Mediterranean, the Spaniards would be confronted with an entirely new kind of enemy. They would be forced to adapt and improvise, reinventing their army in the process. When Gonsalvo de Cordoba entered Italy to contest an invasion by the French king Charles VIII, his army resembled those that had fought in Granada—large contingents of light cavalry and light infantry around a smaller core of heavy cavalry. This force would not be adequate for the task at hand. The French routed the Spaniards at the battle of Seminara in 1495. The next Spanish army to enter Italy would be entirely different in form and function.

Gonsalvo faced three new threats in Italy. The first of these was the enemy's artillery, which was at least as powerful as his own. The second came from huge masses of heavy cavalry like the French *gendarmes*, formations much larger than anything in the Spanish inventory. Finally there was heavy shock infantry, most notably Swiss and German pikemen. An attack by pike squares moving at almost the dead run could be just as terrifying and destructive as a charge by massed war elephants. A traditional Spanish-style army—even supplemented by artillery—was too fragile to stand its ground against such concentrated shock action.

Gonsalvo's solution to this dilemma emphasized the tactical defensive. He added large numbers of musketeers to the army—they composed up to a sixth of his force. Infantry and artillery were meant to hold the center of the battle line while cavalry

encircled the enemy from the flanks and reserve. Gonsalvo provided several layers of defense for his gunners and musketeers. He recruited his own pikemen to serve as their bodyguards—an addition which eventually led to the creation of the famous *tercio* pike and shot formation. Entrenchments and field fortifications provided additional protection. Whenever possible, the Spaniards also chose to fight near existing obstacles such as embankments, sunken roads and hedgerows. While Gonsalvo never implemented a full-scale wagon laager he did use carts and purpose built mobile barricades to shield his infantry, especially during advances or counter attacks. Some of these were fitted with attached muskets, swivel guns and even spear points and blades. C.W.C. Oman, writing about Gonsalvo, could have easily been describing Babur's later tactics during the invasion of India. "[His] receipt for victory was to get into a fortified position, well garnished with firearms great and small, and then to lure the enemy to attack."⁷

This new system paid immediate dividends. At the battle of Cerignola in 1503, Gonsalvo played out a script that would be repeated by Babur at Panipat and Khanua. His infantry and artillery, secured by field fortifications, held off repeated charges by French heavy cavalry and infantry. Once the enemy lost momentum the Spanish infantry led a counter attack at the center while cavalry turned the flanks. This pattern was to be repeated at later battles, most notably La Bicocca in 1522, where Spanish musketeers fighting from the cover of an earthen embankment and a sunken road shattered attacking columns of Swiss storm troopers.

The emerging primacy of defense led to a tactical impasse. It was possible with enough men—and especially enough artillery—to overwhelm a defensively oriented army by brute force, silencing their guns and trapping them in their own field

fortifications. Yet such an effort—as illustrated most graphically at the battle of Ravenna—led to horrific casualties for both victor and vanquished. Commanders became increasingly reluctant to offer battle. At the Garigliano River and Pavia, the opposing forces sulked in their entrenchments for weeks, daring each other to be the first to attack. Surprise attacks—under the cover of darkness and bad weather or facilitated by the enemy’s negligence—might eventually break a stalemate. Such factors, not overwhelming force, eventually decided the issue at Garigliano and Pavia. Even under ideal conditions, however, victory never came cheap. ⁸

Over time military establishments grew increasingly risk averse and large battles became increasingly rare. Evasion and harassment became preferable to confrontation. Leaders sought alternatives to direct combat as a means of projecting power and controlling ground. Interlocking networks of fortifications, garrison troops and ready reserves were used to make large swathes of territory unsafe for enemy forces. Armies grew larger and larger. If commanders were denied the ability to move freely at the tactical level they might amass the numbers needed to outmaneuver their enemies on an operational or strategic scale.

The Ottomans and the “Roman Method”

The transformation in military technology and doctrine soon spread beyond the boundaries of Europe. The Ottoman Empire, the arch rival of Spain and the Habsburgs, was at the forefront of this expansion. As the Ottomans advanced into Eastern Europe they encountered both gunpowder weaponry and novel tactics. Their most important lessons were learned during campaigns in Hungary during the 15th and early 16th centuries. Christian armies in this theatre relied heavily on mercenaries drawn from

German urban militias and the remnants of the Hussite revolutionary state, and the Turks learned through bitter experience the value of musket-armed infantry and the wagon laager. They also encountered cannon of all sorts, which they imitated and improved upon—not just heavy siege guns of the type that broke Constantinople in 1453 but also diverse models of light and medium artillery.

The new Ottoman military doctrine that emerged as a result of these encounters was known as *tabur cengi*—Hungarian for “camp battle”—or *dastur-i-Rumi*—the “Roman Method.” (Inhabitants of the Ottoman Empire in general and Anatolia in particular, due to their historical connection to the Byzantine Empire, were often referred to as “Romans” in the Middle East and Asia.) The system combined musket-armed infantry, wagons and field artillery with an already formidable cavalry arm. It allowed the Ottomans to finally realize the full potential of their janissary corps and field a true heavy infantry force that was more rugged and resilient than either cavalry or lightly armed conscript foot soldiers. Unlike Swiss pikes or Celtic swordsmen, however, these troops relied more on field fortifications and missile fire than shock tactics. This differing approach was shaped in part by a unique hazard not normally faced by Western armies—the mounted archer. With their Central Asian heritage the Ottomans were well aware of the horse archer’s abilities. They fielded their own sizeable contingents of mounted bowmen and had to face the same from enemies all along the borders of their empire. Horse archers were an occasional threat in Eastern Europe, more common in the Middle East and Russia and omnipresent in Iran and Turkestan. A mobile enemy that could deliver a high volume of accurate fire from almost any direction made maneuvers in the open by unprotected infantry problematic. Even combined pike and shot formations

might not offer adequate protection. Yet while the Ottomans' defensive tactics may have been a concession to conditions further east they still proved to be more than adequate in encounters with Western-style armies based on heavy shock cavalry and heavy infantry.

The basic theory was simple. As the infantry and artillery advanced they were screened by cavalry. Once an enemy force was detected the army drew up into a defensive array, with a wagon laager composed of both carts and gun carriages anchoring the center. As the enemy advanced they were first harassed by horse archers and then hammered by concentrated fire from cannon and small arms. Their suffering only increased as the range closed and they attempted to breach the line of wagons and entrenchments. Once the enemy was fixed in place they could be broken and then pursued by a counterattack from disciplined infantry or flanking maneuvers by cavalry. By the early 16th century the Turks had assumed the strategic and operational offensive by mastering the tactical defensive. After Ottoman armies repeatedly punished more traditional forces both Eastern and Western—as with the Safavids at Chaldiran in 1514 and the Hungarians and their allies at Mohacs in 1526—variations of the Roman Method were adopted by their neighbors and enemies from Russia to Persia. ⁹

The Central Asian Way of War

The Ottomans' ability to adapt and innovate should have come as no surprise. They were heirs to a military tradition that at that time was more pervasive and effective than any “Western Way of War”—a “Central Asian Way of War.” It is no coincidence that most of the truly great powers of the medieval and early modern eras—the Ottomans, the Mughals, the Safavids, the Mongol and Timurid empires, Yuan and Ming China, the Seljuk-dominated Abbasid Caliphate—had their origins not in Europe but in Central

Asia. As the Ottomans and others adopted new technology and tactics they maintained many of their traditional military institutions. Some historians have since argued, as in the “Gunpowder Empires” hypothesis, that such preservation of existing elements was an indication of the conservatism and closed-mindedness of Asian and Islamic cultures. It is likely, however, that their standard methods and implements for traditional warfare with archery and edged weapons were simply superior to existing Western counterparts. Throughout the Middle Ages and at the start of the early modern period—from Ligny to Nicopolis to Mohacs—European states usually came out second best in land battles with the forces of Eastern powers. The more comprehensive reinvention and reformation of European armies during their military revolution was arguably driven as much by a need to match and contain these external threats—or in the case of the maritime revolution, to bypass them—as by internal conflicts.¹⁰

In its most basic concepts, the military art practiced by the Turkic, Mongol and Iranian nomads of Central Asia was very simple. Warfare was dominated by horsemen—both mounted archers and specialized units of heavy cavalry. Tactics usually emphasized misdirection, flanking and envelopment over frontal assaults. Mastery of movement was essential. Once a less agile and disciplined enemy force was lured into pursuit by a feigned retreat or intimidated into a withdrawal, nomadic cavalry would defeat them in detail, as their various units of horse, foot and baggage all moved at differing speeds. If the opponents stood their ground they would be worn down by withering missile fire and the selective use of shock attacks. As nomadic peoples fought with, traded with and studied their “civilized” sedentary neighbors their methods of warfare grew more sophisticated and complex. As they campaigned beyond the boundaries of the steppe and

fought in mountains, forests and city streets, they learned the importance of infantry, siege craft and logistics. A combination of military, intellectual and cultural elements combined to produce a uniquely successful method of warfare. It may be no coincidence that the Central Asian way of war shared many crucial elements with Victor Davis Hanson's idealized Western model.

Most nomadic tribes were very egalitarian in outlook and had a highly developed sense of personal freedom. This was a consequence of a society where nearly every adult male was expected to learn horsemanship, archery and other martial arts and to be prepared to defend their community if called upon. The concept of "citizen soldier" was not unique to Europe. Central Asian chieftains were not traditionally tyrants but the first among equals. Power was dispersed among a leader's relatives and trusted associates. The ruler was usually expected to convene *kuriltai*, or councils, hear petitions and accept criticism. New leaders were often elected instead of chosen by hereditary succession. The rise of dictators like Chingiz Khan and Timur or absolutist monarchies like the Ottoman and Mughal dynasties were later developments, as these tribes came to rule or be ruled by the neighboring sedentary civilizations. Beyond incorporating their ideas of kingship, they incorporated those peoples' traditions of rationalism and scholarship. Central Asia—from the era of Al Biruni, Al Bukhari and Avicenna to the rise of the Timurid Renaissance—has a long and hallowed history of intellectual, scientific and artistic achievement. There were also more practical lessons. Central Asian armies were notable for their flexibility and adaptability, implementing innovations as diverse as standardized unit sizes and a rationalized order of battle, standardized equipment, uniforms and dedicated communications and intelligence services. Residing in a region at a

convergence of trade routes, most Central Asian rulers understood the importance of commerce. The regulation and protection of trade were a high priority. While these states—like their European contemporaries—did not practice truly unfettered capitalism, they still were the producers and conduits of great wealth and supported thriving merchant classes.

In all fields of endeavor—economic, political and military—they achieved lasting results. Despite the objections of Hanson and Keegan, a commitment to maneuver, misdirection and the tactical defensive did not imply a lack of will. They were simply practical ways to both win battles and conserve precious manpower and resources for the long, difficult work at hand. Wars in the Central Asian setting were often very long indeed. Contrary to the popular imagery of lightning raids and barbarian hordes swarming across unguarded borders, wars of conquest—like the Mongols against Song China or the Timurids against the Golden Horde—typically involved years or even decades of grinding attrition. Endurance under such circumstance required tremendous discipline and resiliency. Once the fighting finally ended, however, the results were decisive. The rise of the Central Asian military order literally reshaped the map of the region. The stakes and the penalties for failure were often far higher than in the West. At the end of the medieval and early modern periods, after centuries of warfare, the kingdoms and royal houses of Europe almost all still existed in some recognizable form. In Asia entire dynasties, states and cultures—the Xi Xia, the Khwarezm Shahs, the Byzantine Empire, the Delhi Sultanate, and many others—vanished almost without a trace.

India Before the Mughals

The Delhi Sultanate, which would eventually be extinguished by the Mughals, was itself a product of the Central Asian military tradition. By the beginning of the 16th century it was led by the Afghan Lodi Dynasty, but many of the institutions of its Turkish founders remained. One of the most significant of these was an army dominated by cavalry and cavalry tactics. Like its neighbors to the north, the Sultanate maintained both horse archers and heavier shock cavalry. Also like its counterparts in the more settled regions of Central Asia, it employed growing numbers of infantry. Infantry was an obvious solution in regions dominated by agriculture, where raising horses and horsemen in large numbers was difficult. Foot soldiers, being much cheaper to train and maintain, were much easier to field in large quantities. Beyond any requirements of the state, local communities were arming and mobilizing themselves in increasing numbers in an era where the power of the central government was relatively weak and public order was fragile at best. The combination of these factors meant that infantry often substantially outnumbered cavalry in Indian armies.

Despite their numbers, foot soldiers were not held in high regard. They were typically relegated to the same functions they may have first learned as members of peasant militias. They guarded fixed locations as garrison troops, constabulary or armed camp followers and dispersed to operate as skirmishers and foragers. Infantry were rarely the arm of decision. Unlike Swiss pikemen or Ottoman janissaries, most Indian foot soldiers were not capable of controlling the center of a battlefield. A relative scarcity of true heavy infantry had been a recurring characteristic of South Asian armies since

Ancient times, when that shortcoming was exploited by Alexander's phalanxes. The reasons for this deficit are not clearly understood, but one important factor may have been the greater abundance of trained archers in India as compared to Europe and elsewhere. There were two enduring archery traditions in South Asia—mounted bowmen from Western and Central Asia and native yeomanry armed with longbows and crossbows. The resulting higher volume of rapid, accurate missile fire made the use of large formations of infantry shock troops problematic. Shield walls, wagon laagers or other similar defensive formations would have to contend with another major player—the elephant. In many Indian armies the war elephant was placed at the front and center and used in the offensive role normally filled by heavy infantry. Its great size and thick hide, when combined with protective gear, made it more resistant to arrows than even well armored foot soldiers. Combined with Central Asian style cavalry, it led to the Sultanate military establishment of “War Horse and Elephant” famously described by Simon Digby.¹¹

Gunpowder weaponry had not yet made a significant impact on this system. Firearms were slowly filtering into northern India by three routes—from the east by trade with the Chinese, from the south by contact with the Portuguese and from the northwest via the Ottoman Empire and Persia. During the reign of the Lodi Dynasty, gunpowder technology was at roughly the same stage as during the late stages of the Hundred Years War in Europe. Cannon were mostly used in sieges. Large and unwieldy, they were used in conjunction with mines, sapping charges and traditional siege engines. This process was even more painstaking than it had been in the West. While there was no *trace italienne* in India, the region had already undergone a substantial revolution in

fortifications, beginning as early as the 14th century, in response to the introduction of both primitive gunpowder bombs and more powerful trebuchets imported from Europe and the Middle East. The resulting structures were massively overbuilt, with walls much thicker than those of corresponding medieval European castles. Truly effective small arms and field artillery were not yet on the scene. Battles in the open field were still largely decided on the backs of cavalry horses and elephants. Infantry did not have the tools needed to claim an equal place on the battlefield. It would be a new invader from the north that provided those implements—and irrevocably changed the face of warfare in India. ¹²

Babur, the First Mughal

Zahiruddin Muhammad Babur was born into Central Asian royalty. His lineage was especially exalted—he was a direct descendant of the great conquerors Chingiz Khan and Timur. As a child Babur inherited the throne of the small principality of Ferghana, located in present-day Uzbekistan. However the precocious prince had greater ambitions. He hoped to win control of Samarqand, one of Central Asia's greatest cities and the former capital of the mighty Timur. Babur's blood relation to Timur—through the patrilineal line, which was the acknowledged line of inheritance in Central Asian societies—meant that saw the reestablishment of the Timurid empire not just as a grand ambition but as his birthright. He launched his first attack on Samarqand at the tender age of 12. Babur would eventually capture—and lose—that city three times over. His dreams of a renewed Central Asian empire were never realized. Instead his fortunes fluctuated wildly. At various times he was a head of state, a soldier of fortune and a glorified bandit chieftain. Later in life he claimed a new kingdom in Afghanistan, centered on the city of

Kabul. This would serve as the base for his invasion of India in 1526—the campaign that would lead to his greatest triumphs. Fortunately the ups and downs of Babur’s career are very well documented—by his own hand. Near the end of his life he wrote a memoir, later known as the *Baburnama*, which would become one of the first published autobiographies in the Islamic world.

The *Baburnama* reveals much about its author’s character and personality. The most obvious trait is Babur’s intelligence—his active, inquisitive mind. Babur took great notice of the world around him. Much of his memoir is devoted to the exotic customs and natural wonders of the places that he visited. His curiosity and attention to detail are evident in his description of a curious species of Indian deer and its uses:

People use the kalhara to catch other deer. They fasten a trap ring to the kalhara’s antlers, then tie a large stone to its leg at the ankle, which prevents it from going far after it has snared a stag. When they have spotted a stag to be caught, they put the kalhara opposite it. The stag, being quite pugnacious, immediately begins to do battle. The animals clash, lock antlers and go back and forth, during which the stag’s antlers become snared in the ring... If the wild stag wants to escape, the tame one cannot go far because the stone is tied to its leg. In this way many stags are caught and then tamed to catch still more deer.¹³

Such activities would be fascinating to Babur. He was deeply interested in how devices and systems worked, in finding clever solutions to problems. He was always ready to experiment and take risks. Babur was willing to take even greater risks on the battlefield. He was brave to the point of recklessness, leading his troops from the front and suffering several serious wounds in battle. At times he was as impulsive as he was courageous. This was especially true early in his career, when his plans of attack were equally likely to end in triumph or disaster. Babur was a pitiless enemy, but he was also

nurturing friend. He remained loyal to his comrades and followers and was usually willing to forgive their mistakes. While he was ruthless in battle, he often granted mercy to defeated rivals. He had a keen understanding of human frailty—both in himself and in others.

Despite this wealth of insight, the *Baburnama* is far from a perfect document. There are a number of important omissions—both accidental and intentional. Sizeable portions of the text were left unfinished or lost outright. The most troublesome of these gaps covers an 11-year period from 1508 to 1519. It was during this time that Babur and his army obtained an arsenal of firearms and retained the foreign advisors who would instruct them in their use. These were crucial years for the evolution of Babur's tactics and strategy and his growth as a commander—from brash boy general to future Emperor. Babur presumably intended his memoirs for an audience of his peers—Central Asian warriors and noblemen like himself. Therefore he leaves much unsaid, assuming the reader's familiarity with military matters. His accounts of battles and campaigns tend to be brief and rather basic. They often omit important information such as detailed orders of battle, the ratio of infantry to cavalry or the type of weapons and equipment used by his troops. The number of combatants involved on either side is not always stated—and the numbers may be exaggerated or imprecise when they are provided. Babur does expound at greater length on items that he assumes are unfamiliar to his readers, such as the flora and fauna of India or the odd habits of its natives. This pattern extends to his military narratives. Fortunately the elements of his army that he explains in the greatest detail are those that he sees as new and distinctive—such as his use of gunpowder or wagon tactics.

Babur does make it clear that cavalry—primarily horse archers on the traditional steppe model—remained a central element in his army both before and after the conversion to gunpowder. Cavalry of this type was prevalent both in Central Asia and in India, which had been dominated for centuries by a series of Turkish Muslim dynasties. When in the field with his troops, Babur himself fought as a mounted archer. He and his men used recurved composite bows, made with alternating layers of horn, wood and sinew. These weapons were accurate at over 100 yards and still dangerous at ranges well in excess of 200 yards.¹⁴ As sidearms they typically carried swords although Babur and others do make note of somewhat more exotic weapons like battle-axes, maces and flails. Protective gear usually consisted of a shield, helmet and hauberk. Most body armor was in the form of chain mail—Babur often referred to armor by the generic expression “mail”—but wealthier and better-outfitted troopers might use half plate or lamellar armor. The best equipped of them also had protective coverings for their horses. The most heavily armored soldiers were organized into units of heavy cavalry that used lances in addition to swords and were more capable of delivering shock attacks.¹⁵

Cavalry performed a number of crucial roles—scouting, screening, skirmishing, flanking, encircling and pursuing an enemy and exploiting breakthroughs. As vital as cavalry was, many experts still overstate its importance to Babur’s cause. In his treatise *Mughal Warfare*, Jos Gommans argues for the supremacy of the cavalryman and the relative insignificance of the infantryman. “Without his horse the Mughal soldier was a penniless as well as honourless figure. Besides, on numerous occasions the Mughal horse trooper had proven his superiority over numberless footsloggers.”¹⁶ G.J. Bryant describes how Babur “burst through the Hindu Kush with his trim, fleet cavalry army and

swept all before him in Northern India,” forgetting that the major battles of that campaign were contests of position in which defense was to prove its supremacy.¹⁷ Much of the Mughals’ defensive excellence was based on their infantry. Babur’s account makes it clear that infantry was an important part of his force from the beginning. While the legions of Chingiz Khan and Timur were composed almost entirely of cavalry, the Central Asian armies of the 16th century—under the control of rulers who had become increasingly sedentary—fielded larger numbers of infantrymen. Babur mentions their presence in both his own ranks and those of his enemies—Turks, Uzbeks, Afghans and Indians. Cavalry still ruled the steppes, but not all battles took place in the open field. Babur fought many engagements under adverse conditions—during sieges, inside cities with street fighting and house-to-house combat, in mountains with rugged terrain and deep snow, during bad weather—where cavalry would struggle. He notes the importance of fighting on foot in all of these circumstances.

Unfortunately Babur does not explain the composition of his infantry force in any great detail. Many of them were clearly irregulars raised at a moment of crisis or opportunity. Babur relates how he encouraged the “rabble” of Samarqand to rise up and fight on his side during his first occupation of that city.¹⁸ He later describes a volunteer detachment of retainers and clansmen. “There must have been between two and three hundred men, mostly on foot, with clubs in their hands, rough boots on their feet, and shepherd’s cloaks on their backs.”¹⁹ Obviously such troops—poorly equipped and even more poorly trained—were of limited utility. They were usually sent home the moment they were no longer needed. In many other instances the “infantry” were obviously dismounted cavalry, fighting in sieges or other close quarters where their horses were of

no use. However there were also contingents of regular foot soldiers. The most important of these were the musketeers, but Babur's use of infantry predated the conversion to gunpowder. He mentions special units of foot soldiers and skirmishers who were tasked with fighting in difficult terrain and attacking enemy fortifications. Even after the introduction of guns, Babur refers to separate units of musketeers and traditional style infantry armed with bows or edged weapons. While infantrymen presumably occupied a lower place on the social scale than their fellows in the cavalry, that place was not without honor. Babur refers to a trusted officer named Dost Sarpuli, "a foot soldier who had been promoted for bravery to the rank of castellan."²⁰ Later he would make note of infantrymen who received awards for valor and distinguished service during the Indian campaign.

At this early stage it is unclear exactly how the infantry fought or how they were deployed and equipped. In most combat accounts Babur does not specifically mention the proportion of infantry to cavalry or where the infantry were located on the battlefield. Presumably many of the infantrymen used arms and equipment similar to those of the cavalry. Some of them did own horses of their own and may have ridden them to battle. Babur never explicitly describes the use of dragoons or mounted infantry, but such an expedient would explain some of his more confusing battle narratives. In one account he describes a cavalry raid against a large force of Afghan tribesmen. Near the end of a long running fight there are somehow some foot soldiers still keeping pace with Babur's horsemen—for it is at this point that Dost Sarpuli, the decorated infantry officer, is mortally wounded.²¹ Haidar Mirza, Babur's cousin and fellow chronicler, writing in the

Tarikh-I-Rashidi, describes another Central Asian leader of the same period who did deploy mounted infantry in large numbers.²²

Babur makes many references to individual foot soldiers armed with bows. He also discusses a weapon particularly suited to the infantryman—the crossbow. Crossbows were especially valuable during sieges because they were ideal for sniping. Unlike a conventional archer, a crossbowman could fire his weapon while lying prone and behind cover. He could also keep it cocked and at full draw while carefully lining up a shot or waiting for a target to emerge. Babur describes his own experience as a sniper, firing a crossbow from the ramparts of Samarqand while that city was under siege.²³ Before muskets became commonplace, the Ottomans used janissary infantrymen as missile troops, arming them with crossbows or heavier, more powerful versions of the cavalry bow. Babur may have employed similar large formations of foot archers. Once firearms were adopted they became the ranged weapon of choice for his infantry, but the musketeers were still supported by large numbers of foot archers. It is clear that by the time of his entry into India Babur did use large numbers of musket-armed soldiers to deliver massed fire—with great effect.

However they were armed and equipped, large numbers of infantry were vulnerable whenever they had to move in the open, away from the safety of mountains, forts or city walls. Western armies designed a number of protective formations to defend their foot soldiers against attacks by cavalry or superior numbers of enemy infantry. It is not known whether or not Babur ever encountered descriptions of Swiss pike squares or Spanish-style tercios, but it is doubtful that such tactics would have been adequate for his needs even if he had tried to adopt them. Fighting in Central Asia and India, he faced two

hazards that were rarely seen on European battlefields. The first of these was the war elephant. Elephants were often used in place of heavy infantry in Indian armies, fighting at the front and center of the battle line and smashing their way through ranks of enemy foot soldiers. Their size and appearance made them especially intimidating—their destruction of morale was just as important as the physical damage they inflicted. Elephants, however, were far from invincible, especially against steady and disciplined troops. When wounded or frightened they were as much a threat to their handlers as they were to the enemy. In one of the few recorded incidents of combat between European soldiers and elephants, during the battle of Malacca in 1511, the Portuguese infantry held its ground. Muskets and pikes prevailed over tusks.²⁴

There was another, much more serious threat, however—mounted archers in large numbers. Cavalry was especially menacing in a Central Asian setting because it could attack both by shock and by fire—driving home an attack with lance and saber or standing off and launching clouds of arrows. Mounted archers were rare in the West, mainly confined to the Ottoman frontier and elsewhere in Eastern Europe. The most effective missile weapon devised for European cavalymen was the wheel lock horse pistol or carbine, which did not see widespread use until the 17th century. A typical horse soldier might carry two to six of these—single shot weapons that were very difficult to reload while in the saddle. By contrast the horse archer might carry dozens of arrows, and his composite bow was more accurate and had greater range than any pistol.²⁵ A large body of horsemen so equipped would be a dire threat to any formation of infantry caught in the open. Those foot soldiers with firearms could shoot back, but the archers' rate of fire would still be several times that of the muzzle-loading muskets.

Babur's infantry clearly needed protection more substantial than that offered by a few rows of pikes. His cavalry was equally vulnerable if confronted by greater numbers or surprised while dismounted or encamped. Babur relied heavily on field fortifications to protect his men. Like a Roman legion, his army would literally dig in while encamped in hostile territory, excavating a perimeter of trenches and erecting portable barricades.²⁶ Unfortunately such defenses were almost impossible to carry into battle or deploy hastily in the face of an enemy. Babur eventually learned of a better solution—a true mobile fortress—from the same foreign experts who instructed him in the use of firearms. This was the wagon laager, the same “Roman Method” adopted by the armies of the Ottoman Empire. Some of his wagons were designed as shelters for musketeers and other infantry while the remainder were used as platforms for mounting cannon. They could be used as field fortifications for an army at rest, prepositioned in anticipation of a fight or maneuvered to form an instant redoubt in the midst of a battle.

In later battles Babur used these wagons and other obstacles to anchor his center and immediate flanks. The carts were arranged in a loose formation and infantry was deployed in advance of them as skirmishers and a first line of defense. Ropes or chains were strung between wagons in order to prevent the passage of enemy cavalry. Other obstructions—trenches, stakes, mantlets, and larger portable barricades—were also placed around their position. Musketeers fired from behind this cover while gunners served cart-mounted cannon. Reserves of infantry and cavalry waited behind the wagons. When these reserves were needed, the chains were lowered, allowing them to move forward through the gaps. Wagon formations were also used offensively. Carts and lighter artillery pieces accompanied by infantry could be moved forward to pressure

enemy positions. Portable barricades fitted with wheels were also used in these maneuvers. These were particularly useful because they did not require draft animals—the soldiers could push them along as they advanced.

The most important addition to Babur's arsenal was gunpowder. The conversion to firearms is not discussed in the *Baburnama*, as it took place during a period covered in the lost section of that document. During the late 15th and early 16th century guns were gradually filtering into India from both Europe and East Asia. They were mainly confined to southern and coastal regions that conducted regular trade with gunpowder-using countries like China, Portugal and the Ottoman Empire. Firearms, especially small arms, were still something of a novelty in Afghanistan and North India at the time of Babur's conquests. Babur reports several engagements against enemies in this region who had never seen guns before. The time and place of Babur's first experience with gunpowder is uncertain. He may have gained access to firearms by way of Persia. After 1514 the Safavid Empire, stunned by a series of series of crushing losses at the hands—and guns—of the Ottomans, embarked on a crash program to modernize its army. Shah Ismail was determined to adopt the weapons that had defeated him, importing large quantities of firearms and hiring foreign experts in their operation and manufacture. Babur had previously fought as an ally of the Safavids in their wars with the Uzbeks. He may have used his contacts in Persia to acquire his own share of equipment and expertise. Some of Babur's weapons may have also been purchased directly from agents of the Ottomans or from other Central Asian chieftains. By the time the narrative of the *Baburnama* resumes in 1519, he had amassed a sizeable arsenal of small arms and artillery and retained a number of Persian and Anatolian advisors to instruct him in their use.²⁷

Most of Babur's artillery was of two basic types. The *kazan*, or heavy cannon—firing balls of about 25-30 pounds—were carried on four-wheeled wagons, with their barrels laid flat down the length of the cart. These big guns were especially useful against fortified positions. They eventually replaced Babur's traditional siege train of catapults and trebuchets. Unfortunately the heavy artillery was very cumbersome to maneuver and aim. The gun barrel was fixed to the carriage, making elevation and firing at varying ranges extremely difficult. The smaller *zarb zan*—3 or 4 pounders mounted on two-wheeled carriages with trails and limbers similar to the European style—were a more flexible option. The lighter cannon—while not nearly as mobile as the horse-drawn guns of a later era—could be moved more easily during combat. Their smaller carts could also be tilted to adjust range and elevation. A third, less common type was the *firingi*, or “Frankish” cannon, an even smaller breech-loading model. As the name implies, its design was probably based on a European light naval gun. The last and rarest class of artillery was the heavy siege gun—also referred to as a *kazan or kazan-i-bozorg*—which fired projectiles of 100 pounds or more. These may have included both oversized cannon and true mortars that launched their payloads on a higher, shorter trajectory. Weapons of this size were extremely difficult to transport and were often cast on site in a portable foundry or assembled from pre-cast sections. All of the guns in Babur's artillery train were cast from brass or bronze and fired stone shot. Their maximum ranges varied from about 1600 yards to as much as three miles, although the distances for truly accurate, effective fire would be much shorter. Indirect fire was rarely used. Gun carriages—along with the other carts used in the wagon laager—were usually drawn by teams of oxen.²⁸

The standard small arm in Babur's army was the *tufang*, or matchlock musket. These guns were very similar to models used in the Ottoman Empire. The earliest versions were probably made of brass instead of iron. This weapon had approximately the same range as a composite bow, but its rate of fire was about a third as great. However the musket shared many of the advantages of its predecessor, the crossbow. It was much easier to master than the composite bow. It could be fired while in a prone or kneeling position and from behind cover. The matchlock could be cocked and held ready to fire as its owner lined up a difficult shot. Musketeers rarely stood in the open or fired their weapons from an "offhand" position. Instead they used any convenient object—an entrenchment, the side of a wagon, a battlement or barricade—to steady their aim. They usually carried forked shooting sticks to use when no other rest was available. Later models were equipped with bipods for use when kneeling or prone.²⁹ Muskets were also valuable for display and intimidation—especially against enemies who had little experience of firearms. One of the first recorded instances of execution by firing squad occurred during the Indian campaign, when Babur assigned teams of musketeers to dispose of prisoners. This novel method of eliminating unwanted captives—the sword was the usual instrument in such cases—may have been intended to provide the locals with a graphic demonstration of the new ruler's power.³⁰

Babur's tactics evolved along with his arsenal. He built and improved upon the model of the classic Central Asian cavalry army. Even in his later campaigns he still used the same basic formation passed down by his predecessors. A strong center held and fixed the enemy while flanking elements sought to encircle it. Babur's version of this system, however, emphasized defense above all else. He did not seek to immediately

overpower the enemy. In a sense his tactics were a variant of an old steppe ploy—the feigned retreat or display of weakness. The object was to lure the opponent into the offensive. This worked best when the enemy saw itself in a position of relative strength—due to a larger force or the assumption of cavalry’s dominance over infantry. Yet the supposedly vulnerable infantry combined with mobile fortifications and firearms formed a nearly impregnable core—and a deadly trap for an overly aggressive foe. Once the enemy had exhausted itself in futile attempts at a breakthrough, reserves could drive forward from the center—or cavalry emerge from the flanks to perform the traditional envelopment. This counterpunching technique would be especially useful in the Indian campaign, where Babur’s army faced greatly superior numbers.

Babur’s growth as a commander and tactician can be clearly seen in the *Baburnama*. His innovations were not a sudden burst of genius—they emerged gradually over a series of campaigns and battles. As time passed he was called upon to master armies and implements of increasing size and complexity. The lessons learned were often difficult, including defeats as well as victories. Much of the process was in figuring out what *not* to do.

An excellent example of mistakes and their consequences occurred at Sar-I-Pul in 1501. Babur led his army out of Samarqand to meet the forces of the Uzbek chieftain Shaibani Khan, who was intent on recapturing that city. When he encountered the enemy army and discovered that it was larger than his own, Babur withdrew into field fortifications and awaited reinforcements. It was at this point that he embarked on a series of blunders that would ultimately result in disaster. With help less than two days away, Babur decided to leave his trench lines and immediately offer battle. He did so because of

a favorable astrological event that was predicted to occur on that date. Once he made the decision to fight, he arrayed his troops in a dangerous position with their backs against a river. As battle was joined, the Uzbeks immediately began to probe for Babur's left flank. This was a typical maneuver in steppe engagements—many Central Asian societies saw the right hand as auspicious. The best soldiers were often placed on the right side of a battle line and would press vigorously against the enemy left.³¹ Babur's own elite troops were placed in the center front or "vanguard" position. The vanguard pressed forward as the left wing and the remainder of the center shifted left in order to fend off the flank attack. These movements caused a huge gap to open in the middle of Babur's line. The Uzbeks immediately poured through. Worse yet, the attempt to defend the left flank was unsuccessful. Babur soon faced enemy breakthroughs at both front and rear. He was forced into a retreat that soon became a rout. At this point some of the Mongol mercenaries in his reserve mutinied and attacked their former allies as they tried to flee. Babur and many of his surviving soldiers were trapped with their backs to the river and had to literally swim for their lives. Although Babur did reach the temporary safety of Samarqand, the failure of his campaign was assured. Shaibani Khan laid siege to the city and forced his surrender several months later. In his memoir an older, wiser Babur ruefully reflects on the rashness and immaturity that led to his undoing. "Who reaches hastily for the sword will bite the back of his hand in regret."³²

Babur's next major campaign, the conquest of Qandahar in 1507, had a much happier outcome. His performance there indicated a vast improvement in both his own abilities and those of the troops under his command. Babur had embarked on a forced march across Afghanistan with an army of 2,000, hoping to surprise the Mongol ruler of

Qandahar. Instead he was the one to be caught off guard, ambushed by a much larger enemy force as he neared the city. To make matters worse, half of his army had been dispersed to forage and replenish supplies expended during the difficult journey. Babur had to confront a Mongol-led force that he estimated at 4 – 7,000 with only about a thousand men of his own. Babur describes how organization and discipline saved the day. Although our men were few, I had arranged them in an excellent formation. Never before had I made such a good battle array. Under my immediate command I had a select band of warriors upon whom I knew I could depend, and I had posted them in groups of ten and fifty under commanders of ten and fifty. Each group had its place to stand in the right and left wings and knew what they were to do during battle.³³

Babur goes on to describe his formation in great detail. The standard composition of left and right flanks, center and vanguard was divided into even smaller units. For example the center was subdivided into a “left arm,” “right arm” and the “close” contingent that served as Babur’s bodyguard. Perhaps the most remarkable feature of this battle was the ability of Babur’s troops to rapidly compose themselves, assemble and maneuver in such a complex formation—even under fire and with their numbers already reduced by half.

As the fighting started, the Mongols, following the usual Central Asian practice, overloaded their right and attempted to envelop Babur’s left wing. They failed to realize that that part of the battlefield was the least suitable for an attack, with a large network of irrigation canals impeding their advance. Babur was able to hold off the assault with only a handful of men. He took advantage of this opportunity, shifting most of his troops to the center and right. His attack on the enemy center was checked, but his men on the right met with more success, eventually turning the enemy’s left flank. The Mongols were

forced to retreat. Babur reassembled his army, marched on to Kandahar and took the city without a fight. The victory was due in part to the mistakes of the enemy, but it was still a brilliant performance by Babur. He had carefully organized and prepared his men and was able to assemble and deploy them at a moment's notice, in the face of an oncoming enemy. He started the battle working from a prearranged script but was still able to improvise and take advantage of opportunity as it arose. The conduct of his soldiers proved the quality of his leadership. They performed capably and courageously under the most adverse of conditions. Babur had come a long way since his bumbling at Sar-i-Pul.

Terrain was also important to the victory at Qandahar. Babur had been fortunate. Although he was forced to fight a battle not of his choosing, the action took place on favorable ground. By the time of his next major engagement he had gained the ability to reshape any battlefield—to essentially create his own terrain. The army he brought to Panipat in 1526 was radically different than the one that fought at Sar-I-Pul and Qandahar. That force was still dominated by cavalry and cavalry tactics. Babur's new army had been transformed by the introduction of firearms and mobile fortifications. While horse soldiers were still the most numerous element, it was the core of infantry, wagons and guns that made the force truly formidable. That center allowed Babur to withstand attacks by greater numbers and mount a strong defense even in open country with no other natural or manmade obstacles nearby. Firepower and a portable fortress combined with the mobility and shock ability of cavalry provided great flexibility and allowed Babur to dictate the pace of battle.

In the winter of 1526 Babur invaded India in an attempt to overthrow Sultan Ibrahim, the Afghan ruler of Agra and Delhi, and claim the throne for himself. Babur had

previously conducted a number of raids into India, but reports of internal dissension in Ibrahim's kingdom suggested that now was the time to achieve a more decisive result. His plan seemed reckless at first. Distractions aside, the Sultan still had a vast advantage in manpower. When Babur approached from the northwest, Ibrahim mobilized a huge army and moved to block his invasion. Babur halted near the town of Panipat and prepared field fortifications in anticipation of an attack, arranging his army in a formation perpendicular to the enemy's expected line of advance. He had 700 carts ready, many of them apparently requisitioned from the surrounding countryside. Most of these were formed into a wagon laager at the center of the line. The musketeers and artillerymen were placed here, with other infantry to serve as their bodyguards. The buildings of the town anchored the right flank. A network of trenches and tripod-shaped portable barricades guarded the left. Gaps were left in the fortifications at intervals of about 150 yards to allow the passage of infantry or cavalry from the rear.

Babur may have had as many as 25,000 men under his command, but these included forces dispersed in Afghanistan and elsewhere in India as well as camp followers and other noncombatants. The actual number of effective soldiers that he led into battle at Panipat was less than half of that figure and may have been fewer than 10,000. Ibrahim's army was reported to be in excess of 100,000. This estimate is probably greatly exaggerated, but even more conservative figures would place the Sultan at a numerical advantage of 3:1 or greater.³⁴ His men were also supplemented by hundreds of war elephants. Despite this vast superiority in numbers, Ibrahim was understandably reluctant to attack Babur in his prepared positions. He placed his army opposite the invader's force and awaited further developments. Days of inconclusive

skirmishing ensued while Babur attempted to goad his enemy into the offensive. On April 20 Ibrahim finally rose to the bait. Shortly after sunrise he launched a frontal assault on Babur's position, pressing him hard on the center and left. However the attackers soon lost momentum, entangled in a web of obstacles and battered by musket and cannon fire. Even elephants were unable to advance. Ibrahim's army, weakened by the defection of key nobles and supplemented with hastily recruited mercenaries to make up for that deficit, was poorly disciplined and indifferently led. Seemingly at random, some units opted to retreat while others continued the attack. Impeding each other's movements, they often succeeded in neither course. As the enemy continued to flail about, Babur moved to take advantage, dispatching cavalry from both wings to flank and encircle them. The horsemen poured arrows into them from the sides and rear as gunfire continued from the front. Under pressure from all directions the enemy collapsed. After less than half a day of fighting the battle ended in a rout. "At noon the army was overcome and vanquished to the delight of our friends. By God's grace and generosity such a difficult action was made easy for us and such a numerous army was ground into the dust."³⁵ Estimates of enemy dead exceeded 15,000. Sultan Ibrahim himself was among the victims.

Babur immediately established himself as the new ruler in Agra, but his victory had not granted him undisputed control of the region. Led by Rana Sanga, a coalition of Hindu Rajput leaders had already risen to challenge the authority of Ibrahim. They saw his downfall as an opportunity. Allying themselves with the remnants of the disaffected Lodi nobility, they moved to attack Babur while he was still new to the throne—and presumably still vulnerable. In March of 1527 Babur returned to battle—this time as the

defender, not the invader. He intercepted the Rajput army near the village of Khanua. The fight that ensued would be his greatest victory—a near perfect application of the tools and tactics that he had worked so long to develop. Khanua would serve as a classic example of the Mughal battle. It is notable because it was particularly well documented. Instead of writing his own description, Babur selected a highly detailed after action report composed by a subordinate and grafted it into his memoir. Yet the battle is most important because its outcome not only ensured Babur’s position as the most powerful man in India—it permanently changed the nature of war and combat on the subcontinent.

As at Panipat, Babur was facing a great disadvantage in numbers. Contemporary estimates are unreliable, but the enemy army may have approached 100,000. Like Ibrahim, Rana Sanga also had a large complement of war elephants. Again Babur remained on the defensive. He assembled his mobile fortress and awaited the onslaught. The *Baburnama* describes a defensive formation resembling a phalanx. “The holy warriors of the Islamic army... formed their ranks as straight as pines, their cone-shaped helmets shining like the sun... Each rank was as iron like as Alexander’s dam, firm in its straightness.”³⁶ Once more the guns and wagons were assembled. “Maintaining their resolve, in the manner of the holy warriors of Anatolia they formed a row of caissons and bound them together with chains as cover for the matchlock men and mortar men.”³⁷

The enemy’s tactics were also familiar. They launched a furious frontal assault, simultaneously attacking the center and both flanks. “Like ants they swarmed from left and right, mounted and on foot, thousands upon thousands.”³⁸ Babur’s line held. Although the enemy was checked by gunfire and the prepared defenses, they did not lose their will or cohesion. Rana Sanga’s soldiers, tougher and more disciplined than

Ibrahim's, kept up the pressure. As the Rajputs brought in yet more fresh troops, Babur was also forced to commit his reserves. The stalemate continued for hours, until Babur decided that the moment had arrived to take the offensive. This time his initial counterattack would not target the flanks but aim directly at the enemy center. Instead of the cavalry he called upon his foot soldiers. In this moment of crisis Babur's infantry would prove their worth beyond any doubt, winning their place both on this battlefield and those of the future.

When the battle had raged for a long time, an order was issued that the warriors... who were like lions in chains behind the caissons, should emerge from the right and left of the center and station the matchlock men in the middle and fight from both sides... they charged from behind the caissons and spilled the dawn-red blood of the hapless infidels... The royal matchlock men, as ordered, left the caissons for the midst of battle, and each one of them gave many of the infidels the poison of death to taste. The infantry, by rushing into great danger, caused their names to figure prominently among the lions of the jungle of courage and the chivalrous heroes of battle. At this same time the imperial command was issued to drive the caissons forward, and the royal personage himself... moved toward the army of the infidels. . On all sides, the victorious soldiers witnessing this... swelled mightily.³⁹

The infantry, carts and light artillery continued to push forward, disrupting the Rajputs' formation. As the enemy began to lose cohesion, Babur finally released his cavalry to flank and encircle them. The opposing troops were surrounded on three sides and forced into a shrinking perimeter. Even in this distress, the Rajputs continued to fight hard. They made several attempts to break through the cordon and at one point came close to succeeding. Finally exhausted, they began to flee in the only direction left to them—to the rear and off of the battlefield. It is possible that Babur—in this battle and at

Panipat-- deliberately left an escape route open. Such a move would spare his troops the casualties suffered in a fight to the death against a cornered enemy. It would also preserve at least a few survivors to fight another day—this time as his subjects.

Crisis and Consolidation: Humayun, Sher Shah and Akbar

The victory at Khanua finally established Babur as the dominant power in North India. Unfortunately there was little time left to enjoy this achievement. Babur died three years later, at the age of 47. His son Humayun succeeded him as Emperor. The emerging dynasty was soon threatened by Farid Suri, later known as Sher Shah, the son of a minor Pashtun noble and a rising warlord who sought to restore the Afghan empire of the late Sultan Ibrahim. Farid had risen to prominence as one of the highest ranking military commanders in the Lodi province of Bihar. After Babur's conquests he swore allegiance to the new Mughal state and retained a sizeable land grant. His oath, however, was far from sincere. After Babur's death he plotted to build a power base in Bihar and Bengal, at the far eastern reaches of the Empire and far from the prying eyes of the Emperor's agents. The inattention of the new ruler, Humayun, and the scheming of his younger brothers made this task all the easier. Babur's son was not nearly the commander or leader that his father was. Yet while Sher Shah schemed to overthrow the Mughals and restore the old political order, he had no plan to roll back their military innovations. Instead he studied their tactics and technology and improved upon them. He assembled his own force of cavalry, artillery and musket-armed foot soldiers, adding innovations such as infantry drill and a rationalized system of ranks and pay grades. He also implemented a census and conscription for ethnic Afghans and veterans of the old Lodi

army. Whatever the outcome of Sher Shah's campaigns, the traditional Indian military system would not return.

After Sher Shah finally abandoned all pretense and declared open war, he met the Emperor's armies in two major battles. He was victorious in both of these engagements. Humayun's failure forced him into temporary exile and nearly destroyed the fledgling Mughal state. However the battles at Chausa in 1539 and Kanauj in 1540 were not important so much for the details of their conduct or even for their outcome. Neither was a fair test of Mughal leadership or tactics. Sher Shah made very certain of that. He well understood the lethality of the new weapons and the hazards of combat under the new system and distinguished himself through his mastery of deception and evasive, Fabian tactics, only offering battle under the most ideal circumstances. He preferred raids on supply lines and sieges of isolated outposts until the enemy was sufficiently worn down physically and mentally to be defeated at minimal cost. At Chausa Sher Shah duped Humayun by pretending to accept a cease fire and then routed his forces with a surprise night attack. Kanauj was lost after a large body of camp followers and laborers panicked at the sight of the advancing enemy and tried to crowd inside the wagon laager with Humayun's soldiers. The Mughals had not been able to make good their casualties after Chausa, and their ranks were filled out with many hastily recruited, inexperienced troops that panicked during this confusion. Sher Shah's forces took advantage of their disorder and overran their positions.

The most interesting aspect of these battles, however, is the composition of the armies involved. Both sides had arrayed and equipped their forces in direct imitation of Babur's example, using wagons, artillery and musket-armed infantry. By this time the

number of weapons deployed had grown vastly, from dozens of cannon to hundreds. Humayun was reported to have 700 light and 21 heavy artillery pieces at Kanauj, backed up by thousands of musketeers. This arsenal may have been even larger before the losses at Chausa. Sher Shah's force was similarly armed.⁴⁰ With this much firepower in play, defense had become paramount. Few commanders wished to risk an assault once an enemy had settled into its field fortifications. Even blasting apart such a position would be difficult—the limited mobility of artillery made it much more effective in defense than on the attack. The armies at Chausa, like those at the Garigliano River and Pavia spent weeks sulking behind their barricades before Sher Shah's trickery decided the issue. Aside from outright treachery there were few options. Screening cavalry made it very difficult to surprise an army on the move, and well-trained troops could set up a wagon laager very quickly. One possible plan was to throw a wide cordon around the enemy, denying him supplies and reinforcements. That tactic might turn a strong defensive position into a trap, but it would take overwhelming numbers and materiel to successfully contain and outlast the enemy. The attacker might also prevail in a long-range artillery duel—but only if he had more cannon or more proficient gunners than his opponent. Such a slugging match would also result in terrible casualties—for the winner as well as the loser. While Humayun's battles represented a setback for the Mughal cause, they clearly illustrated just how thoroughly Babur had changed the face of battle in India. Even after his death he continued to influence the conduct of war in the subcontinent. The traditional balance of power based on the warhorse and elephant was gone forever. Artillery and infantry had emerged as new arms of decision.⁴¹

The new military system would be further refined and perfected by Babur's grandson, Akbar. Akbar was crowned Emperor in 1556 at the age of 12, after the untimely death of his father. Before his fatal fall down a flight of stairs, Humayun had led a successful re-invasion of India, exploiting a succession crisis in Sher Shah's kingdom. Unfortunately for the Afghans, the Suri dynasty was even more accident prone than the Mughals. Two freak mishaps in the space of a few years—Sher Shah blown up by a defective rocket, his son Islam Shah dead after a botched medical procedure—left the throne in the hands of a child king and provoked a civil war. Instead of a united front the resurgent Mughals faced a disjointed group of rivals, who they defeated in detail. The task of consolidating these gains was left to the general Bairam Khan, who was appointed as regent by an impromptu conclave of nobles. His achievements included a crucial victory at the Second Battle of Panipat, which led to the demise of the famous mercenary captain, Hemu—the most capable and dangerous remaining contender for possession of Delhi. Despite Bairam Khan's capable stewardship, the young Emperor resented his lack of control and had frequent, bitter arguments with the regent. He cultivated secret alliances with a number of nobles, and in 1560 he used this faction to outmaneuver Bairam Khan and force him into exile. It would take two more years of intrigue—punctuated by occasional violence—for Akbar to purge his enemies in the court and claim uncontested authority.

This rise to power emphasized some of Akbar's most compelling traits. He was arrogant and stubborn, but he was as clever as he was strong willed. He applied a fierce intelligence to any problem placed before him. While Akbar exhibited great physical bravery—he became famous for leading from the front and exposing himself to personal

danger on the battlefield—he was more remarkable for his intellectual courage. He did not fear change and often pursued innovative and unorthodox solutions. A contemporary observer described his hunger for knowledge.

He is a great patron of learning, and always keeps around him erudite men, who are directed to discuss before him philosophy, theology and religion, and to recount to him the history of great kings and glorious deeds of the past. He has an excellent judgment and a good memory, and has attained to a considerable knowledge of many subjects by means of constant and patient listening to such discussions... He has also become able to clearly and lucidly to expound difficult matters. He can give his opinion on any question so shrewdly and keenly... he excels many of his most learned subjects in eloquence, as well as in that authority and dignity which befits a King.⁴²

Like his grandfather, Akbar was fascinated by gadgets, machinery and complex systems. He was an amateur architect and engineer—and above all an inveterate tinkerer. Buildings erected by [Akbar] in various parts of his dominions... have been built with extraordinary speed, by the help of a host of architects masons and workmen... In order to prevent himself being deafened by the noise of the tools with which stones are shaped and beams and other timber cut, he had every thing cleverly fashioned elsewhere, in accordance with the exact plan of the building, and then brought to the spot, and there fitted and fastened together... [Akbar] is so devoted to building that he sometimes quarries stone, along with the other workmen. Nor does he shrink from watching and even himself practising, for the sake of amusement, the craft of an ordinary artisan. For this purpose he has built a workshop near the palace, where also are studios and work rooms for the finer and more reputable arts such as painting, goldsmith work, tapestry-making, carpet and curtain-making and the manufacture of arms. Hither he frequently comes and relaxes his mind with watching at their work those who practice these arts.⁴³

Unlike Babur, Akbar did not leave a personal memoir. Despite his intelligence and his access to the finest tutors available, he was illiterate. Some historians have speculated

that Akbar suffered from dyslexia or some other similar disorder.⁴⁴ There were, however, a number of detailed accounts written by his contemporaries. The most important of these were composed by Abu al-Fazl, Akbar's friend and trusted advisor. The *Akbarnama* served as the Emperor's official biography while the *Ain-i-Akbari* provided a comprehensive almanac of the Empire. These narratives illustrate how Akbar went about building a formidable military machine—and an even more formidable state.

Technology was an essential element of Akbar's system as it evolved over the latter half of the 16th century. He employed the same basic tools as Babur and Humayun—the musket and the cannon—but he was able to implement much more refined and capable versions of these weapons. The improvements went beyond gains in performance, durability and reliability. The new equipment was much more diverse, with specialized models for every need. This was especially true in the area of artillery. Babur's army deployed four basic types of cannon. Akbar's forces had over a dozen different models. The new weapons were concentrated at opposite ends of the spectrum. Akbar saw a need for smaller, easily portable guns—true field artillery. He experimented with bronze and wrought iron cannon that were light enough to be pulled by horses instead of teams of oxen. In the later Empire these guns would be known as the “artillery of the stirrup.” Some of the pieces resembled Gustavus Adolphus's famous “leather guns.” They were made from wrought iron staves and hoops surrounded by reinforcing layers of copper or brass sheeting. This was an especially light and inexpensive design, but the safety issues were obvious, and many artillerymen were understandably reluctant to use them.

The Mughals also fielded a variety of even smaller pieces. Swivel guns became very popular for antipersonnel use and close-in defense—they were fired from

battlements, the decks of ships and from inside wagon laagers. There were also experiments with the *jezail*, an intermediate form midway between a small swivel gun and a large matchlock. This was an actual “musket” or “wall gun” according to the European terminology of the day—as opposed to the smaller “arquebus.” Perhaps the most ingenious type of light cannon was the *gajnal* or *chatural*. This was a swivel gun attached by a harness to a camel’s back. It could be operated by a single person, who controlled the camel and served the gun from a special saddle mounted on the animal’s rump. A skilled gunner could fire and reload without dismounting. Another variant of this weapon was designed to be fired from an elephant. These guns were not as powerful as conventional cannon, and the animals carrying them had to stop for every shot. Despite these limitations, however, they offered great tactical flexibility. Camel guns were inexpensive and could be fielded in great numbers—and they were “galloper guns” in every sense of the word, able to move much faster than ordinary light artillery drawn by oxen or horses.

There were also developments at the other extreme. Akbar’s forces deployed a number of super-heavy siege guns and mortars. These were similar in their basic form to models used by Babur, but they were much, much larger. Typical examples fired projectiles ranging from 250 – 700 pounds, but even these were dwarfed by a few true giants. One gargantuan mortar used at the siege of Ranthambor was reported to launch a payload of over 3,000 pounds. It required 1,000 oxen and several elephants for transport. The intimidation and outright terror inspired by these monstrous weapons was as effective as the physical damage they inflicted. They were a tangible expression of the power and might of the Empire. “Shock and awe” was not just a 21st century concept.

As the artillery changed, so did the ammunition. Stone shot was still widely used, but metal cannon balls became more common. Most of these were made of brass. Brass was expensive in bulk, but it did offer some advantages. It was much easier to work than stone. Unlike stone projectiles, brass shot could be manufactured in a hollow version, which conserved metal. Moreover a hollow ball traveled further when propelled by an equivalent powder charge—or, in the interests of economy, it could travel the same distance with a lesser charge. The obvious drawback was that a lighter projectile did not have the same force at impact. This problem, however, was easily remedied. The adoption of hollow shot inevitably led to the concept of explosive shells. During Akbar's reign the Mughals began to use hollow brass cannon balls packed with black powder. These were fitted with slow-burning fuses that were lit by the flash of the gun's discharge and designed to ignite the powder charge when the shell ruptured on impact.⁴⁵

Akbar was also fond of another type of explosive ordnance—the rocket. Rockets actually predated other gunpowder weapons—they had been present in India since at least the 14th century. Unlike other Asians, however, Indians did not abandon rocketry after the introduction of cannon. The war rockets used in South Asia were of an especially advanced design. Most notably, the body of the rocket was constructed of metal instead of wood or paper. This made the device stronger and more weatherproof and allowed for a larger payload of black powder. The metal casing also turned into shrapnel on impact, increasing the projectile's destructive power. The Mughals eagerly adopted rockets. Rockets offered additional flexibility, even in an army well equipped with firearms. They were even easier to use than a musket and could be fired with little preparation. Some soldiers launched their weapons by lighting the fuse, grasping the

rocket by its stabilizing shaft and literally hurling it into the air like a javelin. A safer option was to use a firing trough or to simply prime the device and then step away after angling it against a convenient embrasure, cart or fence rail. Some rocketeers may have also aimed and fired their weapons from simple, bazooka-like tubes. Rockets packed a considerable punch, but were actually very light and easy to transport. The propellant tube of a typical rocket was about a foot long and two or three inches wide and could carry several pounds of black powder more than 1,000 yards. The wooden guide shaft took up most of the weapon's five to seven foot length. A camel could easily carry 20 or more rockets—or they could simply be stacked in the back of a wagon like cordwood. The Mughal army consumed rockets in vast quantities. Akbar ordered a shipment of 16,000 sent to the garrison of a single fortress in anticipation of an attack. Rockets were an excellent anti-personnel weapon, but they were particularly useful against enemy cavalry and elephants—their shrieking sound terrified animals. The Mughals used a special type with a built-in whistle in order to enhance this effect. Rocketry is one instance where the West adopted Indian military technology. The British Congreve rocket was designed in imitation of the weapons used by Indian enemies in the wars of colonization. It remained in service until the late 19th century and was a distant ancestor to the various military rockets and missiles in use today.⁴⁶

Small arms were also improved under Akbar's watch. The brass matchlock musket used by Babur's troops was replaced by sturdier designs made of iron or steel. The first version was relatively primitive. Its barrel was essentially a flat sheet of iron that had been rolled into a tube and spot welded where the edges met. It may have been no coincidence that this was the same process used to manufacture rocket casings. Later

versions incorporated a more sophisticated manufacturing technique, with a larger sheet of metal rolled around itself several times. This design was similar to contemporary European practice and made for much a more durable weapon. In some ways this model was actually superior to its Western counterpart. The Mughals placed a premium on marksmanship and accuracy—Akbar himself was an avid hunter and target shooter—and designed accordingly. The barrel walls of the standard issue musket were unusually thick in relation to the bore, and much of the weight was concentrated near the muzzle. This heavier weapon was unbalanced and difficult to aim offhand, but it became extremely stable when fired from a rest. A thicker barrel did not overheat as rapidly during continued firing, delaying the resulting subtle distortion of the bore and loss of accuracy. The overall concept was not dissimilar to the “bull barrel” of a present day target rifle. These guns were exceptionally rugged, more so because most of them were made with high carbon Damascus steel. This strength meant that they could be safely fired with a much larger powder charge. They did “not burst though let off when filled to the top. Formerly they could not fill them to more than a quarter.”⁴⁷ That led to much higher muzzle velocities and a corresponding increase in range and accuracy. Further refinements to the basic infantry musket included a more reliable matchlock mechanism, slings, recoil pads and the addition of iron sights. Some models were also fitted with bipods. There was also a wheel lock variant, but as in Europe, the high cost and questionable durability of this action made its widespread adoption in infantry weapons problematic. With the prevalence of mounted archers, the wheel lock was never needed for use in horse pistols. Handguns of any type remained quite rare in the Empire.⁴⁸

This arsenal of advanced weaponry led many of Akbar's enemies to refuse battle and rely on fortifications for protection. Siege craft became increasingly important over time. The Mughals' basic techniques for siege warfare were not dissimilar to contemporary European practices. The target fortress or city was surrounded by lines of circumvallation and bombarded at range. Two methods were used to actually breach the enemy's fortifications—mining and sapping. Miners tunneled underneath the objective and planted explosive charges to collapse structures from below. Saps, or approach trenches, provided cover for advancing troops and most importantly they allowed heavy guns to be moved close enough to blast a breach in the walls. The Mughals, however, did have a few signature variations on this theme. Instead of the basic open trench network—dug in a zigzag pattern to avoid enfilading fire—they often used the *sabat*, or covered trench. A roof and walls of heavy timbers covered the *sabat*. It protected its occupants from small arms and light artillery fire and concealed their activities and movements from the enemy. *Sabats* allowed attackers to approach fortifications by the most direct route possible, which was a great advantage when moving the huge and cumbersome Mughal siege guns into position. The trenches had to be very large in order to accommodate those weapons—some were wide enough for 10 men to ride abreast and deep enough to hide an elephant and its passengers.⁴⁹

Elephants were another distinguishing feature of Mughal siege craft. They acted like walking bulldozers. The animals were armored and rigged with special tackle that projected battering rams or cutting blades from their heads. So equipped they were able to smash through gates, lighter walls and earthworks. Elephants, however, were less valuable in the open field. Akbar maintained a huge stable of the beasts, but much of their

value was as status symbols and props for pomp and circumstance. War elephants still accompanied his armies, but they no longer occupied their traditional privileged position in the vanguard. Instead they were kept in the rear and used to exploit breakthroughs or held back as a defense of last resort. They often served as a sort of observation platform and mobile command post, but this role was not without risk. On a battlefield dominated by gunpowder weapons, elephants were the biggest targets around. Experiments with elephant body armor and howdahs turned into armored fighting compartments did little to solve this problem. A truly bulletproof suit of armor would be too heavy for any elephant to carry. Even if the animal and its passengers could be fully protected, there was no way to shield the driver, seated in his vulnerable position right behind the head.⁵⁰

Abu al-Fazl gives Akbar personal credit for many of the inventions used in service of the Empire. As intelligent as Akbar was, such assertions overstate the facts. Many of the innovations in artillery and small arms were probably based on European examples. The famous camel gun was most likely invented in Egypt. Like Babur, Akbar was not afraid to steal a good idea. His genius lay not in creating devices from whole cloth but in correctly judging the value and potential of existing tools and combining them into new systems. Yet the efforts of the Emperor and his corps of advisors and engineers were part of an even larger whole. Akbar's reign was a time of invention and innovation all over India—by the Mughals, their allies and their enemies. New military technology had transformed the subcontinent—and the race was on to perfect the next generation of armaments. Many secret weapons were designed and tested by military professionals and amateurs alike. They ranged from primitive grenade launchers and bazookas to fortresses equipped with revolving gun turrets. Most of these devices would prove to be wildly

impractical and have no impact on larger events. This urge to invent, however, was a natural response to the tremendous challenges faced by all sides. The Mughals were struggling to control a rapidly growing Empire. Their rivals were faced with an enemy more formidable than any they had ever met. Every statesman and soldier in India—whatever his allegiance—had to adapt to a new way of war that would have been completely alien only two generations ago.⁵¹

Akbar's innovations extended beyond the realm of technology. The success of his military arose as much from the adept management of manpower as it did from the mastery of machines. The Mughal army continued to rely on the three core elements of Babur's regime—horse archers, musket-equipped infantry and artillery, but the basic components were supplemented by a wide variety of specialized units. Among these were a sizeable contingent of mounted infantry and the corps of *shamsherbaz*—"sword wielders" or "gladiators"—elite infantry companies of highly skilled swordsmen and martial artists. The gladiator troops included specialists in a variety of fighting styles such as the sword and buckler and the two-handed sword. As their name implies, a few were assigned to the court to serve as palace guards and participate in mock battles and exhibitions of skill, but there were thousands more of them scattered around the Empire. It is unclear how many of them were actually attached to the regular army, but troops of this type may have acted as bodyguards for formations of musketeers.⁵² Once the borders of the Empire reached the sea Akbar established a navy to supplement his army. Warships were invaluable for protecting riverine and coastal trade, transporting troops and supplies and supporting amphibious operations. They were especially useful in

regions like Bengal, where the terrain was so dominated by rivers, lakes and estuaries that the distinction between land and naval warfare was not always clear.

A host of support troops backed up the fighting forces. Akbar created non-combat units for every conceivable purpose. They included military police, porters, pioneers and combat engineers, craftsmen, couriers, spies, logisticians, official news writers and propagandists. It was well understood that the army did not function in a vacuum, and that preparation for battle and management of its aftermath were every bit as important as the actual combat. The Mughal army was especially formidable because its technology and tactics were supplemented by a finely tuned network of logistics, communications and expertise.

Akbar himself acted as commander in chief of the army. His senior military advisor acted as its chief of staff. The Mughal military had two primary administrative divisions—a standing army under the direct control of the Crown and the troops commanded by senior officers, or *mansabdars*. Mansabdars were responsible for raising and equipping their own contingents of cavalry. For this purpose they were granted allowances by the Emperor—in the form of cash, land grants or a combination of the two. Mansabdars were allowed considerable discretion in the recruitment of their troops. They could invite members of their own tribe or clan, mobilize residents of lands under their control or draw upon India's vast mercenary market. Their cavalry forces were supported by infantry—usually one foot soldier for every two horse soldiers—assigned to them from a central personnel bureau. These infantrymen included both archers and musketeers. In times of need, auxiliaries from allies or client states, local militias and mercenaries could further supplement regulars and mansabdari troops. Unlike most other

large Muslim states, the Mughals never used military slaves or conscripts in any significant numbers. India's population had been thoroughly militarized during the decades of disorder that preceded the foundation of the Empire. The Mughals had more potential soldiers on hand than they could ever use. Abu Fazl estimated that there were more than four million men within the borders who had access to at least rudimentary weapons and training.

In this system, most of the firearms were controlled by the regular army. The corps of artillery was officially designated as a portion of the royal household. 12,000 musketeers also served in the royal guard. Approximately 20,000 more were placed in the central personnel bureau and parceled out to the mansabdars. Even in instances where commanders recruited additional musketeers, their pay was drawn from the central treasury. As Abu Fazl reminds his readers, "Guns are wonderful locks for protecting the august edifice of the state; and befitting keys for the door of conquest."⁵³ A few trusted senior officers did maintain their own independent contingents of musketeers. This practice would become more accepted and widespread in the later Empire.

The Mughal military used the same decimal table of organization popular in Central Asia—squads of 10, platoons of 50, companies of 100, battalions of 500, regiments of 1,000 and divisions of 10,000—but they added many exceptions and provisions to this basic structure. The rank system was extremely complex, with 66 ranks and corresponding pay grades for just the senior officers. Akbar's ministers compiled voluminous rules and regulations for both regular and mansabdari troops. The mansabdars' specific obligations only began with the number of men they provided. They received highly detailed instructions, adjusted for rank, about every facet of their

operations—the proper specifications for weapons and armor, the number of remounts for each trooper, the amount and type of wagons and draft animals, the mandatory complement of retainers and support personnel and even the allowable breeds of warhorses. Each officer might also have specific terms of service in his contract above and beyond those in the basic regulations. The rules for the regular army were just as comprehensive and rigorous. There were 15 separate pay grades for musketeers alone. There were 7 different classifications for warhorses and 11 for elephants—7 for males and 4 for females. A passage from the *Ain-I-Akbari* about the standard crew roster for naval vessels exemplifies this extreme attention to detail.

The number of sailors in a ship varies according to the size of the vessel. In large ships there are twelve classes. 1. The *Nakhuda*, or owner of the ship... He fixes the course of the ship. 2. The *Mu'allim*, or Captain. He must be acquainted with the depths and the shallow places of the ocean, and must know astronomy. It is he who guides the ship to her destination, and prevents her from falling into dangers. 3. The *Tandil*, or chief of the *khalacis*, or sailors... 4. The *Nakhudakhashab*. He supplies the passengers with firewood and straw, and assists in shipping and unlading the cargo. 5. The *Sarhang*, or mate, superintends the docking and landing of the ship, and often acts for the *Mu'allim*. 6. The *Bhandári* has the charge of the stores. 7. The *Karrani* is a writer who keeps the accounts of the ship, and serves out water to the passengers. 8. The *Sukkangir*, or helmsman. He steers the ship according to the orders of the *Mu'allim*. Some ships carry several helmsmen, but never more than twenty. 9. The *Panjari* looks out from the top of the mast, and gives notice when he sees land, or a ship, or a coming storm. 10. The *Gumti* belongs to the class of *khalacis*. He throws out the water which has leaked through the ship. 11. The *Topandaz*, or gunner, is required in naval fights; their number depends on the size of the ship. 12. The *Kharwah*, or common sailor. They set and furl the sails. Some of them perform the duty of divers, and stop leaks, or set the anchor free when it sticks fast. The amount of their wages varies, and depends on the voyage, or *kush*, as

seamen call it. In the harbor... a *Nakhuda* gets 400 [Rupees]; besides he is allowed four *malikh*, or cabins, which he fills with wares for his own profit. Every ship is divided into several divisions, for the accommodation of passengers and the stowage of goods, each of the divisions being called a *malikh*. The *Mu'allim* gets 200 [Rupees]. and two *malikhs*; the *Tandil*, 120.; the *Karrani*, 50 and one *malikh*; the *Nakhuda khashab*, 30; the *Sarhang*, 25; the *Sukkangir*, *Panjari* and *Bhandari*, each 15; each *Kharwah*, or common sailor, 40, and his daily food in addition; the *Degandaz*, or gunner, 12.⁵⁴

All of these regulations were strictly enforced. Accountability was crucial to the Mughal system. Mansabdars and other officers were subject to frequent inspections. Unit rosters included not only names and numbers but also detailed physical descriptions of both men and horses. Horses and draft animals were branded with identifying marks as a further safeguard against inflated counts or misappropriation. Officers who violated regulations or simply performed poorly in their duties could be—and frequently were—demoted or sacked outright. Promotions for excellence were just as common. Family ties, tribal affiliations and other forms of patronage were much less important than they had been in traditional Central Asian and Indian societies. The Emperor had final authority over all personnel decisions. There was another element of Akbar's system that limited the growth of cliques and old boy networks—its diversity. Military and civil service was open to candidates of all ethnic and religious backgrounds. Such a policy allowed the Mughals to co-opt local elites—many former or potential enemies were placated by appointments to government service. As the Empire grew and thrived, ambitious Indians were joined by adventurers from all over the world. The Mughal administration eventually included Central Asians, Indians of all sorts, Persians, Arabs, Anatolian Turks, Africans and Europeans. Such a varied leadership—along with frequent transfers and

reorganizations—made the creation of powerful factions and patronage networks more difficult. Even land grants were temporary. Land holding mansabdars were periodically reassigned to parcels in other regions in order to prevent the creation of fiefdoms and the emergence of a feudal system. All senior officers received extremely generous salaries, which served to inoculate them against graft and bribery. In the end the Emperor was the final judge of an officer's fitness. This essential feature—at least under the stewardship of a ruler as perceptive and demanding as Akbar—facilitated the creation of a meritocracy.

There were additional challenges for officers in Akbar's service. In the Mughal system there was no clear boundary between military and civil administration. This was reflected by the numerical ranks assigned to mansabdars. Each senior officer actually had two numbers next to his name. The first indicated his civil service pay grade while the second denoted his military rank—or more specifically, the number of cavalry he was expected to command. Professional soldiers often had to fulfill administrative tasks above and beyond the management of their land holdings. Likewise, officials who were bureaucrats by primary vocation were still responsible for mobilizing and leading troops. This arrangement forced officers to master a wide variety of skills. The Mughal system produced a special breed of officers—men who combined the qualities of warriors, administrators and businessmen. Many of the more successful mansabdars even attained the status of celebrities. Aside from the strict demands of their government, senior officers were subject to a remarkable degree of public scrutiny. As Jos Gommans notes, the combination of all of these elements created a remarkably advanced system. What strikes the European observer of the twenty first century is the extent to which the Indian military labour market—at least its top layer—approaches the modern

assumptions of a competitive labour market, such as freedom of entry and exit and a fair degree of competitive and meritocratic behaviour of all participants, only rarely to be curbed by rigid prescriptions of caste, religion or descent. This picture becomes even more convincing when the transparency of the market is taken into account... detailed information on each and every mansabdar was publicly available through stories and gossip told at the numerous bazaars and coffee shops of urban India. Their personalities, habits and movements were the topic of endless rumour and speculation... Apart from reading the official daily news reports that recorded changes of rank or new grants of jagir [land grants], one could as easily get the news by running into the nearest local bazaar... India was an information society par excellence. ⁵⁵

Akbar took steps to refine this information society and harness India's vast natural wealth, building the foundations of a national government and national economy. He divided his administration into four ministries under the direct control of the crown. Each had a separate area of responsibility—the army, the economy, the courts and the royal household. The empire was divided into twelve provinces, which were further split into sub districts. One of the primary purposes of these divisions was the efficient assessment and collection of taxes and other revenues. A special group of administrators was appointed to oversee taxation. Standardized coinage and units of currency ensured that tax payments—and retail prices—would be fair and consistent. Akbar established a postal service and a system of roads and customs houses to facilitate civilian trade and the movement of military supplies. In the interests of communication and efficiency, he mandated the use of a regulation calendar and measurements of time. Persian became the official language of the state. Akbar embarked on a series of massive public works projects, including the construction of an entirely new capital city at Fatehpur Sikri. As in the European states of that time, the trend was towards centralization and increasingly

sophisticated social networks. Once again, Akbar often innovated by imitating. Many of his initiatives were based on the practices of Persian and Central Asian governments—or even those of preceding Indian regimes. Yet all of those borrowed parts were combined into a coherent system that was unique—and uniquely successful. The territories won by generals would be held together by bureaucrats. The soldiers of the Empire were supported by invisible legions of civil servants, artisans and merchants.

Akbar's goals extended beyond economy and administration. He sought to establish a viable political and ideological foundation for his state. The new, centralized Mughal system was a departure from the traditional Central Asian model of governance, which was based on patronage, blood ties and a brittle network of quasi-independent local chieftains. Akbar's definition of kingship was absolutist. . He demanded total obedience from the least and the greatest of his subjects. Akbar did not see himself as first among equals or simply the most powerful prince or warlord around. He claimed to be a uniquely capable leader appointed by God to bring peace, order and prosperity to India and—at least in theory—the world. His legitimacy, however, was based on more than grandiose claims or his status as heir to Timur and Chingiz Khan. In exchange for their loyalty, he offered his subjects a system of government based on diversity, tolerance and opportunity. There was no longer any hereditary elite. The clique of Central Asian chiefs who saw themselves as the rightful ruling class were finally convinced—literally at gunpoint—of the error of their assumptions. The only nobles by blood were members of the royal family. The official definition of “noble” was quantitative, not qualitative. It simply referred to senior officials with a numerical rank above 500 on the civil service pay scale. Religious distinctions were also dissolved. Influenced by Sufi and Hindu

thought, Akbar evolved a syncretic spiritual philosophy that became the de facto state religion of the Empire. Over the bitter objections of the Muslim clergy, he recognized citizens of all faiths as equal under the law and suspended the traditional *jizya* or poll tax on non-Muslims.

Douglas Streusand describes the Emperor's social contract with his subjects as the "Akbari Constitution." It involved a "higher form of kingship" in which all elements of a diverse society were united by submission. Whatever their status, caste, faith or tribe, every citizen was equally inferior to the Emperor. Everyone was meant to share in a common purpose—to assist their perfect leader in creating a perfect state. Their rewards would be tolerance, security, prosperity and justice. The sense of trust inspired by Akbar's rule was something short of true nationalism, but there was an emerging consensus that the Empire was the best possible solution to the problems of society and economy. Loyalty was seen as the best policy.⁵⁶

Akbar's state may not have been a perfect one, but it was formidable nonetheless. Under his stewardship the Empire expanded to cover almost all of northern India. The gains included Gujarat, Bihar, Bengal, Kashmir and most of Rajasthan. Eventually his domain extended to its natural geographic borders—the Himalayas to the north, the Arabian Sea to the west, the Deccan Plateau to the south and the Bay of Bengal to the east. During the early portion of Akbar's reign, Mughal armies were in the field almost every year. Nearly 60% of the Imperial budget was spent on the military.⁵⁷ All of that money bought a truly fearsome engine of conquest. A contemporary observer's account suggests the awesome might and spectacle of a Mughal army on campaign. "The army... increased so rapidly that it seemed to hide the earth. It extended over the breadth of a

mile and half, covering the fields and filling the woods with a crowding multitude. No beast, if surprised on the way, could break through the ranks and escape. Even the birds, wearied by trying to fly out of danger, and terrified by the shouts of the soldiers, fall down exhausted to the earth.”⁵⁸

Over time, open field battles became increasingly rare. Few opponents dared to directly confront the Mughal military machine. A number of them instead resorted to evasive, Fabian tactics or guerrilla warfare. Many a Mughal campaign ended not in a climactic clash of arms but in a futile chase—or in a hasty negotiation and surrender. Those enemies that did offer battle usually lived to regret it. At Tukaroi in 1575, a huge Afghan army attempted to overwhelm a Mughal force with a combined charge of cavalry and elephants. The Afghans succeeded in smashing a gaping hole in the Imperial center, but the proven combination of infantry, artillery and mounted archers eventually prevailed. After being driven back to their encampment and baggage train, the Mughal infantry and cavalry in the center rallied, counterattacked and held the enemy long enough for the flanking cavalry to encircle and trap them. One year later the Rajputs attempted a similar all-out charge at Haldighati. The result was an even more decisive Mughal victory. This battle was significant in that a contingent of musket-armed infantry was able to break an elephant charge without any support from artillery.⁵⁹

Fortifications were seen as another possible solution to Mughal superiority. Enemies hoped that they could outlast Imperial armies by securing their main forces behind fortress walls and using scorched earth and guerrilla tactics to starve the besiegers. The Sisodia clan of Rajputs, who held the fortress cities of Chitor and Ranthambor, made the most spectacular attempt at this strategy. Despite nearly ideal conditions—massively

fortified citadels set in rugged terrain, a resource-poor countryside and a home base remote from the Imperial capital—they failed. In 1568 the Mughals besieged Chitor. After a frontal assault and attempts at mining failed, the invaders simply carved a huge gash in the mountain on which the city sat so that the great siege guns could be placed and fired from point blank range. Once the walls were breached, even suicidal bravery on the part of the defenders could not save the city from being stormed and sacked. The next year the Mughals repeated the same process at Ranthambor. Once the Mughal guns blew huge holes in the city walls, the garrison hastily surrendered in order to avoid Chitor's fate. Akbar had served notice. In India there was no place to hide from the Empire.⁶⁰

Despite all of their advantages, the Mughals also had reasons for avoiding conflict. Akbar and his generals could be surprisingly risk-averse, often choosing negotiated settlements and the outright bribery of enemy leaders over a decisive confrontation. Battles in the new era of gunpowder weaponry were extraordinarily bloody—for the winners as well as the losers. There was no longer any such thing as an easy victory. Any reasonably capable and well led smaller force, equipped with cannon and muskets and fighting from behind field fortifications or city walls, could extract terrible casualties even from an army several times its size. The defensive advantages provided by gunpowder slowed the pace of battle and made sudden victory through bold maneuver or astounding feats of generalship highly unlikely. Not surprisingly, the Mughals suffered very heavy casualties in all of their signature victories under Akbar, even when they had the advantage of fighting from the tactical defensive.

One potential solution to this impasse was to create bigger and bigger armies. If a force is large enough it can absorb any conceivable casualties. Better yet it may overawe

the enemy into submission. Most importantly it can restore the element of maneuver on a scale much larger than that of a single battlefield. The Mughals mobilized their vast resources to create armies massive enough to flow across the landscape like a flood, bypassing and surrounding any obstacles. Stubborn enemy units or defensive positions could be cordoned off and neutralized instead of attacked directly. Babur's largest army was probably no more than 25,000 strong. Akbar had more than 300,000 men under arms, and he led field armies of over 100,000 as far away as Afghanistan. Under Akbar's successors the Mughal legions would grow larger still. ⁶¹

Notes for Chapter 2

1. Late medieval tactics are discussed at length in Chapter 1 of Bert S. Hall's *Weapons and Warfare in Renaissance Europe: Gunpowder, Technology and Tactics* (Baltimore: Johns Hopkins University, 1997).
2. Hall explains evolving infantry tactics in Chapters 1 and 4. For a more detailed discussion of the Hussites and their tactics, see Hall 105 – 114 and C.W.C. Oman, *The Art of War in the Middle Ages, A.D. 378 –1515* (Ithaca: Cornell University, 1953), Chapter 7 as well as Hans Delbruck, *History of the Art of War, Vol. III: Medieval Warfare* (Lincoln: University of Nebraska, 1990), Book 4, Chapter 4. The surprisingly sophisticated and effective infantry tactics used by Celtic armies are described by J. Michael Hill in “Gaelic Warfare 1453 – 1815,” in *European Warfare 1453 – 1815*, ed. Jeremy Black (New York: St. Martin's, 1999), 201 – 223.
3. See Hall, Chapter 2 for a description of the limitations of the earliest gunpowder weapons.
4. Hall in Chapter 3 explains in detail the crucial advances in gunpowder chemistry and manufacturing techniques.
5. Hall, 124
6. See Hall, 123 –130 for a description of the Granada campaigns.
7. C.W.C. Oman, *A History of the Art of War in the Sixteenth Century* (London: Greenhill, 1991), 151
8. See Hall, 165 –190 and Oman, *A History of the Art of War in the Sixteenth Century*, Book I, Chapters 5-6 and Book II for analysis of the early battles of the Italian Wars.
9. For descriptions of how the Ottomans first encountered and later adopted gunpowder weaponry and wagon tactics, see Gabor Agoston's “Ottoman Warfare in Europe 1453 – 1826,” in *European Warfare 1453 – 1815*, 118 – 144 and Chapter 7 of Colin Imber's *The Ottoman Empire, 1300 – 1650* (New York: Palgrave Macmillan, 2002). There were special janissary units trained and equipped for shock combat with edged weapons, but the limitations of this approach and of Ottoman infantry on the tactical offensive, especially against enemies using firearms, were exposed at battles like Rhodes, Corfu and Malta.
10. Carlo M. Cipolla, in *Guns Sails and Empires: Technological Innovation and the Early Phases of European Expansion, 1400 – 1700* (New York: Pantheon, 1966),

argues that inferiority to Muslim armies on land was a primary motivating force behind European expansion at sea. Thomas F. Arnold, in “War in Sixteenth Century Europe: Revolution and Renaissance,” in *European Warfare 1453 – 1815*, 23 – 44, suggests that the *trace italienne* was designed in large part to contain Ottoman expansion.

11. Simon Digby’s *War Horse and Elephant in the Delhi Sultanate: A Study of Military Supplies* (London: Orient Monographs, 1971), despite its limited scope is still perhaps the best existing study of the Sultanate-era armies. The military historiography of this period is even sparser than that pertaining to the Mughals.
12. Chapters 1 and 2 of Iqtidar Alam Khan’s *Gunpowder and Firearms: Warfare in Medieval India* (New Delhi: Oxford, 2004) describe the earliest use of gunpowder weapons in India.
13. Zahiruddin Muhammad Babur, *The Baburnama*. trans. Wheeler M. Thackston (New York: Oxford, 1996) 336. For a more detailed exploration of Babur’s intellectual life, see Stephen Dale, *The Garden of the Eight Paradises: Babur and the Culture of Empire in Central Asia, Afghanistan and India, 1483 – 1530* (Boston: Brill, 2004), especially Chapters 3 and 5.
14. See Erik Hildinger, *Warriors of the Steppe: A Military History of Central Asia, 500 B.C. to 1700 A.D* (New York: Sarpedon, 1997). Hildinger explains the capabilities of the composite bow in Chapter 2. He also describes the other basic equipment of the steppe cavalryman—which changed little from Chingiz Khan to Babur’s time. John F. Guilmartin’s assessment of the capabilities of the composite bow is even more generous. See *Gunpowder & Galleys: Changing Technology & Mediterranean Warfare at Sea in the 16th Century* (Annapolis: Naval Institute Press, 2003) 161 – 165.
15. Babur owned a special suit of “Qalmaqi” armor made of joined metal plates. The exact type is unclear—the name suggests Chinese-style lamellar armor, as the Qalmaqs were a Mongol tribe that inhabited the Chinese frontier—but it was sturdy enough to save him from potentially fatal arrow wounds on at least one occasion. See Babur 150. For an encyclopedic and well illustrated description of early Mughal arms and armor consult G.N. Pant, *Mughal Weapons in the Babur-Nama* (Delhi: Agam Kala Prakashan, 1989).
16. Gommans, 161
17. G.J. Bryant, “Asymmetric Warfare: The British Experience in Eighteenth-Century India,” *The Journal of Military History* 68 (April 2004): 431 – 469, p. 442
18. Babur, 121

19. Babur, 161
20. Babur, 246. The surname “Sarpuli” may indicate that his heroic deeds took place at the battle of Sar-I-Pul.
21. This battle is described in Babur, 252 – 253.
22. See Haidar Mirza Muhammad, *The Tarikh-I-Rashidi*, trans. E. Denison Ross (New Delhi: Renaissance, 1986). The author describes how the chieftain Mirza Abu Bakr raised a large force of volunteer soldiers and issued them horses and armor. He mentions at length the poor horsemanship of most of the recruits—mainly peasants, herdsmen and craftsmen. It is almost certain that these men would have had to dismount when fighting. It is unclear whether or not the use of mounted infantry on this scale was typical or simply an expedient at a time of crisis—Abu Bakr was facing an invasion of his home territory at the time. See p. 322 – 323.
23. Babur, 128
24. John F Guilmartin, “The Military Revolution: Origins and First Tests Abroad,” in *The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe*, ed. Clifford J. Rogers (Boulder: Westview 1995), 299 – 333, p. 316
25. It is unclear exactly how much ammunition the typical horse archer carried. Contemporary illustrations show cavalymen carrying from as few as 6-8 arrows to more than 50. Heavily armored troopers who expected to spend more time in hand to hand combat probably carried the fewest. A European observer of Chingiz Khan’s army noted that his troopers were expected to carry “three large quivers full of arrows.” See Gerard Chaliand, *The Art of War in World History* (Berkeley: University of California, 1994), 465 – 474. Babur at one point mentions counting about 20 arrows in his quiver—and this was after a fight in which he had probably already expended at least several more. See Babur 152.
26. Babur describes the use of field fortifications before the battle of Sar-I-Pul on p. 125.
27. See Iqtidar Alam Khan, “Early Use of Cannon and Musket in India: A.D. 1442 – 1526,” in *Warfare and Weaponry in South Asia*, ed. Jos Gommans and Dirk Kolff (New Delhi: Oxford, 2001), 321 – 336 and *Gunpowder and Firearms* Chapter 1 for discussions of India’s first experiences with firearms and Chapter 3 for Babur’s potential weapons suppliers. Babur describes Afghan tribesmen who made rude gestures when shot at, thinking the guns to be harmless noisemakers.

They soon learned otherwise. See Babur, 270.

28. Khan discusses early Mughal artillery in Chapters 3 and 4 of *Gunpowder and Firearms*. My estimate of the sizes of Babur's artillery is based on Haidar Mirza's description of similar guns used by Humayun at Kanauj. See Haidar Mirza 474. It is interesting to note that some of the nomenclature used by Babur matches that of the Ottomans, especially *zarb zan* (or *darbzen*) for light cannon and *tufang* (or *tufenk*) for musket. See Gabor Agoston, *Guns for the Sultan: Military Power and the Weapons Industry in the Ottoman Empire* (New York: Cambridge University, 2005), Chapter 7 for a more detailed description of the firearms that served as a model for later developments in Central and South Asia.
29. See Chapter 5 of *Gunpowder and Firearms* for a more detailed description of early Mughal small arms.
30. For a description of this incident see Babur, 322.
31. Hildinger attributes the right hand bias of Central Asian commanders to Mongol shamanistic beliefs. See Chapter 7 and p. 238 of *Warriors of the Steppe*. The right flank was a prestigious position in Babur's army, and his officers competed fiercely for the privilege of serving there.
32. Babur, 125
33. Babur, 259
34. Babur claimed that there were about 12,000 men in the main body of his army as it entered India. An unknown number of these were noncombatants. See Babur, 254. Stephen Dale, in Chapter 6 of *The Garden of the Eight Paradises*, estimates that the number of actual combatants at Panipat was 8 – 10,000—or perhaps even fewer. In a later, second hand account Babur's daughter, Gulbadan Begum, states that there were “at the outside, 6,000 or 7,000 serviceable men” present—although she maintains her father's unlikely estimate of over 100,000 enemy troops. See Gulbadan Begum, *The Humayun-nama*. trans. H Beveridge (Los Altos: Packard Humanities Institute, 2006) Online Edition p. 85. Dale also argues that the extremely high number of enemy troops reported by Babur was an attempt at self-aggrandizement. This over count, however, could also have been the result of inexperience. Babur had never encountered an enemy—or friendly—force nearly that large, and the figures he quotes may simply be wild guesses.
35. Babur, 326
36. Babur, 382

37. Babur, 382
38. Babur, 382
39. Babur, 384 – 5
40. The number and type of artillery is based on Haidar Mirza’s eyewitness account of the fiasco at Kanauj. See p. 471 –477.
41. See Simon Digby, “The Problem of the Military Ascendancy of the Delhi Sultanate,” in *Warfare and Weaponry in South Asia*, ed. Jos Gommans and Dirk Kolff (New Delhi: Oxford, 2001), 311 – 320 for a thorough description of the pre-Mughal Indian military system and its emphasis on cavalry and elephants.
42. Monserrate, *The Commentary of Father Monserrate S.J. on His Journey to the Court of Akbar*, trans. J.S. Hoyland (New Delhi: Asian Educational Services, 2003), 201 –202
43. Monserrate, 200 – 201
44. John F. Richards is one of these. In *The Mughal Empire* (New York: Cambridge University, 2004), he cites a recently published forensic analysis of Akbar’s “symptoms” as described in the primary sources.
45. See Chapter 5 of Gommans and especially Chapter 4 of Khan’s *Gunpowder and Firearms* for a more detailed description and analysis of development in Mughal artillery.
46. A detailed discussion of Indian rocketry can be found in *Gunpowder and Firearms* 22 –30.
47. Abu al-Fazl, *Ain-I-Akbari*, trans. H. Blochmann (New Delhi: Oriental, 1977), 113
48. Developments in small arms are covered in Chapter 5 of Gommans and Chapter 5 of Khan, *Gunpowder and Firearms*. Gommans provides an especially detailed description of the design and function of the Mughal musket on p. 150 – 155.
49. See Abu al-Fazl, *The Akbarnama*, trans. H. Beveridge (New Delhi: ESS, 1973) and Muhammad Ari Qandahari, *The Tarikh-I-Akbari*, trans. Tasneem Ahmad (New Delhi: Pragati, 1993) for some descriptions of Mughal siege craft in action. See especially Volume 2, sections 314 –317 of the former and p. 196 – 198 of the latter.

50. Gommans discusses the role of elephants in Chapter 4, especially p. 121 – 126. Monserrate notes the secondary role of elephants in the Mughal battle array. See p. 140.
51. See W.G Orr, “Armed Religious Ascetics in Northern India,” in *Warfare and Weaponry in South Asia*, 185 – 201 for descriptions of a number of odd weapons devised by mercenary and guerrilla groups, including one that seemed to resemble the *Panzerfaust* of German World War II fame. It supposedly launched a large metal spear point from a cylinder of explosive propellant. It is unclear whether this weapon really was a primitive version of the man portable rocket launcher—if the warhead had its own independent propulsion—or if it functioned more like a harpoon gun. This device might also have been a simple tube used for the more accurate firing of standard rockets, some of which were equipped with points or spikes attached to their casings, apparently to make them stick to a target on impact. Akbar had his own share of strange weapons. Abu Fazl describes a device reminiscent of the German *nebelwerfer*—an array of 17 cannon barrels rigged to fire from a single fuse. See *Ain-I-Akbari* p. 112. Several later Mughal forts had cannon mounted on revolving turntables. It is unclear, however, when they were installed and if the work was done by the Mughals or the forts’ previous owners. See Khan, *Gunpowder and Firearms* p. 110.
52. Abu Fazl states that 1000 gladiators were stationed in the royal palace. He claims there were 100,000 more of them around the Empire. He does not specify what roles they served in the military, but similarly armed troops were used as shock infantry. The palace gladiators apparently did live up to their names on occasion. Monserrate describes a large arena in Fatehpur Sikri that hosted mock combats, polo matches, elephant fights and public executions. See p. 30 – 31.
53. *Ain-I-Akbari*, 112
54. *Ain-I-Akbari*, 279. For detailed discussion of Mughal military ranks and regulations see Ali, M. Athar. “Organization of the Nobility: Mansab, Pay, Conditions of Service,” in *Warfare and Weaponry in South Asia*, 232 -274 and Shireen Moosvi, *The Economy of the Mughal Empire c. 1595: A Statistical Study* (New Delhi: Oxford university, 1987), Chapters 9 and 10.
55. Gommans, 92 – 93
56. See Douglas E Streusand, *The Formation of the Mughal Empire* (New Delhi: Oxford University, 1989), Chapter 6 for a detailed description of Akbari ideology.
57. For a detailed breakdown of the Mughal budget see Chapter 10 of Moosvi, especially the tables on p. 270.

58. Monserrate, 79
59. Tukaroi is described in the *Akbarnama*, (online version) Volume 3, chapters 122 – 126 and Haldighati in Volume 3, chapters 173 – 176.
60. The great sieges are described in *Akbarnama*, Volume 2, chapters 314 –339.
61. According to Abu Fazl there were roughly 150,000 cavalry in the mansabdari contingents and about 75,000 infantry and an unspecified number of cavalry in the replacement pool. There were 12,000 musketeers in the royal guard and at least that many cavalry. “Gladiators,” mercenaries, local militia units and auxiliaries could be added to these numbers. Monserrate accompanied a Mughal field army that was reportedly composed of 50,000 cavalry and an unspecified but much larger number of infantry. See Monserrate 83.

Chapter 3: Tools of War – Weapons, Equipment and Technology

Technology played an obvious role in the Mughal military transformation. Babur and his successors combined the traditional implements of Central Asian warfare—bows, blades, armor and horses—with new devices—muskets, cannon, bombs, rockets and ships. In many cases these newer weapons did not compete with or replace the older equipment but instead complemented it. The Mughals were not simple imitators of Western designs but informed consumers, able to grasp the full importance and implications of gunpowder weaponry. Guns became more than just ugly but necessary tools. They became a part of the Mughal elite’s culture and identity. They also profoundly changed the way war was experienced by nobles and commoners alike. The new Indian battlefield, dominated by a multitude of missile weapons great and small, was a uniquely dangerous place, and it demanded new tactics and a new outlook for anyone who hoped to survive and win there.

Technology and the Mughal Military Culture

In his essay “War in Sixteenth Century Europe: Revolution and Renaissance,” Thomas F. Arnold explains how and why Western military institutions evolved into a form distinct from, and eventually superior to, that of their Eastern counterparts. “What made sixteenth century Europe a crucible for military experiment and change was the conjunction of three circumstances: first, the awkward presence in warfare of a powerful,

aesthetically exciting... but culturally still half-alien military technology; second, a grave military crisis... and third, a current within the larger culture of Europe's social elite, namely the Renaissance, that allowed and encouraged—even demanded—the wholesale reconceptualisation of every custom and art, including the art of war.” He notes that “Europe’s advantage was not purely technological, it was technical; it sprang from the distinctive way Europeans thought about and used their gunpowder weapons,” and “what was critical was not just the physical presence of firearms and cannon, but their mental presence in the minds of Europe’s ruling class.”¹

Arnold’s arguments are typical of the prevailing wisdom regarding the Military Revolution and the evolution of early modern states in general. The assumption is that by comparison Asian and Islamic regimes were intellectually and culturally inflexible, that they only grudgingly accepted gunpowder weapons and other technological innovations. In many cases they were unable to fully understand the implications of these instruments and utilize them to their fullest potential. Due to their inherent conservatism they often maintained traditional and outdated institutions, weaponry and tactics. The newfangled devices and their users were seen as morally and socially corrupting and for this reason they were marginalized. In the case of the Mughal Empire, however, this explanation could not be farther from the truth.

In fact the Mughal Empire and its Timurid rulers were heirs to a long standing tradition of intellectual, scientific and artistic achievement. The ancestors of Babur and Akbar were at the center of the so-called “Timurid Renaissance” in Central Asia during the 15th and early 16th centuries, a process that inspired advances in the arts, literature, architecture, engineering and science rivaling anything accomplished in Italy and

Western Europe during the same period. Ulugh Beg, Timur's grandson, was one of the world's leading astronomers and mathematicians and the founder of institutes of higher learning in his capital of Samarqand. Babur's cousin Hussein Bayqara, the ruler of Herat, was a renowned patron of the arts who made his city into the center of an emerging Turkish literary and artistic movement. Babur was himself a prolific writer and poet. His son Humayun was an accomplished naturalist and amateur engineer. Akbar also excelled as an engineer and technician. Abu al-Fazl gives him personal credit for a wide variety of military and civilian inventions and innovations. This is almost certainly an exaggeration, but it is clear that he was actively and intimately involved with the adaptation and implementation of technology. Akbar and the other leaders of the Mughal Empire came from a family and a culture with a long history of intellectual inquiry and a deep familiarity with science and technology. They may not have invented all of the military devices and doctrines they used to build their state, but they were informed and perceptive consumers of new technology, not simple imitators.

The Mughals had compelling reasons to change and innovate. Necessity was a harsh teacher. The formative decades of the Empire were a time of constant crisis—the efforts of the Uzbeks to extinguish the Timurid dynasty, Babur's exile from Central Asia and anabasis in Afghanistan, the desperate battles after the invasion of India, the defeat and resurgence of Humayun and the bitter struggle with partisans of the old Lodi order that persisted well into Akbar's reign. Their rise to an overwhelming position of strength in India and emergence as a true world power was a long time in coming. Gunpowder weapons were essential. They became “wonderful locks for protecting the august edifice of the state; and befitting keys for the door of conquest.”² Muskets and artillery,

however, were not simply a necessary evil. They were not accepted grudgingly—they were embraced eagerly.

By the time of Akbar's reign, gun culture had pervaded the Empire. Firearms were coveted by both commoners and by the elite. Akbar and his son Jahangir were what present-day observers might refer to colloquially as "gun nuts." They owned personal collections of hundreds of small arms, which they constantly tinkered with and modified. They were avid hunters and target shooters. Abu al-Fazl describes Akbar's fascination with guns.

One hundred and one guns are continually kept in the Harem. Their order is as follows. On the first day of every solar month eleven guns are handed over to the servants of the Harem, one of each of the guns for the months, the weeks, the days, the kotals, the plain ones, the colored ones, the *koftkar* not in charge of the slaves, the *koftkar* in their charge, the selected long ones, the selected *Damanaks*, the chosen ones of the selected ones. On the second day only the guns of the months are handed over in the same order. For ten days an equal number is sent to the Harem. His Majesty practices often. When he has tried each gun, he commences from the beginning; and when each gun has been used four times, it is sent away and replaced by a new one of each kind. If guns have been left unused at the beginning of a new month, they are placed last, and the guns for the current month are put first. An order has also been given to the writers to write down the game killed by His Majesty with the particulars of the guns used. Thus it was found that with the gun, which has the name of *Sangram*, one thousand and nineteen animals have been killed. This gun is the first of His Majesty's private guns, and is used during the *Farwardin* month of the present era.³

Not surprisingly, gun collecting and shooting sports soon became popular pastimes for nobles and other gentlemen—and even women—of status. Ornately decorated muskets and accessories were produced as luxury goods and works of art. Cannon cast in

fanciful shapes to resemble lions or dragons were often the subject of ridicule by later Western observers, but the status of gunpowder weapons as objects of ostentatious display, pomp and circumstance indicates just how deeply both the Mughals and their Indian rivals appreciated these new devices. Over time small arms became more widely available to ordinary subjects, for whom they were a powerful symbol of strength, self-sufficiency and personal freedom. Mastery of the musket allowed commoners to pursue honorable and well compensated careers as infantrymen in the regular army or in mercenary companies. Firearms were a potent defense for communities threatened by bandits, border raiders or, in the worst case, oppressive agents of the central government.

The high status of gunpowder weaponry was reflected in official policy. At least initially, the manufacture and use of cannon and muskets were meant to be the sole prerogative of the Crown, although the mechanical simplicity and ease of manufacture of small arms meant that those weapons would eventually spread beyond the government's control. The factories and workshops for the production of these weapons and the military units equipped with them were under the direct control of the central government. Eventually select high ranking officers and local officials were allowed to assemble their own independent contingents of musketeers, but this privilege was reserved for those leaders who were trusted and held in particularly high esteem by the Emperor. The command of artillery and musket-armed infantry was seen as a prestigious posting. There did not appear to be as much of a social stigma surrounding these weapons in the Mughal military as existed in contemporary European armies. Men of high status and from prominent families served as commanders of infantry or artillery. Many *ahadis*, or officers in training, were assigned to these branches or to other support positions as

part of their instruction. All officers were expected to become proficient with the musket as part of their official duties. In this setting, guns were not powerful but inelegant tools managed by grease-stained wretches from the lower classes. They were coveted emblems of status and authority.

Guns and other new technology found fertile ground in India. Before the advent of the Industrial Revolution, South Asia was one of the world's premiere centers of manufacturing. Many European traders did not venture to India in search of raw materials but in pursuit of textiles and other finished goods. The region was heavily urbanized and rich in natural resources—not just raw materials like iron, coal and timber but also the agricultural resources that provided a base of wealthy customers and investment capital for industrial concerns. It supported a vast population of skilled artisans and technicians. Standards of manufacture and craftsmanship were exceptionally high. This was especially apparent in the production of weapons and other forms of metal working. In markets where swords and daggers from Europe, the Middle East and India were all available, the latter were the most coveted. The same would be true of muskets once they entered wide circulation. Novelty weapons such as steel bows, which required metal of exceptional quality and a high degree of skill in their manufacture, were a specialty of Indian craftsmen. European visitors were astonished by the quality of Indian metal goods and the purity of coins manufactured there.⁴ The Mughals mobilized these physical and human resources for their own ends. They implemented their new military system with the aid of an indigenous workforce and economy especially well suited to the demands of technological innovation and development. It is no coincidence that this convergence of

urban and agrarian capital was very similar to the environment in southern and Western Europe that fueled the Western military revolution.

Traditional Weapons and Armor

Despite advances in weaponry and tactics, much of India's industrial capacity was devoted to the production of more conventional arms. The Mughals maintained sizeable contingents of soldiers equipped in the traditional Central Asian and Indian styles, which after centuries of close proximity under the Delhi Sultanate had become very similar. The persistence of such units, however, had little to do with the supposed inflexibility, conservatism and submission to convention of Eastern and Muslim leaders. As European armies in other theatres had learned to their sorrow, the traditional Central Asian approach to combat based on archery and edged weapons was superior to its Western counterpart. Given the limitations of smoothbore firearms, the advent of gunpowder weaponry did not make their method obsolete. The soldier at the center of this system was the mounted archer who, until the advent of more advanced field artillery and invention of the minie ball and the introduction of a practical rifle musket, was arguably the most formidable individual warrior on any battlefield, presenting a unique combination of mobility, firepower and shock action.

The kit carried by a well-equipped horse archer was indicative of his versatility. The bow was obviously the most important item. This was a composite weapon, made of wood, gut and horn, essentially unchanged since the time of the Seljuks and the Mongols. With draw weights ranging from 50 to over 100 pounds, it was accurate to over 100 yards and still dangerous at up to 300 yards. Its high rate of fire made it especially potent—a skilled user could fire over six shots per minute. Many these archers carried two bows, a

lighter model for use on horseback and a heavier one for fighting on foot. A few also relied on an Indian innovation, the steel bow. It was similar in size and shape to the standard composite bow, but less flexible. Slightly inferior performance was offset by durability—unlike the traditional version, it was not prone to warping and splitting in India’s hot and humid climate. Each trooper typically carried several dozen arrows. These could be of differing types—chisel points for piercing armor and broad heads for use on unprotected targets. There were also specialized flight arrows, thinner and shorter than normal arrows. When used with a special grooved arm guard that essentially turned the composite bow into a makeshift crossbow, they could be fired to distances of up to 800 yards. These projectiles were quite fragile and were primarily intended for sporting use, but they were sometimes used in combat besides as a means of harassment.

Mounted archers—and especially dedicated units of heavy cavalry tasked for shock combat—also carried a variety of weapons for fighting at close quarters. The primary weapon for this purpose was a lance, usually about 8 to 10 feet long. It was often equipped with a point on each end so that it could be easily used in either an overhand or underhand grip. If the lance was lost or broken, or if the range closed to within a few feet, cavalymen employed several different side arms. Swords were preferable for use on lightly armored targets. Most used some variant of cavalry saber—the Persian *shamshir*, Turkish *yataghan* or the heavier Indian *tulwar*—but there were also straight-bladed swords—the Central Asian *dhup*, similar in form to the medieval European longsword, the *firingi*, a direct copy of Western designs, and the *khanda*, an Indian broadsword that resembled the later Scottish claymore. Well equipped soldiers also carried a second, heavier weapon—a mace or battle ax—for penetrating thicker armor. Daggers were the

weapon of last resort. The *katar* or *jamadar* was the most popular variant. This so-called “punch dagger” was designed for thrusting and was deadly in close quarters and confined spaces. Its guard offered excellent protection for the hand and forearm, making it ideal for use as a *main gauche* when fighting without a shield.

Body armor came in a variety of forms. The simplest form of protection was a quilted cloth jacket or leather buff coat, but those who could afford it preferred more substantial gear. Hauberks of chain mail or lamellar armor—made from small plates of metal joined edge to edge—were typical equipment for Central Asian cavalry. The brigandine or *chilta hazar masha* was another type of armor especially popular in India. It was a jacket of quilted cloth, canvas or leather with reinforcing metal plates inserted between layers of fabric. The parts were held together with rivets, the exposed heads of which gave the armor its name “coat of a thousand nails.” Such gear was lighter than all-metal armor and more practical in India’s hotter climate.

For head protection most troopers used a simple conical helmet. This might be equipped with a nasal, cheek pieces and a mail or lobster tail neck guard, but most of the face was left uncovered. A closed face helmet like those used by contemporary European heavy cavalry was impractical for soldiers who were expected to spend at least part of every engagement using a bow. The lower body was protected by sturdy boots that—probably not by coincidence—resembled modern cowboy boots and leather leg guards similar to chaps. The latter could be worn over the clothing or stitched onto cloth pants as reinforcement. Heavy gauntlets were not normally used, although hauberk sleeves or bracers often included extensions to cover the back of the hand. Effective archery required bare fingers or, at best, thin gloves.

For even greater protection, all of this gear could be supplemented with pieces of plate armor. The *char aina*, or “four mirrors,” was secured around the upper body in a manner similar to present day football shoulder pads or the protective gear used by motocross riders. Its four plates covered the chest, sides and back. Other pieces of supplementary armor were designed to cover the forearms or close in a clamshell fashion around the lower legs and feet like modern ski boots. Full plate armor of the type used in Europe during this era was extremely rare. It was not manufactured in India, although there are a few instances where suits were imported from overseas. The final piece of protective gear was a shield. This was typically round and about 2-3 feet in diameter. Most were made of leather over wood or wicker, but there were a few examples constructed of brass or steel.⁵

Armor of this type offered excellent protection against edged weapons and arrows. It was not, however, very effective against bullets and their superior penetrating power. Despite this limitation it remained standard equipment long after the introduction of firearms. There did not appear to be any trend towards the use of less or lighter armor as happened in Europe during the same period. The widespread use of body armor would persist throughout the life of the Mughal Empire and into the early colonial era. While the bow virtually disappeared as a battlefield weapon in the West over the course of the 16th and 17th centuries, the vast abundance of trained archers in India—fighting as both cavalry and infantry—meant that armor was still necessary and practical.

The heaviest armor was quite costly and would have been worn by the wealthiest soldiers, those with wealthy patrons or by elite troops generously equipped at the government’s expense. Armor, however, was indicative of function as well as status.

While almost all Central Asian cavalry carried bows and were expected, at least in theory, to be able to fight both at close quarters and at range if called upon, there were practical reasons why individual soldiers and units would prefer one method or the other. Heavy armor—in many cases worn both by horse and rider—limited both mobility and endurance. Charging into an enemy and then fighting hand to hand with lance and saber required the rider to be firmly seated with legs fully extended—a completely different position than that used in mounted archery, which was performed in a more upright stance, with the rider often literally standing in his stirrups. These positions were not always easy to change on the fly. That required an adjustment of the stirrups, or for more optimal performance, even a complete change of saddle. The result was that different units functioned as light or heavy cavalry, specializing in ranged or shock combat. Native Indian allies like the Rajput nobility—who were accustomed to fighting more like European knights than Central Asian nomads—were especially useful in the latter role.⁶

Infantrymen used much of the same basic equipment. Those foot soldiers not armed with missile weapons usually carried a spear and round shield similar to those used by the cavalry, with a sword and/or a dagger as a side arm. More specialized troops like the *shamsherbaz*, or “gladiators,” however, wielded a variety of exotic weapons like two-handed swords, halberds and massive war clubs. There are also instances of very large shields--tower shields “not quite so large as to conceal a man” and even larger versions that could “conceal a horseman.” The latter could have actually been mantlets or pavises designed to protect archers or musketeers. Contemporary accounts of the role of oversized shields in combat refer not to close order formations or phalanxes but to their use by skirmishers.⁷ These were carried by men using missile weapons or by partners

who acted as bodyguards. The body armor worn by infantrymen was usually lighter than that used by cavalry. The typical foot soldier came from a humbler background and probably could not afford an elaborate suit of mail. Even in cases where equipment was provided by the commander or issued from a state armory, there were reasons why heavy armor was less practical for infantry. Most of them fought in open order, acted as skirmishers and scouts or fought from behind cover. Units of armored heavy infantry fighting in close formation comparable to Roman legionaries or Swiss pikemen were uncommon. Those infantry that did use shock tactics relied on mobility to get into contact with the enemy before they respond with their defensive weaponry. India's hot climate made heavy armor impractical for men who had to travel great distances and at high speed on foot. For some infantrymen, however, there may have been another type of protective gear available. In India during this period camouflage clothing was widely used for hunting. These suits ranged from simple solid-colored garments in forest green or earth tones—from which the later term *khaki* was derived—to outfits covered in dappled or leafy and floral designs very similar to the patterns used by modern soldiers and sportsmen. It is unclear whether any soldiers actually wore camouflage uniforms, but the applications for scouts and skirmishers are obvious.⁸

The Evolution of Small Arms

A sizeable portion of the infantry was equipped with missile weapons. Bows were the most common. Even well after the introduction of firearms, during the reign of Akbar, foot archers outnumbered musketeers by about three to one. They were equipped either with an oversized version of the Central Asian composite bow—it was possible to draw a much heavier bow while on foot than on horseback—or with a more traditional

Indian weapon, the longbow. The latter type included both self bows, made from a single piece of wood, and bows constructed from laminated bamboo, similar to the Japanese *yumi*. The longbow has a long and illustrious history in India, dating back to Ancient times. It was wielded by heroes out of legend like Lord Rama and Krishna, but it was also a very real threat on the battlefield. Greek invaders learned to fear a weapon that could send a yard-long shaft completely through a hoplite's shield and breastplate. As in England and Wales during the Middle Ages, the longbow became both a means of self defense and a means of entrance into the military profession for commoners.

Another popular weapon for the masses, one that posed an especially vexing problem for the elites of Central Asian and India as well as the mounted nobility of Europe, was the crossbow. As Erik Hildinger succinctly notes, “the Mongols did not like this weapon.”⁹ It was inferior to the composite bow or longbow in some ways, particularly its slower rate of fire, but still presented a unique challenge for nomadic horsemen attempting to pacify sedentary peoples. It was easy to master and could be used by almost anyone, even those not in peak physical condition. Unlike conventional bows, it could be used comfortably from a prone position or from behind cover and kept cocked while a marksman carefully lined up a shot or waited for a target to emerge into view. Crossbows were ideal for sniping and ambushes. While the longbow was an extremely powerful weapon, it forced its users to stand and fight in the open. That was still a very risky proposition against cavalry—especially cavalry that could shoot back. The crossbow did not have this limitation, making it in many cases a superior weapon for fighting on foot and fighting from the defensive. Another advantage was that its shorter, heavier projectile struck a target with greater force than a standard arrow. As Babur's

experience shows, even mounted archers found the crossbow useful on occasions when they were forced to fight on foot. Most Central Asian and Indian crossbows were basic models, cocked using a stirrup or hook, but there were also examples of a type referred to as the *charkha*, or “wheel,” apparently a heavier model armed with a windlass.

In Central Asia and India the crossbow was referred to by the Persian term *tufang*—the same word used to describe the arquebus after its introduction. As the similar nomenclature suggests, the musket emerged to fill much the same role. Key parts of the musket like the stock and trigger mechanism, were inherited from the crossbow. Like the crossbow, it was easy to learn and required even less physical strength to use effectively. It could be fired easily from cover and from a kneeling or prone position. It could be kept cocked almost indefinitely for careful aimed shots. It was initially less accurate than a bow or crossbow—round projectiles were less aerodynamically efficient than arrows and were more likely to go off course—but the musket did offer unique advantages. A matchlock arquebus was mechanically much simpler than a crossbow and cheaper to manufacture. It had approximately the same rate of fire—about 2-3 shots per minute—and effective range—about 100 yards— as a crossbow but had much superior penetrating and stopping power than a crossbow or even a longbow. This was especially true at close range, where a musket ball moved at a much higher velocity than an arrow or crossbow bolt and transferred much more energy to the target. Soft lead bullets mushroomed after impact, creating much more tissue damage and larger wound channels than those made by arrows—especially the arrows with narrow, armor-piercing points that were normally used in combat. This characteristic made muskets very popular for hunting, especially in pursuit of dangerous game. Musket balls were much more capable of penetrating armor

and much more likely to cause injuries that were immediately incapacitating or fatal. While standard musket balls were destructive enough, there were also accounts of the Mughals using ammunition that was specially designed to pierce armor and “cut like a sword.” The mechanism used to accomplish this is unclear—it might have been a pointed bullet similar to a minie ball or a projectile made of iron or some harder alloy that would penetrate further without losing its shape. Firearms were particularly effective against cavalry—a hit to the center of mass could stop a horse instantly in its tracks. Bullets even inflicted terrible damage on war elephants. The introduction of the musket was one of the primary reasons why elephants lost their central role on Indian battlefields during the expansion of the Mughal Empire.¹⁰

The Indian musket had similar origins but evolved differently from its European counterpart. The crude brass muskets used by Babur’s men were replaced by more refined weapons crafted from iron or steel. They were designed for accuracy, not a high rate of fire. Over time a number of features were added for this purpose, including thicker and longer barrels, iron sights, bipods, recoil pads and slings—which were used for steadying aim as well as ease of carrying. At the onset of the colonial era, British observers noted that Indian style muskets—little changed from Akbar’s day—were often much more accurate than “modern” European models. Weapons of this type not only made it much easier for an ordinary user to achieve basic competence—as compared to archery’s steep learning curve—but they were also exceptionally lethal in the hands of a truly skilled practitioner. Mughal muskets were quite large, firing balls weighing up to 2 ounces or 875 grains. The large bores suggest a weapon meant to be used carefully, from a prone position or from behind cover. There were also even bigger “wall guns,” with

barrels as long as six feet that launched projectiles as heavy as 3.5 ounces or 1500 grains. These obviously required some kind of secure rest to use safely. Muskets optimized for accuracy may have significantly narrowed or even eliminated the bow's usual advantage in precision over typical smoothbore gunpowder weapons. While simple aerodynamics ensures that an arrow is a more accurate projectile than a round musket ball, under certain conditions—the ability to use a rest and more carefully aim, the addition of a sighting mechanism—a musket might become a more accurate weapon system in net effect. The difference in rate of fire remained, with an archer capable of firing about three times as fast as a musketeer, but that deficit may not always have been so overwhelming in a setting where the average soldier only carried a few dozen rounds of ammunition and would be forced to pace himself over the course of a battle. Physical stamina was also an issue in the case of a composite or long bow, especially heavier weapons with draw weights approaching or exceeding 100 pounds. Archers would not be able to keep up a six shot per minute or higher pace for very long without resting. The bow's ability to fire very rapidly in short bursts was actually an asset for Mughal musketeers, who were usually supported by foot archers. The archers' high volume of fire covered the more deliberate work of the muskets. In this system musket and bow were not competing weapons but complementary ones.¹¹

Contemporary descriptions of the weapons used by Akbar and his elite guard indicate the Mughals' understanding of the musket as a precision instrument. Technicians carefully inspected and test fired new muskets and compiled a wide range of statistics to track them—the weight, the amount and type of iron used, the place and date of manufacture and the names of the workmen involved. Each musket was also assigned a

serial number. This information was not just written down but was also indicated by markings engraved on the finished pieces. Obviously this level of care and attention to detail probably did not extend to all of the weapons used by common soldiers, but accounts of the musket's actual use in battle emphasize the importance of accuracy and marksmanship. Akbar, aside from his own reputed exploits as marksman, maintained a special group of crack shots, the "seldom-missing splitters of hairs." Snipers played an important role, especially in sieges and prolonged standoffs. Not all of the best marksmen were in the ranks of the Empire. On a number of occasions Mughal commanders were driven to distraction by the harassment of enemy snipers. Babur pardoned and took into service an especially skilled and dangerous enemy crossbowman after witnessing his exploits during a siege. An accomplished musketeer who did similar damage to Humayun's forces was not so lucky. That Emperor had him put to death. Akbar was infuriated by the punishment inflicted by an elite regiment of Rajput musketeers during the siege of Chittor and was frustrated when those "evil-doers" managed to slip away after the city's fall. Despite the harm they caused, Abu al-Fazl later expressed grudging admiration of the "skillful" enemy and the clever trickery they used to escape. Descriptions of musketeers, both friends and foes, often emphasized their skill and expertise. In Akbar's army there was a system of 15 ranks to classify musketeers by pay grade and ability. The musket was not simply a crude implement—it was a formidable weapon in the hands of accomplished professional soldiers.¹²

Artillery: Cannons, Rockets, Bombs and Camel Guns

The Mughals and their rivals also used a wide variety of much larger gunpowder weapons. Babur had dozens of cannon with his army. Within twenty years, Humayun and

his enemies were mobilizing artillery parks composed of hundreds of pieces. These arsenals only grew further under Akbar. The four primary categories of artillery remained, but the basic models used by Babur—the *zarb-zan*, (light cannon), *kazan*, (heavy cannon), *kazan-i-bozorg* (siege gun) and *firingi* (swivel/anti-personnel gun)—proliferated into a variety of weapons of all shapes and sizes. The projectiles that they fired also became more diverse. Babur's artillery used only stone shot, but by Akbar's reign the Mughals also used cannon balls cast from brass and iron. Some of their lighter guns even fired lead projectiles, essentially oversized musket balls. There were a number of tradeoffs involved in the use of stone or metal shot. Stone was cheap and plentiful, but the production of stone cannon balls was extremely labor intensive. Metal was more expensive, but metal shot was much easier to make. Stone projectiles were not as dense as metal and transferred less energy to the target, but they might also shatter on impact, producing lethal shrapnel as a secondary effect. Metal ammunition did have one very important advantage—it could be made hollow. When left empty such projectiles were lighter and could travel further. When loaded with gunpowder, they could be fused to explode on impact. At closer range, a large number of smaller missiles could be fired to produce a similar effect. It is unclear just how widespread the use of grapeshot was in the Mughal army, although it would have had obvious applications for an army that often had to face large numbers of hostile cavalry. Contemporary descriptions of its use are rare, but there are references to guns being loaded with gravel and even coins for anti-personnel use.¹³

Guns of all types also evolved to become more effective. Weapons like the *zarb zan* and *kazan*, designed to be used in the field, became more portable. The clumsy gun

carriages used in Babur's day, which were often no more than civilian wagons hastily modified for the purpose, were replaced by lighter versions more similar to those used in Europe. Light artillery could now be transported by horses instead of oxen, making it much more mobile and flexible. Some models—such as the wrought iron-brass composite pieces—were designed to be specially light and portable. Other variants were cast in several parts that could be transported separately and assembled in the field. Such guns sacrificed power—they were not strong enough to fire a large powder charge—in exchange for increased mobility. Concessions also had to be made on the other end of the spectrum. Siege guns continued to grow in size, from the 100-pounders used by Babur to the true monsters fielded by Akbar, some of which fired projectiles weighing a ton or more. These were both true cannon, or *kazan-i-bozorg*, and mortars, or *deg*. The distinction between these two types was not always clear. At this size, even the full-length cannon launched their payloads on a very high, arcing trajectory. Much of this overlap is due to a technological limitation. On the small scale, when dealing with objects such as sword blades and musket barrels, the quality of Indian manufacturing was exceptionally high. On a larger scale, however, Indian technology suffered from one crucial deficit. There were no blast furnaces comparable to devices like the European Catalan forge, capable of heating enough metal to cast very large cannon in a single pour. Mughal gun founders had two options when building their largest weapons. They could cast them in parts which were then bolted together or they could cast them as one piece using several simultaneous pours. For the largest pieces, these two steps might be combined. Babur describes this painstaking process:

I had directed Ustād Ali Kuli to cast a large cannon, for the purpose of battering Biāna, and some other place which had not submitted. Having prepared the forges and all the necessary implements, he sent a messenger to give me notice that everything was ready. On Monday... we went to see Ustād Ali Kuli cast his gun. Around the place where it was to be cast were eight forges, and all the implements in readiness. Below each forge they had formed a channel, which went down to the mould in which the gun was to be cast. On my arrival, they opened the holes of all the different forges. The metal flowed down by each channel in a liquid state, and entered the mould. After waiting some time, the flowing of the melted metal from the various forges ceased, one after another, before the mould was full. There was some oversight either in regard to the forges or the metal. Ustād Ali Kuli was in terrible distress; he was like to throw himself into the melted metal that was in the mold. Having cheered him up, and given him a dress of honor, we contrived to soften his shame. Two days after, when the mold was cool, they opened it. Ustād Ali Kuli, with great delight, sent a person to let me know that the chamber of the gun for the shot was without a flaw, and that it was easy to form the powder chamber. Having raised the bullet-chamber of the gun, he set a party to work to put it to rights, while he betook himself to completing the powder chamber.¹⁴

Weapons constructed in this manner had to be used with great care. Both prefabrication and multiple pours left weak spots in the breech and barrel of a gun. Only relatively small powder charges could be used safely, and it was not possible to fire projectiles at a high velocity and on a flat trajectory. These flaws also limited the rate of fire. Aside from the difficulties inherent in loading such enormous cannon—a block and tackle or crane was often required to hoist the massive stone balls—overheating was a serious concern. At high temperatures these siege guns were at risk of literally bursting at the seams with catastrophic results, something that happened at least once in Babur’s army. For this reason the guns needed time to cool after each shot, and were usually not

fired more than once per hour. Aside from the massive cannon and mortars, a number of more old-fashioned weapons were also present at sieges. Catapults and trebuchets remained in Indian siege trains for decades after Babur's invasion. A few distinct advantages saved them from immediate obsolescence. They were inexpensive and could be easily broken down for transport and assembled in the field. Like mortars they sent missiles on a high trajectory, ideal for indirect fire. They could also be loaded with ammunition too fragile to be fired from a cannon—gunpowder bombs and canisters of incendiary or caustic chemicals. Smaller versions of such projectiles were carried by individual soldiers in the form of grenades. These included both explosive charges and glass or ceramic containers of naphtha or other flammable liquids, which were used like Molotov cocktails. The latter were especially effective against elephants.¹⁵

The terminology used to describe grenades—*hukka* or *rad andaz* was often applied interchangeably to another very portable anti-personnel weapon, the rocket. Like a grenade, a rocket was essentially a metal canister filled with black powder that exploded and produced a hail of deadly shrapnel. Unlike a grenade it had a range measured in the hundreds of yards—even over 1,000 yards—but it weighed little more and was almost as easy to carry. A single soldier could easily carry several rockets. A single horse or camel could carry dozens of them and an elephant or wagon could carry 500 or more. The ammunition train of a large army might contain as many as 100,000 rockets. Rockets were inaccurate and unpredictable—it was very difficult to precisely set the fuse timing and resultant flight time—but they were still effective when used in great numbers. There were also measures for improving the accuracy of a single rocket. Some contemporary accounts refer to what appears to be a sort of primitive bazooka. This device was

apparently a handheld launching tube that would have allowed a soldier to more accurately aim his rocket. Other accounts describe rockets with blades or spikes attached to the end of the casing. These could have been partly for show, in the same spirit as teeth painted on the nose of a fighter plane, but they may have also allowed the rocket to stick to a target and explode there after an accurate shot instead of simply bouncing off and flying further until its fuel was expended.¹⁶

Another class of extremely flexible and dangerous anti-personnel weapon was the *gajnal* or *chatural*. Often referred to as “camel guns,” they could also be mounted on elephants. Some elephants even carried multiple guns. Each of these weapons, the largest of which fired lead shot the size of baseballs, could be served by a single skilled operator. Camel guns were not actually fired on the run. The animals were required to stop each time the gunner fired and reloaded. These weapons, however, were still much more mobile than *zarb zans* or other conventional “field artillery” of the day. While they lacked the size and power of true cannon, they were also cheaper to produce and could be fielded in very large numbers. A contingent of camel gunners was capable of moving swiftly around the battlefield and delivering a high volume of punishing fire wherever needed. The *chatural* was a threat unique to Indian and Asian warfare, as it could not be easily carried by horses or oxen and was not adopted by European armies. Another method of utilizing many smaller swivel-type guns was to mount them in an array. Technicians in Akbar’s workshops experimented with a cluster of more than a dozen guns fired from a single fuse. At some point this design was adapted into a battery of small gun tubes mounted side by side on a wagon in a fashion reminiscent of the later *katyusha* or “Stalin Organ.”¹⁷

This proliferation of small, portable but still very lethal anti-personnel weapons was a defining characteristic of the early modern Indian battlefield. By the onset of the 17th century, a large field army might assemble hundreds of camel guns and many thousands of rockets. The lumbering siege trains of the stereotypical “Gunpowder Empire,” tethered to a few gigantic cannon, were nowhere in evidence. Instead there were agile, menacing swarms of much smaller guns and projectiles. Carlo Cipolla’s assertion that “Moslems never developed artillery into field weapons” does not apply to Mughal warfare, even if the implements involved did not always resemble their European counterparts.¹⁸ Weapons like these literally changed the rules of the game. Camel guns and rockets, combined with conventional artillery, musketeers and vast numbers of archers produced a battlefield saturated by fire. The abundance of mobile, accurate and rapid-firing weapons of all sizes prevented the development of linear tactics conforming to the European model. Indian infantry mostly fought in open order or from behind cover. The sheer volume of fire made formations like the *tercio* or the lines and columns of later ancien regime armies dangerous and impractical. This inability to concentrate and coordinate meant that accuracy and marksmanship were at a premium and probably greatly influenced the design of small arms.

Ships and Naval Warfare

Not all of the Mughals’ battles were fought on land. While the frontiers of the Empire would not reach the sea for decades after its foundation in 1526, the rudiments of a navy would nonetheless emerge very quickly. Huge rivers, including the Indus, the Ganges, the Brahmaputra and their many tributaries, dominate the geography of Northern India. These waterways were ideal avenues for both commerce and warfare. Babur, the

first Emperor, assembled large fleets of boats and small ships—as many as 400 at a time—for his campaigns in the Ganges valley. They were used as both transports for troops and supplies and as gun platforms. Ship-to-ship engagements were rare, but the vessels proved invaluable for fire support and amphibious assaults. Babur’s forces made several major river crossings under fire, using boats supported by batteries set up on shore. Groups of boats were often assembled into makeshift pontoon bridges to support these operations. Most of these vessels were requisitioned civilian craft and not purpose-built, but in some cases modifications, including the construction of fighting tops, were made after the ships were acquired. Babur did eventually commission the construction of several dedicated warships, which he named personally. ¹⁹

The first true salt water navy was assembled by the Emperor Akbar in the late 16th century after his conquests of Bengal and Gujarat finally provided the Mughals with access to the sea. Yet Akbar did more than just expand the fleet’s area of operations—he provided it with a coherent structure. His navy was a dramatic departure from the earlier ad-hoc collections of purchased and impressed civilian vessels, which were often assembled and then discarded for each season or campaign. The trading ports of Bengal and Gujarat were also important centers for shipbuilding and they provided a foundation for the growing navy. These areas were already teeming with eager customers and were also located near forests rich in high-quality timber. Two types of tree were especially popular with Indian shipwrights—teak and its Bengali variant the *sundari*, which provided hard, reddish wood similar to mahogany. These native woods were much more durable than European equivalents like oak and pine, in some cases lasting more than four times as long before repair or replacement. Unlike European ships, which were built

around a rigid skeleton, most Indian ships were built shell-first, with their planks rabbetted and joined either by stitching or wooden pegs. These fastenings had some advantages over European iron nails—they were flexible, resilient and immune to corrosion. By the 16th century Indian shipwrights also used copper sheathing to protect their hulls from barnacles and shipworms. The inherent durability of indigenous ships made them very popular with foreigners. It became common practice for Western traders and colonists to order vessels from Indian shipyards or build them at their own facilities using local materials.²⁰

Most of the ships produced by these facilities were for private use. Many of the units in the Mughal navy, whether requisitioned or built to order, were unaltered versions of these civilian models. They included the *bachari*—a fishing trawler—the *jung*—a merchantman built in the square, compartmented style of a Chinese junk—and the *balam*—a cargo carrier resembling an oversized sampan. These vessels were useful in a support role, transporting troops and supplies. In many cases naval squadrons were followed by groups of private merchant vessels that sold them rations and other goods. The Mughals, however, did commission a large number of specialized fighting ships. Many of these were based on Mediterranean and Middle Eastern models and built carvel style, around an internal frame. These avoided the primary disadvantage of the traditional Indian shell-first hull design—a lack of rigidity. Ships of that type could not bear the weight or withstand the recoil from guns that were too large or too numerous. This was especially true in an era when specialized naval gun carriages were not yet in widespread use. Cannon resting on land carriages or simply anchored to the deck transmitted much more of their recoil energy into the body of the ship.

Most of the battle fleet consisted of war galleys. The standard galley type was the *jalba* or *jalliya*, which closely resembled a Mediterranean-style galliot. It typically mounted 30 to 40 oars and carried a crew of 60 to 80. The *kosa* was an Indian galley variant, widely used in Bengal. Kosas were built especially for sprinting, with a long, narrow profile reminiscent of a modern racing shell. Most of these were rather small, crewed by about 40, but there were oversized versions that approached 150 feet in length and carried over 100 men. *Khelnas* were small scout boats, similar to the European *fusta*, used for carrying messages and obtaining soundings. The galley fleet was supported by sailing ships, especially the *ghrab*. Ghrabs were originally oared vessels—that name was also used to refer to an Arab and North African galley type—but by the 18th century they had evolved into 3-masted sailing ships. During the Mughal era that evolution was still underway. Most ships of the type were actually hybrids, powered by both oars and sails. The *salb* was a pure sailing vessel that resembled a large dhow or caravel. The largest class of sailing vessel emerged later and did not come into widespread use until after Akbar's reign. Sometimes referred to as the *ganj* or “treasure” ship, it was an armed transport similar in form to the galleon. The Mughals used these to carry merchandise and Muslim pilgrims to the Middle East. They were the largest vessels in the inventory, averaging about 700 tons displacement, with a few giants in excess of 1500 tons. Unfortunately they shared many of the failings of similar Spanish and Portuguese treasure ships. They were unwieldy compromises between cargo carrier, passenger ship and warship, truly excelling in none of those roles. ²¹

Most Mughal warships—reflecting their extensive use in riverine and littoral operations—were slightly smaller and not quite as heavily armed as their European

equivalents. A typical sailing ship carried 10 to 20 guns mounted broadside. Galleys were usually armed with 4 to 8 mostly forward-firing guns. Some of the bigger ships carried cannon as large as 30-pounders, but guns in the 4 to 12 pound range were more common. In addition to their cannon, most vessels mounted a variety of smaller swivel guns and “wall guns” or oversized muskets, which complemented the small arms carried by the sailors and marines. Some ships were also equipped with rockets. The limitations of Indian foundries and the resulting inability to produce cast iron cannon in great numbers restricted the size of naval arsenals and was one of the reasons the Mughals did not build a true “blue water” navy outfitted with European-style galleons, frigates and ships of the line. As John F. Guilmartin explained in his analysis of the Mediterranean naval system, the wide availability of inexpensive iron guns was crucial to the development of a more “advanced” European model.²²

Notes for Chapter 3

1. Thomas F. Arnold, “War in Sixteenth Century Europe: Revolution and Renaissance,” in *European Warfare 1453 – 1815*, ed. Jeremy Black (New York: St. Martin’s, 1999), 36 – 38
2. *Ain-i-Akbari*, Volume 1, chpt. 88
3. *Ain-i-Akbari*, Volume 1, chpt. 9
4. Steel bows are discussed in Chapter 1 of Iqtidar Alam Khan’s *Gunpowder and Firearms: Warfare in Medieval India* (New Delhi: Oxford, 2004). The desirability of Indian edged weapons on the open market is explained in Chapter 1 of Simon Digby’s *War Horse and Elephant in the Delhi Sultanate: A Study of Military Supplies* (London: Orient Monographs, 1971). Jos Gommans describes the high standards of production for Indian muskets in *Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500 - 1700* (New York: Routledge, 2002) 150 -155. The high quality of Mughal coinage is discussed in Aman ur Rahman and Waleed Ziad’s essay “Coinage and Monetary System” in Zeenut Ziad ed. *The Magnificent Mughals* (New York: Oxford, 2002) p. 281 – 300.
5. For an extensive, well-illustrated discussion of Mughal edged weapons and small arms, see G. N. Pant’s *Mughal Weapons in the Babur-Nama* (New Delhi: Agam Kala Prakashan, 1989). See Illustrations, Figure 1 for an illustration of a well equipped cavalryman, Figure 2 for infantry.
6. The demands of horse archery as compared to mounted shock combat are described in Chapter 2 of Erik Hildinger’s *Warriors of the Steppe: A Military History of Central Asia, 500 B.C. to 1700 A.D* (New York: Sarpedon, 1997).
7. Such an arrangement is described in Chapter 60 of the *Tarikh-i-Rashidi*. Babur also deployed skirmishers equipped with large shields.
8. For examples of camouflage, see Figures 5 and 6.
9. Hildinger, 24
10. For a more detailed discussion of smoothbore ballistics and performance, see Chapter 5 of Bert Hall’s *Weapons and Warfare in Renaissance Europe: Gunpowder, Technology and Tactics* (Baltimore: Johns Hopkins University, 1997).
11. See Figures 4-6 for illustrations of the various features of Mughal muskets. The calculations of caliber and bullet weight are derived from measurements described

in the *Ain-i-Akbari*, Volume 1, chpt. 89. This assumes that a *tank* is equal to approximately 4 grams. This was apparently the value according to Akbar's system of weights and measures, but it must be noted that even during the Mughal era Indian units of measurement were not always uniform.

12. The manufacture and testing of Akbar's muskets is described in the *Ain-i-Akbari*, Volume 1, Chapter 89. Monserrate in his memoirs also makes numerous references to Akbar's passion for weapons and gadgetry. Akbar's sharpshooters are mentioned in the *Akbarnama*, Volume 3, chpt. 27. Babur narrates his encounter with a sniper in the *Baburnama*, Volume 1, chpt. 52. Humayun's similar problems and their resolution are described in Chapter 12 of Jouher's *Tezkereh al Vakiat* or "*Memoirs of Humayun*." See Volume 2, chpt. 121 of the *Akbarnama* for an account of the exploits of the enemy musketeers at Chittor.
13. The use of coins as improvised grapeshot by the Timurids in Kashmir is described in the *Tarikh-i-Rashidi*, chpt. 192. Other accounts describe guns firing "carpets of stones." It is not always clear, however, whether this usage is meant to describe many tiny projectiles or the extremely rapid fire of conventional stone cannon balls.
14. *Baburnama*, Volume 2, chpt. 5
15. In Volume 2, chpt. 71 of the *Baburnama*, Babur notes that one of his heavy siege guns could fire 16 times in a day—about once per hour, assuming a rest period at night. In Volume 2, chpt. 69 he describes the disastrous consequences of one of these big guns bursting at the breech. There are accounts of catapults and trebuchets being used as late as the siege of Chittor in 1567. See the *Tarikh-i-Alfi* from Volume 5, chpt. 19 of H. M. Elliot's *The History of India, as Told by Its Own Historians*. Grenades predated muskets in India. There are accounts of their use dating back to the Delhi Sultanate in the 14th century. Khan discusses the evolution of grenades and rockets in Chapter 1 of *Gunpowder and Firearms*.
16. The bazooka-like implement is described in W.G. Orr's "Armed Religious Ascetics in Northern India," in *Warfare and Weaponry in South Asia: 1000 – 1800*, ed. Jos Gommans and Dirk Kolff (New Delhi: Oxford, 2001) 185 – 201. Rockets were sometimes used in street fighting and urban combat. The use of rockets for "sniping" suggests the presence of some sort of launching device. See the *Tazkira* of Anand Ram Muklis in *The History of India*, Volume 8, chpt. 38, an account from the later Empire that describes how rockets were issued to urban militias for the defense of Delhi. An enormous cache of 100,000 rockets, carried by elephants and other pack animals, belonging to a hostile Gujarati force—and the catastrophic accidental explosion of same—is referred to in *Memoirs of Jahangir*, Chapter 19.
17. Akbar's device is described in the *Ain-i-Akbari*, Volume 1, chpt. 88. Artwork

from the later Empire depicts multi-barreled gun carts assembled in a similar fashion. This includes the painting in Figure 4 (although they were cropped out of this printed version).

18. Carlo Cipolla, *Guns Sails and Empires: Technological Innovation and the Early Phases of European Expansion, 1400 – 1700* (New York: Pantheon, 1966), 92
19. Early Mughal amphibious operations are recounted in the *Baburnama* Volume 2, chpt. 84.
20. See Chapter 9 of Sinnappah Arasaratnam's *Maritime India in the Seventeenth Century* (New Delhi: Oxford University, 1994) for a detailed discussion of Indian shipbuilding techniques.
21. Atul Chandra Roy in *A History of the Mughal Navy and Naval Warfare* (Calcutta: World Press, 1972) and Gommans in Chapter 5 of *Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500 - 1700* (New York: Routledge, 2002) both make estimates as to the armament of Mughal ships, but there were relatively few detailed contemporary descriptions of this weaponry.
22. See John F. Guilmartin, *Galleons and Galleys* (London: Cassell & Co., 2002).

Chapter 4: Waging War: Tactics and Operations

The Mughal army is often visualized as a force dominated by mounted archers and other cavalry and as an organization directly descended from the nomadic warbands of the steppe. The Central Asian warrior ethos remained an important motivating factor, and the horse archer was an essential player in the emerging Imperial military order, but the overall system was much more complex. Babur and his successors designed a sophisticated combined arms force that included diverse personnel and elements of both nomadic and sedentary warfare—mounted archers, heavy cavalry, shock infantry, missile infantry and artillery. They merged an already highly developed system of Central Asian tactics with Western developments in field fortifications and gunpowder weaponry. Tactics in this setting evolved much differently than their European counterparts. Indian warfare in the Mughal era discouraged linear formations and emphasized entrenchments, skirmishing, small unit operations and the tactical defensive. Aside from engagements in the open field, the Mughals and their enemies also devised sophisticated tactics for naval battles, sieges and guerrilla warfare. Developments in technology, especially the proliferation of missile weapons of all sorts, made battles of any kind increasingly violent and costly. The Mughals often found diplomacy to be a better option than combat, but this choice was a luxury granted to them by their position of increasing strength. That commanding position was won by earlier success on the battlefield.

Personnel: Units, Roles and Objectives

The nomadic warband is an enduring theme in Central Asian and Islamic military history, dating back to the days of Muhammad and his Bedouin followers and the tribes united by Chingiz Khan and Timur. The brash, brave, rough-and-ready *qazzaq* soldier of fortune and the rugged, steadfast *ghazi*, or holy warrior, were figures that were not just romanticized by later historians but also served as idealized role models for their contemporaries. Babur and his successors constructed a heroic narrative of the exploits of the first Mughals, their travails in the wilderness of Central Asia and Afghanistan and their eventual triumph in India. Nomadic warriors, however, did more than serve as exemplars of ferocity, toughness, courage and comradeship. They were an invaluable resource to the emerging Empire. As Jos Gommans explains, “the warband was a community of ‘lion-like’ men of the sword, restless elements who offered their services wherever a holy war was in progress and, more importantly, wherever booty might be expected... it was one of the Mughals’ main challenges not to suppress and destruct these groups, but to recruit and redirect them and to turn them into an imperial asset. In other words, the key to Mughal success was to harness the mobility and fluidity of the frontier to their own ends, while shaping and taming it to conform to their stability-seeking centralising vision.”¹

Such men in many ways became the face of the Empire—raised in a hard school, on some forlorn steppe deep in the wilds of Central Asia, able to ride before they could walk, proficient with a wide array of deadly weapons, inured to the hardships of bitter climate and short rations, courageous yet cunning and clever, ready to take great risks but

unwilling to sell their lives cheaply. Yet while nomadic warriors like these were in fact the direct ancestors of Babur and his comrades and by extension the progenitors of all the Imperial generations to follow, the Mughal military system—its origins, its objectives and its operation—was much more diverse and complex. Babur did not start out as the leader of a “petty warband.” He was born a prince and aspired to become a king. His ancestors may have migrated from Mongolia, the wilderness of Siberia or the Qipchak steppe, but his family had been for many decades among the elite of a sedentary civilization built around the Silk Road cities of Central Asia. While they maintained the language, ritual and culture of their Turkic and Mongol heritage—as well as more practical skills like horse breeding, horsemanship and mounted archery—they also immersed themselves in the region’s evolving Persianate civilization, mastering literature, art and science. Babur’s objective was not to become a mighty nomadic chieftain but to become the ruler of a civilized nation state—to reclaim his ancestor Timur’s empire built around the great city of Samarqand and a constellation of smaller city states. Babur finally earned an empire, but success in India came only after the disastrous end of his mission in Central Asia. The long interlude between his defeat by Shaibani Khan and the Uzbeks and his victory at Panipat was far from idyllic—it was the time of an ideal in peril. Despite later, glamorous retellings, those years of raiding and evading, sleeping under the stars, and living by wits, grit and the strong arms of a few trusted comrades were not a triumph of nomadic manhood. They were the wages of misadventure and of abject failure. Once an empire in India was finally secured, Babur and his successors strove to attain permanency, to mobilize the resources of city, farm and settled labor and to build a state and a civilization that would endure for generations

to come. They did everything that was needed to ensure that the descendants of the house of Timur would never be nomads again.²

The army that Babur and his successors created to win and defend their new state was composed of many interlocking parts—not just mounted archers but also heavy cavalry, infantry, artillery and support personnel. The introduction of gunpowder weaponry had an immediate and dramatic effect on the conduct of warfare, but the tactics and operations of the Mughal military were also shaped by processes that had been ongoing during the last several centuries in both Central Asia and India, as nomadic peoples met the demands of warring against and eventually ruling over sedentary civilizations. Fighting in environments alien to those raised on the steppes—mountains, forests, marshland, rural hedgerow country and cities—demanded diversification and a combined arms approach. There were many barriers that could not be overcome or guarded by bands of tribesmen on horseback. The nomads had to learn to fight on foot, to learn the arts of siegecraft and logistics—or enlist the aid of subjects and allies to do these things for them. The armies of Timur were more diverse than those of Chingiz Khan, and the armies of the Mughals would be even more varied in form and function.

Despite this evolution, the horse archer remained an iconic figure in the Mughal Empire. He was a dominant presence in the military discourse and history of that era in the same way and for the same reasons that the hoplite, knight and samurai overshadowed their settings. Mounted archery was the most prestigious form of combat. It was how the elites fought. Babur and the other founders of the Empire may no longer have been true nomads—except when circumstances demanded—but they still honored the traditions and practices of their ancestors. Among these were training in

horsemanship, mounted combat and archery from a very early age. As with the martial prowess of the knight or samurai, these unique skills allowed them to impose their will on townsmen and farmers. Their eventual mastery of firearms did not completely reverse this dynamic; in many ways it made them even more formidable. Yet as the skill set of this martial elite became more diverse, so did its membership. The Mughal nobility was fluid and inclusive, eventually absorbing native Indians, Persians, Arabs and others as well as Central Asians. The open recruitment practiced by Babur and his war band, which was “not an ascriptive tribe but an open status group of various warriors and their families [whose] camaraderie stemmed from a togetherness of deeds sealed in various plundering expeditions and raids,”³ continued into the Imperial era. Anyone who displayed martial skills, leadership and the ability to mobilize armed followers had a chance to claim their place. Even those who had highly valued civilian talents in administration, economics, scholarship and science were co-opted. Yet while the Mughal elite was inclusive it also made certain demands of its initiates. They were expected to conform to the Central Asian martial culture. New members of this *sharifi* society from all backgrounds—and especially their children—learned horsemanship, archery, fencing, wrestling, hunting and many of the other skills that Babur and his clansmen grew up with. This meant that most contemporary accounts of Mughal warfare are narrated from the point of view of the cavalryman. With rare exceptions, when truly important people, the subjects of official and semi-official histories, fought, they fought on horseback. Eyewitnesses who were educated and erudite enough to later record and publish their observations were also rather unlikely to be foot soldiers. All of these factors converged

to make the cavalryman—and especially the horse archer—a dominant figure in the Mughal military narrative.

Of course much of the glorification and prestige of mounted archery was also based on hard facts. The horse archer was an indispensable element of the Mughal military machine, the single most skilled and versatile part of that system. The ability to combine mounted and missile combat made him unique and without a true counterpart in much of the rest of the world—including most of Europe. His training was often literally the work of a lifetime. The most obvious skill was the ability to fire a composite bow from the saddle—six or more aimed shots per minute and as much as an arrow every other second in short bursts of un-aimed “shower” shooting when attempting to suppress enemy movement and fire or shooting at a target as large as an entire formation. A skilled horse archer could fire at almost any angle relative to his mount’s direction of movement, most notably the so-called “Parthian shot” aimed towards the rear. He was one of the few people on the battlefield who could maneuver and attack simultaneously. Yet mounted marksmanship was not his only ability. If called upon he could defend himself in hand-to-hand combat with edged weapons or fight from the ground using a heavy footman’s bow, a crossbow or, eventually, a musket.

As this diversity of skills suggests, horse archers carried out a wide variety of missions. Their mobility made them ideal scouts and screening elements. Obviously, they were responsible for countering other mounted archers, their opposite numbers in the enemy ranks. Through fire and maneuver they could disrupt an incoming attack by heavy cavalry, infantry and elephants. As a prelude to shock action by their own heavy cavalry and infantry they might harass and weaken an opposing formation with a rain of arrows

or lure it out of position with a feigned retreat. In the aftermath of a successful assault they exploited breakthroughs and hunted down fleeing survivors. Under ideal circumstances, in the standard Mughal set-piece battle based on the tactical defensive, some units of horse archers acted as skirmishers while others held the flanks and then moved forward to envelop the attacking enemy and punish them with sustained fire. Constant movement was the key to avoiding a collision with opposing heavy cavalry or damaging return fire from less mobile formations. The latter was especially true with the proliferation of artillery and muskets and the continuing abundance of foot archers. Central Asian style cavalry was trained to employ a much more destructive version of the European caracole. In this maneuver a unit of mounted archers would spread out into a long line of smaller groups and then proceed in a circular path in front of an enemy formation. Each group fired several volleys of arrows as it passed within range of the enemy and then moved on to be replaced by the next. Another variant of this tactic involved ranks of mounted archers firing and retreating to be replaced by the line behind them in a manner reminiscent of the Western-style infantry countermarch. They kept the enemy under steady fire, but their constant movement and open order made individual troopers more difficult targets for return fire. The down time they spent at the far side of a circuit or in the back ranks out of range of the target allowed them to conserve both their stamina and their ammunition. In more sustained engagements they might also get a chance to grab fresh quivers of arrows, brought out to them by horsemen specifically assigned to that duty. ⁴

Other cavalymen were tasked for shock action. Along with the horse archer, the cataphract, or fully armored horseman, had been a feature of Central Asian warfare

dating back to Antiquity. Shock cavalry were both a countermeasure and a supplement to mounted archery. They were well protected enough to be reasonably resistant to arrow fire and heavily armed so that they could overwhelm light cavalry in close combat. While they were not mobile enough to force an engagement with horse archers who did not want to be caught, they could effectively deny them access to an area. At the same time they could support friendly mounted archers by containing enemy heavy cavalry, finishing off enemy units damaged and disrupted by sustained arrow fire and overwhelming heavy infantry that was too well protected to be defeated by archery alone.

The distinction between light and heavy cavalry was not always absolute, as even the most heavily armored horsemen frequently carried and used bows, firing a few shots before a charge to disrupt their target, and lightly equipped horse archers would at times engage in close combat, especially when running down a fleeing enemy. Even native Indian groups such as the Rajputs, who had a tradition of engaging in close quarters battle on horseback in a manner similar to that of European knights, eventually began to adopt mounted archery during the later years of the Delhi Sultanate and the Mughal era. Nonetheless, there were contingents of cavalry who wore heavy suits of chainmail, lamellar or half plate armor—and whose horses were often similarly protected—whose primary duty was to close with the enemy and strike them down with lance, saber and mace. An all out charge by heavy cavalry riding stirrup to stirrup was a potentially devastating stroke, but it was also an extremely high risk tactic on battlefields swept by a growing volume of artillery and small arms fire. Heavy cavalry often worked on the margins, engaging flanking groups of enemy horsemen or keeping them at a distance. Used at the right moment, however, they were capable of overrunning opposing

formations that had been caught in mid maneuver, separated from their support or disrupted by friendly artillery, musketry and archery. Along with the horse archers, they exploited breakthroughs and executed flanking maneuvers.⁵

While cavalry was indispensable, it was not capable of winning battles and campaigns on its own. Even before the advent of gunpowder weaponry, infantry was an important feature of both Indian armies and the forces of the increasingly sedentary Iranian, Turkish and Mongol rulers of Central Asia. There were a multitude of military tasks—engineering, siegecraft, urban combat—that could not be accomplished on horseback and a wide variety of terrain—mountains, woodland, desert—where cavalry could not function efficiently or in large numbers. Even under more ideal circumstances, the great expense of training and maintaining cavalymen and their mounts might make infantry more cost effective. This was especially true in more settled, agrarian regions that lacked both a tradition of horse breeding and horsemanship and large tracts of productive land set aside for raising and pasturing horses. Not surprisingly, most Mughal infantrymen came from such territories beyond the boundaries of the steppes—mountaineers from Badakshan and other remote corners of Afghanistan or yeoman farmers from the plains of North India. Their contributions were often discounted, both by uninformed contemporary observers and later historians, who assumed a diminished military utility commensurate with their lower social status. William Irvine famously mocked the typical Indian infantryman as “little more than a night watchman and guardian over baggage.”⁶ It was true that the distinction between real infantry and mere support personnel was not always clear, especially in a highly militarized society where even civilians routinely bore arms. Mughal armies were accompanied by large numbers

of porters, laborers, sutlers and other camp followers. While these men had no place in the line of battle, they often carried weapons for self defense and for the protection of their baggage. In a military system that relied heavily on entrenchments and field fortifications, even regular troops were also frequently called upon to dig, chop, build and carry. Other foot soldiers were members of local militias or constabularies who seldom traveled far from their homes and probably never fought in any significant engagements. Another factor that contributed to the discounting of infantry's role was the composition of the Emperor's peacetime royal guard, especially during Akbar's reign and later. The contingent that accompanied the sovereign on hunting expeditions and inspection tours of the provinces was composed mostly of cavalry and mounted retainers. Few members of the party travelled on foot, and many of those were in fact servants or laborers of some sort. Such a composition made sense when mobility was at a premium and the risk of significant combat was minimal. When serious fighting was in the offing, however, infantry was present in large numbers.

A numerical breakdown of contemporary accounts of significant armies mustered by the Mughals, their allies and their enemies during this era is telling. Daud Khan, the Afghan ruler of Bengal, supposedly mobilized 40,000 cavalry and 140,000 infantry. The Raja of Jodhpur was credited with 50,000 horse and 300,000 foot. The ratio for the Raja of Orissa was 10,000 and 300,000. Lakshman Narain, a warlord from Bihar, had only 4,000 cavalry but 200,000 infantry. The massive field army that Akbar led to Kashmir included about 50,000 cavalry and as many as 100,000 foot soldiers. The flying column led by Abdullah Khan Firoz Jang, the Emperor Jahangir's notorious hanging judge, to suppress rebellions numbered about 12,000 cavalry and 20,000 infantry. Such figures are

in accordance with the results of Abu Fazl's famous military census of the Empire, which estimated a total of about 4 million potential infantrymen but less than half a million men trained to serve as cavalry.⁷

These great numbers of infantry were not simply unorganized mobs. As with the cavalry, units of infantry were designated and equipped to perform different roles on the battlefield, specializing in either shock or missile combat. True heavy shock infantry, comparable to Roman legionaries or Swiss pikemen, had always been relatively uncommon in Indian warfare, but there were exceptions. The Rajputs, before the widespread adoption of mounted combat and, eventually, mounted archery during the medieval era had a tradition of fighting in close formation on foot. Such maneuvers were eventually consigned to use during parades and rituals, for battle in extremely close quarters like fortresses or cities or as a last ditch defense. A number of other groups, including mountain tribesmen, peasant militias and especially members of armed religious sects, did continue to specialize in hand to hand combat. Many of them entered Mughal service both as regulars and as mercenaries. The most highly skilled of them were the so-called *shamsherbaz* or "gladiators." These included spearmen, mace fighters, sword and buckler men, soldiers equipped with tower shields and wielders of massive two-handed blades similar to the Western *zweihander*. Heavy infantry had obvious applications in spaces too confined for cavalry—forts, city streets and even inside the elaborate field fortifications prevalent during this era. On the defensive they could act as bodyguards for musketeers and foot archers and contain enemy breakthroughs. On the offensive they filled a role similar to that of Central European *doppelsoldaten*, acting as storm troopers to force a break through enemy defenses. Like heavy cavalry, shock

infantry, used judiciously, also had a role in the open field. Deployed at the right moment, they could attack and overrun enemy formations that were out of position, fleeing or disrupted by artillery and small arms fire. They were also able to disperse or root out enemy skirmishers, especially those who were under cover or dug in. The volume of fire on Indian battlefields made the use of any shock tactic risky, as a rush into the face of a well prepared defense would result in disastrous casualties. In order to pass through the danger zone as quickly and safely as possible, Indian shock troopers employed a tactic similar to the Highland charge, approaching the enemy in open order and at almost the dead run. Like the Scots—and the Swiss and *landsknecht* pikemen, who also had to move swiftly to close with missile-armed foes—many of these troops sacrificed armor for mobility. Some wore no armor at all, and a few armed religious ascetics even fought naked, resembling in form and function the nude Celtic warriors of Ancient Europe.⁸

Many of these foot soldiers may have been called upon to fill the niche vacated by another heavy unit—the war elephant. In the pre-Mughal era, elephants were often used in place of heavy infantry. Their massive bulk and thick hides—especially when reinforced with supplementary armor—made them very difficult to harm with edged weapons and quite resistant to archery. A charge by massed war elephants was extremely difficult to contain. Cavalry had no choice but to give way and only the most highly disciplined infantry had a chance of standing their ground. Often the only way to stop elephants was with other elephants. The advent of gunpowder completely changed this dynamic. Elephants, especially when fighting in formation, were large, inviting targets for artillery and rockets. The greater penetrating and stopping power of the musket made

even small groups of foot soldiers a threat. A single musketeer could easily inflict fatal damage to an elephant. A squad of musketeers could drop one in its tracks. Elephants that managed to survive gunfire were often left with terrible, crippling wounds and could become an even more serious liability than animals that were killed outright. When frightened, in pain and no longer responding to commands, they were as much of a danger to their allies as they were to the enemy. The *mahouts*, or elephant drivers, were also vulnerable. Many of them were equipped with armor and shields for protection against arrows, but those defenses could not stop bullets. For these reasons, elephants, even more so than other heavy units, had to be used with extreme caution. They were usually kept out of the front lines and held in reserve to contain an enemy breakthrough or follow up on a successful attack. The development of very light field artillery, the so-called “camel guns” eventually led to the use of elephants in a completely different offensive role. Equipped with these small guns they became mobile standoff weapons, delivering rapid and accurate fire from beyond small arms range. Their great size allowed elephant-mounted gunners to more easily see and engage distant targets. This height advantage also meant that elephants also remained popular as commanders’ mounts and mobile observation posts. In many cases the animals used for this purpose were hobbled with chains so that they could not bolt if startled or injured.⁹

As with cavalry, the distinction between shock troops and missile troops was not always absolute. Heavy infantry often carried simple missile weapons like javelins, slings and the *chakram*, a razor-edged steel disc that resembled an oversized shuriken. Some even carried bows and muskets. Before closing to engage in hand-to-hand combat they would throw or fire a round of projectiles to damage and disorient the enemy. Likewise

archers and musketeers usually carried swords or other edged weapons as sidearms. Some also carried shields. While missile troops did need to be able to defend themselves if forced to fight in tight quarters, their best option was to avoid close combat altogether. Unlike their Western contemporaries, Indian musketeers and foot archers almost always fought in open order or from behind cover. The Mughals avoided European-style linear formations, even though such groupings did offer two significant advantages. They allowed the concentration of fire, an important consideration when the primary missile weapon was a slow-firing, inaccurate smoothbore musket and an individual infantryman—or even a small group of them—was not capable of doing much damage unsupported. Compact formations also allowed infantry armed with pikes or bayonets to make effective shock attacks and also resist shock action by opposing infantry and especially by cavalry. Linear tactics did, however, have one significant drawback—they made large groups of infantry into easy targets. In Europe the tradeoff of increased vulnerability in exchange for greater firepower, mass and resiliency was considered to be an acceptable one. This would not be the case in India.

Babur—influenced by his Ottoman Turk advisors and the example of the Janissaries—may have briefly experimented with linear infantry formations, but this tactic did not persist. The new Indian battlefield was simply too dangerous to allow foot soldiers to concentrate in the open in large numbers without suffering crippling casualties. The sheer volume of fire—not just from musketry and conventional artillery but from the vast numbers of archers, both mounted and on foot, and from a host of small, hard-hitting, mobile weapons like camel guns and rockets—made the safe use of linear tactics almost impossible. As infantry was forced to disperse, they no longer had

the option of delivering concentrated fire. It was now up to the individual infantryman or squad to make a significant impact on the enemy. This was accomplished either by producing a greater rate of fire or by making each shot count. Rapid fire was delivered by bowmen. Slower but more damaging fire came from musketeers—men whose weapons were optimized for accuracy and stopping power and whose training emphasized marksmanship. Users of both weapons apparently fought in mixed units, where the volume of fire delivered by the archers would have provided cover for the methodical, punishing work of the musketeers. In this system the musket and bow were not competing weapons but complementary ones. Even as late as Akbar’s reign, foot archers outnumbered musketeers in the Mughal infantry by about three to one. As opposed to the uniformity of equipment in European formations, the composition of the weaponry carried by a small unit of Mughal foot soldiers might have more closely resembled that of a modern infantry squad—a larger number of lighter, rapid-fire weapons (bows/assault rifles), a few more precise weapons (muskets/sniper rifles) and possibly even “crew served” weapons (*jezail* heavy musket/machine gun or rockets/mortars).¹⁰

Musketeers and archers often fought from behind cover—while besieging or defending forts or fighting in the front lines and using a wagon laager or entrenchments for protection. A number of them, however, also operated in the open. In the traditional Central Asian battle array, the *irawul*, or vanguard, was a contingent of horse archers used for harassment and skirmishing. This practice continued into the Mughal era. Some cavalry even fought dismounted while acting as skirmishers, especially in rough terrain. There were also infantrymen, however, who were assigned to this task. Muskets were especially well suited for skirmishing. Their superior penetrating and stopping power

could quickly disrupt an incoming charge by fully armored heavy cavalry or elephants. For this reason infantry skirmishers were often sent out in advance of cavalry and were used to screen friendly horsemen from larger forces of enemy cavalry. Musketeers were also able to fire while prone and use even the most minimal cover to protect themselves. A typical Central Asian practice, one that Babur apparently adopted, was to pair each infantryman armed with a missile weapon with a partner carrying a large shield. This was reasonable protection against archery, but not as effective against the eventual proliferation of gunpowder weapons. Later Mughal skirmishers probably fired from a prone position or even, given enough time to prepare, dug foxholes. The widespread usage of muskets equipped with integral bipods suggests that this weapon was frequently fired from the ground—in a prone position or from inside an entrenchment. Going to ground not only protected skirmishers from the enemy but also from friendly artillery and small arms fire coming from the front lines behind them. It also meant that they could survive being overrun. Targets on the ground were difficult for incoming cavalry to engage. Horsemen would be faced with the unpleasant choice of stopping to root them out—disrupting the momentum of their charge while under fire from the main body of the enemy—or passing over them and taking the risk that they would re-emerge and fire at them from behind. Another possible method of keeping skirmishers out of harm's way—while also making them more mobile—was the use of cavalry to carry them as passengers and ferry them around the battlefield. Cavalry could also escort mounted infantry to their fighting positions and then lead their mounts back to the rear. This tactic was carried out frequently in Central Asian armies, although there are no documented Mughal examples.

Not surprisingly, this style of infantry combat appeared very strange to later Western onlookers. Some of them assumed that the Mughal method, not conforming to the standards they understood, had to be inferior. The French jeweler Jean-Baptiste Tavernier, taking himself to be an expert on military science as well as gemology, had a very low opinion of the Indian fighting man. “One hundred of our European soldiers would scarcely have any difficulty in vanquishing 1,000 of these Indian soldiers,” he said.¹¹ Another Frenchman, Francois Bernier, was also a keen critic, despite the fact that he was a physician and not a soldier. He wrote that, “these immense armies frequently perform great feats, but when thrown into confusion it is impossible to restore them to discipline... I could never see these soldiers, destitute of order and marching with the irregularity of a herd of animals, without reflecting upon the ease with which five and twenty thousand of our veterans from the Army of Flanders, commanded by Prince Conde or Marshall Turenne would overcome these armies, however numerous.”¹² Yet even more qualified observers, like the Italian soldier of fortune Niccolo Manucci, were sometimes skeptical. Describing one battle he noted that, “I saw in this action, as in so many others where I was afterwards present, that the only soldiers who fought were those well to the front. Of those more to the rear, although holding their bared swords in their hands, the Moguls (Central Asians) did nothing but shout ‘*Ba-kush, ba-kush!*,’ and the Indians ‘*Mar, mar!*,’ that is to say, ‘Kill, kill!.’ If those in the front advanced, those behind followed the example, and if the former retired the others fled, a custom of Hindustan quite contrary to that of Europe.”¹³ He did not appreciate, however, that such behavior may have been a practical response to the dangers of over concentration and the need to maintain adequate intervals and an open order in the face of heavy fire.

Other foreigners did understand that there was an underlying logic and a method behind the apparent madness they were witnessing. One Dutch observer explained: “Here in skirmishes and battles, one makes no use of pikes to prevent the cavalry from breaking in as usual in European warfare. In this country they do not keep ranks when marching, skirmishing or retreating as they do in the European quarters, but everyone attacks and strikes wherever one feels fit or best to harm the enemy... although they keep no fixed rule in their ranks, they take care that their troops or regiments, be it horse or foot, are not mixed up, and in attacking every one keeps to his duty, taking little notice of one being in the advanced or rear guard.”¹⁴ The need for soldiers, especially infantrymen, to fight as small groups and individuals suggest that true small unit tactics, down to the level of platoon and squad tactics, may have been much further advanced in India than in Europe. The respect and relatively generous pay granted to platoon leaders—*panjeh bashi*, or “commanders of 50”—and squad leaders—*dah bashi*, or “commanders of 10”—also indicates such a development. In large contingents of musketeers, platoon or squad leaders often reported directly to the commanding officer.¹⁵

One of the most consistent criticisms made by Western observers was that Indian soldiers lacked discipline. Another significant advantage of compact, European style linear formations was that they allowed for much more effective surveillance and command of the individuals within them. Soldiers were restrained from misconduct not only by the close supervision of officers and sergeants but by the presence of many nearby comrades. Such cohesion was not possible in more dispersed Mughal units. This style of combat, contrary to European assumptions, actually required a higher level of discipline and initiative from the individual soldier. Individuals, small units and their

commanders, even when fighting on the defensive and from behind cover, often had to maneuver, attack and make decisions out of close contact and communication with other troops and with their superiors. Later historians, both of India and of the European military revolution, describe such fighters as “warriors” who specialized in single or small group combat, as opposed to professional soldiers who worked as part of a larger whole, not always understanding that their separation from their comrades was dictated by tactical necessity and did not preclude them from acting as part of a team or according to a plan. This dispersion, however, may have made rallying and recovery after a truly severe setback more difficult, as Bernier and others apparently observed. Armies that were heavily reliant on cavalry and fast-moving infantry could scatter very quickly if faced with defeat.

European observers were also appalled by the seeming timidity of Mughal troops, who in many cases appeared hesitant to charge and did not always stand their ground in the face of an assault. Most of these pauses and retreats, however, were not the result of indiscipline or cowardice. The ability to fight from the tactical defensive and to withdraw safely if called upon were hallmarks of Central Asian warfare dating back to before the rise of Chingiz Khan. Aside from the use of misdirection and feigned retreats, commanders and individual soldiers were expected to extricate themselves from untenable situations and to preserve their own lives and those of their comrades regardless of any considerations of personal honor. Commanders raised in this system were contemptuous of the stubbornness and unchecked aggression of groups like European chivalry or even the Rajput nobility. As one later Mughal commentator noted, “The Turani (Central Asian) people have ever been soldiers. They are very expert in

making charges, raids, night-attacks and arrests. They feel no suspicion, despair or shame when commanded to make a retreat in the very midst of a fight, which means, in other words, ‘drawing the arrow back,’ and they are a hundred stages remote from the crass stupidity of the Hindustanis, who would part with their heads but not leave their positions.”¹⁶ It is interesting to note that the author of this passage was the Emperor Aurangzeb, a ruler renowned at the time for his exceptional pugnacity and warlike inclinations.

Another supposed symptom of a general lack of resolve by Mughal troops and by Indian soldiers in general, discussed both by contemporary observers and later historians, was their tendency to flee the field after the death of a commanding general. Yet most of these reported incidents took place during civil wars and succession struggles where the commanders in question were supposed claimants to the throne, as at Second Panipat with the demise of Hemu or at Samugarh with the (falsely) reported death of Dara Shikoh. In these instances individual officers did act on their own initiative and withdraw their troops after receiving the bad news, but such behavior was the logical course of action once their patron was gone, their faction was leaderless and their mission was over. Resistance to the bitter end made little sense in a political and military culture that almost always granted amnesty to partisans of the losing side in a civil war. The oft-described scenario of Indian soldiers spontaneously scattering at the unlucky death of their army’s leader probably rarely ever happened. On a battlefield that extended for miles, much of which was obscured by dust and powder smoke, and entangled in their own struggles to fight and survive, most of the individual soldiers involved probably had no way of knowing at the time that their general had fallen. They might not learn this

news until well after their commanding officers had been informed and then ordered them to retreat. Many incidents of an army simply falling to pieces after its leader's demise have a much simpler explanation. If a battle has gone awry to the point that the commanding general and his headquarters have been overrun and wiped out, that army has probably already been thoroughly beaten. It is notable that on other occasions, when fighting against external enemies, Mughal armies were able to maintain their cohesion and recover after absorbing terrible punishment and the loss of commanding officers to incapacitating wounds.¹⁷

Central Asian Tactics

Assumptions of indiscipline and a lack of resolve on the part of Mughal armies are in part based on misunderstandings about their Central Asian predecessors. The popular conception of Turkic and Mongol warfare is of wave after wave of savage horsemen pouring across the countryside like a flood, swarming and overpowering their victims with overwhelming numbers. It is no coincidence that the modern English word "horde" is derived from the Turkish term, *ordu*, for encampment. Of course most Central Asians in this era were anything but barbarians, living in urban, literate societies that were among the world's foremost centers of commerce, scholarship and science. Yet even their nomadic tribal ancestors had developed complex, rational systems of tactics and operations in their conflicts with each other and with their sedentary neighbors. The "barbarian horde" is a concept derived from modern swords and sorcery fantasy that has nothing to do with the reality of Central Asian warfare. Instead of relying on brute force, leaders like Chingiz Khan and Timur prevailed through superior skill—both on the part of individual soldiers and their commanders—discipline and the implementation of a

coherent, rational plan. In many instances their forces, like those of Babur and the early Mughals, were actually smaller than those of their enemies. The relative scarcity of resources on the steppe initially made the assembly of very large armies difficult and meant that as rising Central Asian leaders began their outward expansions they had to outmaneuver and outsmart their opponents, not simply overpower them.

The standard Central Asian battle array, or *yasal*, was divided into four basic parts—the *irawul*, or vanguard, the *ghol*, or center, the *chadavul*, or rear guard, and the *javanghar* and *baranghar*—the left and right flanks. During the early expansion of the Turkic and Mongol empires these units were composed almost exclusively of cavalry, but as these states and their rulers became increasingly sedentary, larger numbers of infantry began to appear. Each group had a specific composition and function. The vanguard was composed primarily of light cavalry and light infantry. It was responsible for scouting and skirmishing. Vanguard troops were usually the first to encounter an enemy force and to relay information about its size and disposition. They were also often the first to receive an enemy attack. The vanguard acted essentially as a shock absorber for the center, using skirmishing tactics and missile fire to slow and disrupt a frontal assault by enemy heavy cavalry, infantry or elephants. When hard pressed they gradually gave ground and fell back to merge with the main force. Against less aggressive enemies they were tasked with staging harassing attacks followed by feigned retreats designed to lure the opponent into contact with the center and to make them vulnerable to overextension and flanking maneuvers. The center was the largest component and included the *khasah tabin*, or the commander's headquarters and bodyguard. This was the rigid spine of the army, composed of heavier units of cavalry and infantry. In concert with the vanguard it

could withstand a frontal assault, fixing the enemy in place for envelopment from the flanks. It was also capable of delivering shock action, either as a first strike or on the counterattack. The rear guard was typically similar in composition to the center. It included the reserves and provided additional security while on the march and also protected the baggage and noncombatants.

The flanking units had the most specialized and demanding task. They were responsible for carrying out the *tulughmeh*, or encircling maneuver (This term was also used to describe the contingents of soldiers responsible for carrying out that tactic). Such an assignment required extreme mobility, and even after the widespread adoption of infantry these groups were comprised exclusively of well trained light cavalry, especially horse archers. Their job was to race around the opposing army's flanks and towards its rear as it was engaged with the main force. If they succeeded the enemy would be completely surrounded, exposed to both withering missile fire from the flanks and from behind and a powerful attack from the center. The flankers were also responsible for hunting down the survivors after such a successful outcome and the ensuing rout of the opposition. Flanking units, in concert with the swifter elements of the vanguard, could also stay in contact with enemy forces that were less willing to offer battle, slowing their retreat until they could be caught by the main force. When an army approached an enemy that was stationary or falling back, the flank units often pulled well ahead of the main body as they began their encircling maneuver, so that the entire formation changed its shape to resemble a crescent with the points facing forward. When on the defensive they might initially pull back, "refusing" the flanks and creating an arc facing in the opposite direction. These movements led to frequent contemporary descriptions of Central Asian

armies in formations resembling a “crescent moon.” The high level of skill required meant that an assignment to the tulughmeh division was one of the most prestigious postings in a Central Asian army. On a few occasions some of Babur’s troopers nearly came to blows when competing for this privilege. Even in an army dominated by soldiers of Turkish and Mongol ancestry, truly accomplished flankers and pursuit troops were a rare and valuable commodity. The best of them came from communities that had not yet become sedentary and still maintained a traditional nomadic lifestyle. A lifetime spent riding, herding and raiding was understood to be the best possible preparation for a career as a light cavalryman and mounted archer. For this reason Babur relied heavily on Mongol mercenaries from the uncivilized back country of Moghulistan and the Chahgatai provinces, despite their reputation for sometimes letting their patrons down in times of adversity. He also acknowledged the superior skill of his Uzbek adversaries, who were themselves relatively recent arrivals from the steppe. “In battle the great reliance of the Uzbeks is on the tulughmeh. They never engage without using the tulughmeh. Another of their practices is to advance and charge in front and rear, discharging their arrows at full gallop... [both] chiefs and common soldiers, and, if repulsed, they in like manner retire at full gallop.”¹⁸ Such an emphasis on flanking maneuvers and feigned retreats made fighting from the tactical defensive more attractive. A commander who attacked first stood the risk of being overextended, trapped and surrounded.

The basic battle array became more complex over time. In the armies of the Timurids, Safavids and other late medieval and early modern Central Asian powers the larger units were broken down into sub groups which could operate independently. For example the flank contingents were often split into offensive and defensive units—the

former tasked with encircling the enemy, the latter assigned to block similar maneuvers by the opposition. As formations and tactics grew more sophisticated, the importance of training and preparation increased. Apart from individual skills like riding, shooting and fighting, individual soldiers and their commanders also had to master teamwork. Many armies apparently staged full dress rehearsals for combat, practicing the complex movements needed to form into their battle array on short notice and then engage the enemy with their various units acting in concert. Preparation was crucial because the penalty for any mistake was severe. The highly mobile nature of Central Asian warfare made the stakes when engaging in battle exceedingly high. Once an army was fully committed, safely disengaging and retreating in the event of an adverse outcome was very difficult. The presence of extremely agile and aggressive flanking and pursuit forces meant that a defeated army would have to break out of an attempted encirclement and then endure a long chase. It would only escape—if it could escape at all—after suffering terrible punishment. Widely dispersed units and a relentless pace of maneuver—especially in armies dominated by cavalry—made recovery from a rout and the re-assembly of survivors into a coherent force especially difficult. When soldiers and units on horseback break, they often stay broken—because they can flee very far, very fast.

In order to maintain discipline and cohesion, a number of systems were implemented to organize, identify and communicate with the troops. Most Central Asian armies followed a practice adopted during the rule of Chingiz Khan, assigning their soldiers to units using a basic decimal system— the division, or *tuman*, of 10,000, the regiment, or *ming*, of 1,000, the company, or *yuz*, of 100 and the squad, or *on*, of 10. This made for a very simple chain of command and fit in well with the egalitarian nature of

many steppe societies, with privates only three steps removed from generals. Over time, as these military establishments became more integrated with sedentary societies, tables of organization did become a bit more complex, with the addition of the battalion, or *pansad*, of 500 and the platoon, or *panjeh* of 50. The use of Persian instead of Turkish terms to identify these units indicates their later origin. Later still, during the Mughal era, the wide variety of numeric ranks and matching contingents assigned to *mansabdars*, or senior officers, created even more diversity in unit size. These groups, however, were still usually adjusted to conform to a decimal system. An officer assigned to the command of 8,000 men, for example, might have his soldiers divided into units of 800 and 80.¹⁹

Many Central Asian commanders also used visual indicators to track their soldiers. While there were no universal, standard costumes that distinguished entire armies, as would emerge in *ancien regime* Europe—red for the British, white or blue for the French and so forth—leaders such as Chingiz Khan and Timur did use color-coded uniforms to identify members of different units. This practice apparently continued during the rise of the Mughal Empire, although many officers may have chosen their own outfits for their men rather than having them assigned from above. Rajputs, for example, tended to favor bright orange uniforms for their elite troops. For some soldiers, however, highly visible and distinctive costumes were a liability. Infantry, especially skirmishers, often wore drab civilian clothes. True camouflage dress did exist in India, where clothing printed with complex patterns of greens and earth tones was used for hunting, but it is not clear whether such outfits were used by soldiers.²⁰

Units and commanders also carried distinctive flags and standards to aid in identification and visibility. As with uniforms, most Central Asian states did not adopt

the European practice of using a standard national flag. The Mughals, however, frequently used banners emblazoned with some variant of the seal of the house of Timur—a lion and sun. Aside from visual cues, sounds could also convey information. Musical instruments, typically large drums and trumpets, were used for both pomp and circumstance by *naqqarakhaneh*, or military bands, and for signaling by troops in the field. When a Mughal officer received his commission or earned a significant promotion he was awarded three gifts—a dress uniform or “robe of honor,” a flag and a drum.²¹ An incident during Humayun’s reign suggests the practical value of the latter item. “After the siege had been carried on for a considerable time, a person waited on his Majesty and in private informed him, that he could lead the troops across the summit of a mountain to a place which completely commanded the fortress: the King placing confidence in this representation, selected a small body of brave men, and accompanied by two drummers and a trumpeter secretly left the camp, and, having by a difficult pathway ascended the mountain, got into the fort. He then ordered the drummers to beat and the trumpeter to sound, on which the different chiefs made a simultaneous attack on all the bastions, and, the enemy finding themselves thus beset, called out for quarter.”²²

Babur’s early battles clearly illustrate some of the key components of traditional Central Asian warfare and the importance of discipline and coordination. At the battle of Sar-i-Pul against the Uzbeks in 1501 he apparently employed a fairly simple formation, divided into the basic components of vanguard, center and flanks. Babur made a number of fundamental mistakes—failing to wait for reinforcements, fighting with a river at his back and with no viable avenue for retreat and taking the tactical offensive and launching a frontal assault against a superior enemy force. The errors that took place after battle was

joined, however, better illustrate the importance of proper preparation, coordination and movement. After Babur's initial attack failed, the Uzbeks responded with their signature tactic, a flanking maneuver against his left. Babur in turn tried to refuse that flank, turning his left wing and center units at an angle to directly face the incoming attack. Unfortunately, this movement was not properly coordinated with the rest of the army, and the vanguard and right wing did not shift to fill the ensuing gaps. Even after Babur's adjustments the Uzbek tulughmeh succeeded in turning his left flank. Worse yet, with the vanguard not in place to act as a buffer, his center was left exposed. Observing this, the enemy launched a punishing frontal assault. At the same time they struck at the seam that had opened between Babur's center and right. Fragmented and threatened from both front and rear, his army was forced to retreat. That retreat soon became a rout. Many of the survivors found themselves trapped against the river to their rear, where they had to literally swim for their lives. Babur was among those unfortunates, and he was lucky to escape at all. He did survive, however, to learn important lessons. He had been defeated by the Uzbeks' superior ability to maneuver, coordinate, react and exploit opportunities as they arose. If he was going to win his empire, he would have to make those qualities his own.²³

Babur's next major battle, at Qandahar against the Arghun Mongols in 1507, showed that he had learned the lessons of Sar-i-Pul very well. The army he brought to that engagement was much more tightly organized. His new order of battle was quite complex, with the four standard divisions of vanguard, center, rear guard and flanks further subdivided into at least 13 distinct sub-units. The system was more than

theoretical—Babur and his men had apparently thoroughly rehearsed the process of forming into and then fighting from this formation.

I had been at great pains to train and exercise them in the best manner. Perhaps on no other occasion did I have my troops in such perfect discipline. All of my household... who could be serviceable were divided into bodies of tens and fifties, and I had appointed proper officers for each body, and had assigned to each its proper station on the right or left, so that they were all trained and perfectly informed of what they were to do; and had orders to be on the alert, and active, during the fight. The right and left wings, the right and left divisions, the right and left flanks, were to charge on horseback, and were drawn up and instructed to act of themselves, without the necessity of directions from the *tawachis* (officers), and in general all of the troops knew their proper stations, and were trained to attack those to whom they were opposed.²⁴

This performance was even more impressive given the fact that Babur had been surprised by a much larger enemy force and that half of his troops were absent foraging or scouting. Babur's men were still able to fill in the gaps, quickly assemble into their complex formations and prepare for combat. By contrast the Mongol army did not appear to be nearly as well organized. It was divided into two main units, a larger one led by the Arghun chieftain Shah Beg that held the center and left and a smaller force on the right commanded by his younger brother Mukim Beg. These two contingents apparently did not coordinate their actions very well. As Shah Beg launched a frontal assault against Babur's center Mukim attempted to turn his left flank—despite the fact that a network of small streams and irrigation canals in this area made an attack extremely difficult. Babur in turn was able to hold on the center and shift a number of men from his left flank to his right. The favorable terrain allowed him to hold off Mukim's flanking attack with a skeleton force on the left and to launch a powerful thrust from his own reinforced right

wing. Marshland on the extreme right made the classical, sweeping tulughmeh flanking maneuver impossible, but Babur had a large enough concentration on his right to push the enemy's left straight back. Once the Mongol left flank began to buckle, their center and right were forced to withdraw or be enveloped. They briefly attempted to make another stand on a line of hills behind their initial position but were soon driven into a general retreat. Babur's flanking and pursuit forces were so aggressive that the fleeing enemy were chased far away from Qandahar and never had the chance to take refuge in that city's fortifications, making the eventual seizure of the town a simple affair. This time it was Babur and his troops who overcame adversity and prevailed through superior preparation, coordination and initiative.²⁵

The Emerging Mughal System

Babur's discovery of gunpowder weaponry would further transform his order of battle. Artillery and muskets, however, were only part of this new organization. The *dastur-i-Rumi* or "Roman Method" that he adapted from the instructions of his Ottoman Turk and Persian advisors was in many ways a substantial change from the traditional Central Asian system based around speed and mobility. It emphasized the use of field fortifications, especially entrenchments and the wagon laager. When the Ottomans established their system of *tabur cengi*, or "camp battle," trenches and wagon forts were not completely unfamiliar to Islamic and Central Asian militaries. Defensive earthworks had a long history among them, dating back at least to the Prophet Muhammad and the famous "Battle of the Trench" at Medina. Heroes and armies in epics like the *Shahnameh* also dug in when threatened, suggesting even earlier origins.²⁶ Entrenchments certainly had ancient roots in Europe as well, where they were a central element in Roman field

craft. Likewise the wagon laager had a lengthy record of use around the borders of Central Asia, in China, Russia and Eastern Europe. As early as the 4th century it was employed effectively by the Visigoths against an attacking Roman army at Adrianople. It is perhaps no coincidence that this tactic was widespread on the fringes of the steppe where sedentary peoples were hard pressed to defend themselves against nomadic horsemen, and even wandering tribesmen might be forced to use their baggage and portable shelters as a last line of defense when severely outnumbered by their enemies. Fortifications of this type were traditionally primarily defensive and static, used during sieges, to protect against surprise attacks, to make a stand against superior forces or as a way of avoiding battle entirely. Babur was quite familiar with this concept. He routinely surrounded his encampments with field fortifications and hid behind trenches when faced with a more powerful enemy. The significance of the new system—as suggested by the term “camp battle”—was that field fortifications were now central to tactics, operations and battles. A traditionally conservative solution was now employed aggressively, with the tactical defensive being used on the operational and strategic offensive. While the velocity and agility of Central Asian cavalry appeared at first glance to be contradictory to the plodding, deliberate tactics of artillery, wagons and entrenchments, in Babur’s new system the two disparate elements combined into an effective whole. An invasion by a mobile fortress combined with a swarm of swift and dangerous horsemen presented a unique problem for the defending force. The damage inflicted by raiding cavalry meant that they could not afford to remain passive, but when challenged the invaders could rally around their field fortifications, denying them the advantage of the defensive. Once the defenders were committed to striking at this formation, the threat of a flanking

counterattack on horseback made their work far more difficult. The end result was that an aggressor using this method could present a serious threat even with limited numbers.

It was the combination of field fortifications with gunpowder weaponry—first developed in Central Europe and eventually adopted by the Ottomans—that made the Roman Method truly formidable. A successful frontal assault against a maze of trenches, wagons and barricades, in the face of sustained artillery and small arms fire, by traditional cavalry and infantry forces was almost impossible. Such defenses proved to be an impenetrable obstacle for both the heavy cavalry of the European nobility—as proven by the Turks at Mohacs and by the Hussites on numerous occasions—and for Eastern light horse and mounted archers—as the Safavids learned to their sorrow at Chaldiran. Once Babur acquired his own cannon and muskets he transitioned from the standard Central Asian yasal to this new battle array. While the old formations were still frequently used while on route marches and by cavalry operating independently, the tabur cengi became a starting point for future Mughal tactics and operations. Babur and his successors would build and expand on this system, designing a unique combined-arms doctrine that employed elements from Europe, Central Asia and India—artillery, musketeers and other infantry, horse archers and heavy cavalry—combining the best elements of the nomadic and sedentary methods of warfare.

Babur's great victories at Panipat and Khanua were proving grounds for this new approach to warfare. The formation and basic tactics used at both battles were the same. The ghol and chadavul contingents, the center and reserves, were now arrayed inside a ring of field fortifications—wagons, trenches and mobile barricades. If possible, this formation was set up near a terrain feature that could protect at least one of the flanks.

The carriages of the artillery pieces were interspersed with the other carts, with most of them pointed directly forward, towards the enemy's expected line of advance.

Musketeers and foot archers fired from behind the cover of these fortifications while other infantrymen armed with edged weapons served as their bodyguards in case the enemy broke in. Reserves of infantry and heavy cavalry waited behind them for the opportunity to counterattack. The irawul, or vanguard, now consisted of a screen of skirmishers, both mounted and on foot. These troops were tasked with using missile fire to slow the momentum of any frontal assault against the center. They could also drop caltrops, dig pits and deploy other booby traps for this purpose.²⁷ The vanguard also lured less aggressive opponents into contact with the center with harassing attacks followed by a feigned retreat, as apparently happened at Panipat. The tulughmeh, or flanking units, remained virtually identical in form and function to those of earlier Central Asian armies. Babur at both of these engagements filled his javanghar and baranghar contingents with half-wild Mongol cavalry from the deep steppe, relying on their mastery of the traditional skills of horse archery and pursuit. Once the enemy was fixed in place, these soldiers were able to encircle them and punish them with sustained arrow fire.

Panipat and Khanua were successes because Babur was able to follow this script virtually to the letter. In both instances the opponents were unfamiliar with the new weapons and tactics and emboldened by superior numbers—outnumbering the Mughals by a factor of at least three or four to one. In each battle the enemy launched an all-out frontal assault against the center with infantry, cavalry and war elephants. Their leading elements, battered by artillery and small arms fire, stalled in front of the defenses. The

units behind them, however, attempted to press on. Eventually the enemy forces were concentrated in a disorganized mass. At that point the flanking cavalry swung out to encircle them while the infantry and reserves—passing through prepared gaps in the defenses that were opened by the dropping of chains and planks or the pushing aside of mobile barricades—emerged from the center to counterattack. Struck simultaneously by archery from the flanks and rear as well as continued gunfire and shock action from their front, the enemy collapsed into a rout. Such a textbook sequence of events, however, was not a likely outcome in later battles. Babur's modified version of the Roman Method soon became standard operating procedure not just for the Mughals but for their enemies. As both the quantity and quality of gunpowder weaponry—both small arms and artillery—increased on all sides, some of the other components had to be modified. The standard wagon laager was now too fragile to withstand the volume of sustained cannon fire poured out by Indian armies, and trenches became the predominant means of protection. Likewise soldiers who fought outside the shelter of field fortifications, especially those who were on foot, needed extra security. The existing Central Asian practice of using two-man teams of skirmishers, one armed with a missile weapon and the other guarding him with a large shield, worked well against archery but was not effective when confronted by the superior penetrating power of bullets. As the increasing use of bipods as standard equipment on infantry muskets suggests, foot soldiers became more accustomed to fighting from the ground, lying prone or hidden in trenches and foxholes. As a weapon, the shovel was nearly as important as the musket. Mughal soldiers dug constantly, constructing networks of slit trenches, sandbag barricades and individual fighting holes that would not be unfamiliar to a 20th century military observer.

These were used not just during sieges or when fortifying encampments but also in the open, during the course of battle.²⁸

The mental terrain of the battlefield was also changing. As the rivals of the Mughals began not just to imitate but to truly understand these weapons, tactics and their implications, easy victories over unprepared enemies became less likely. The new methods of warfare meant that the tactical defensive was crucial, and that neither side in a battle was willing to abandon that advantage easily, as the Lodis and the Rajputs had done so recklessly at Panipat and Khanua. Later engagements were often preceded by extended standoffs as both sides lurked inside their field fortifications, waiting for the other to run out of patience and strike first. These waiting periods were punctuated by occasional skirmishes. Some of this activity involved attempts to scout out an enemy's strength or lure them into a premature charge, but much of it may have been prompted by efforts to discern the lay of the land and work out the best line of attack. Since a frontal assault against a prepared opponent would most likely end in disaster, a very wide flanking movement conducted out of sight of the enemy might allow a strike at a weaker point in their defense. Yet while their artillery and elaborate field fortifications did take considerable time—and the labor of many humans and animals—to set up or reset, the defenders' vanguard and skirmishers would likely provide enough warning for them to react to such a maneuver. Along with the flanking cavalry they could slow the encirclement sufficiently to allow time for the defenses to be reoriented and men and guns moved to face the new line of advance. Most forces probably prepared fortifications and entrenchments on all sides of their position in anticipation of such a situation. The large numbers of cavalry available to Indian armies meant that surprise or victory earned

by some daring tactical stroke was extremely difficult to achieve and that meeting engagements between large forces were quite rare. Agile and persistent scouting and pursuit elements combined with well-protected, slow-moving main forces made for a very deliberate pace of warfare.

If a frontal assault was inevitable, then overwhelming force was required for the task. A great enough superiority in numbers—achieved either through the presence of a much larger overall force or by a massive overconcentration at the point of attack—could, at least in theory, breach the new system of defenses. This kind of onslaught, however, presented its own perils for the attacker. While enemy armies on several occasions were able to break into and partially overrun Mughal defensive formations with truly prodigious frontal assaults, none of these efforts resulted in a successful outcome at battle's end. The most notable such incident took place at the Battle of Tukaroi in 1575 when the forces of the Afghan sultanate of Bengal, by sending wave after wave of cavalry, infantry and elephants, broke through the Mughal front lines and nearly routed them entirely. Unfortunately for the Afghans, this all-out effort and overconcentration in the center led to a large part of their army being extended into a single massive column, a formation which was further stretched as the troops in the Mughal center fell back and attempted to make a stand among their baggage and rearmost entrenchments. At this point the Mughals' flanking cavalry elements—which had been left unmolested—moved forward, folded back the Afghans' weakened flanks and struck this long train of enemy units from both sides, effectively severing it at several points. The Afghan army quickly lost momentum and cohesion, a process that was only hastened when its commanding general was killed during the melee in the center. Their now fragmented forces soon

broke into a general retreat. This engagement proved that, given a large enough force, it was possible to overwhelm static defenses by essentially forming an army into one massive spearhead, but the very process of doing so made the attacker even more vulnerable to the classic tulughmeh flanking maneuver. The combination of a rigid, stable center with extremely mobile flanks was still very difficult to counter.²⁹

If such a defensive formation as a whole could not be easily broken, another possible solution was to separate its various components and then defeat them in detail. The most obvious solution was to force a split between the enemy's cavalry on the flanks and the infantry, artillery and reserves in the center. Once this was accomplished it was possible to launch a punishing assault against that center without fear of becoming trapped by an encircling counterattack. Enemy horse might be neutralized simply being driven off by an attacker's greatly superior force of cavalry or, as was more likely, by being lured away with a feigned retreat or the opportunity to attack what appeared to be a small, isolated unit. Sher Shah Suri, in earlier battle against another recalcitrant ruler of Bengal, employed a classic version of this tactic.

Sher Khan arrayed his forces, and brought them out of their entrenchments... he himself came out, and said to his chiefs, "In the enemy's army there are many elephants and guns, and a great force of infantry; we must fight them in such a manner that they shall not be able to preserve their original order." The Bengali cavalry should be drawn away from their guns and infantry, and the horses intermingled with the elephants, so that their array may be disordered. I have thought of a stratagem by which to defeat the Bengalis. I will draw up the greater part of my forces behind the cover of that height which we see, but will retain for the attack a small number of experienced and veteran horse... I will bring up my selected division, who, after discharging one flight of arrows into the Bengali army, shall retreat. Ibrahim Khan still bears in mind the old feud regarding the death of

his father, and is presumptuous on account of his superior force. He will think the Afghans are beginning to fly; and, becoming eager, he will leave his artillery and foot in the rear, and press on with all expedition himself, and disorder and confusion will find their way into his order of battle. I will then bring out my force which had been concealed behind the eminence, who will attack the enemy. The Bengali cavalry, deprived of the support of their artillery and infantry, are by themselves unable to cope with the Afghan horse. I hope, by the favor of God, that their force will be routed and put to flight.” All the Afghans expressed their approbation of Sher Khan's plan of battle, and were much delighted, and observed there could be no better possible scheme devised. After this was agreed upon, Sher Khan drew out, as described above, a picked force, and explained to them that they were to act as had been determined; and the rest of his force he drew up behind the shelter of the rising ground. When the army of Ibrahim Khan was descried, the horsemen, according to their instructions, coming up to the Bengali army, discharged one volley of arrows, and then turned about. The Bengali cavalry, supposing the Afghans were flying, broke their ranks, just as Sher Khan had anticipated, and pursued the Afghans. Accordingly, as soon as Sher Khan perceived that the Bengali cavalry had advanced, and left their infantry and artillery in the rear, he appeared at the head of his force which had been lying in ambush, and advanced. The Bengalis were panic-struck, and the Afghans who had fled returned, and, joining the rest, they all stirrup to stirrup, after the manner of the Afghans, fell upon the hostile army. The Bengalis, however, rallied, and stood their ground, and the two armies became closely engaged. After warriors of note had fallen in the contest, the sun of victory rose in favor of Sher Khan from the horizon of the East, and the Bengali army was defeated.³⁰

Such a successful outcome, however, was dependent on the indiscipline of both the enemy troops and their commanders and on poor scouting and a lack of situational awareness on the part of the opposition. Circumstances as ideal as these could not always be counted on. An alternative plan was not to divide the opposition but to consolidate them. Steady pressure from both the front and flanks could compress the enemy's

formation and force them to over-concentrate. A dense, tightly packed concentration of soldiers was extremely vulnerable to the high volume of fire produced on Indian battlefields. It was an inviting target for horse archers, musketeers and especially for highly mobile light artillery like camel guns and rockets. Given enough time, larger cannon could also be brought up to deliver point-blank fire. One of Akbar's commanders describes this process during a battle against Gujarati rebels in 1584.

When I reached the foot of the hills, I attacked the enemy's infantry, and drove them back for a good *kos* (~2 miles) to where their main force was drawn up in array. A sharp action ensued. The discharge of arrows and bullets was quite bewildering, and many men and horses on both sides were wounded. I dismounted some of my best men, and rode on with them to the mountain, and I sent some to call up Kalij Khan... Kalij Khan came up on the left, and becoming engaged, he bore back the enemy a little. But reinforcements were brought up by the enemy... The men whom I had dismounted, while the enemy was pushing after Kalij Khan, finding the way clear, ascended the hill. When the enemy returned, they attacked us, and many men were killed. Kalij Khan had found some shelter and held his ground. I sent to Mirza Khan for the elephant guns (*hath-nal*). They were brought up upon the elephants, and we discharged several guns against the spot where Muzaffar (the enemy commander) was standing. Naurang Khan now came up the mountain which covered the enemy's left, and got the command of his position. When the balls from the elephant guns fell in the midst of Muzaffar's division, he fled, and great numbers of his men were taken prisoners or killed. The Imperial arms obtained a complete victory.³¹

Given a large enough force, a cordon could be thrown around the opposing army, and the surrounded enemy would be slowly strangled instead of battered into submission. This plan was especially attractive because it offered the prospect of a virtually bloodless

victory. A Mughal army led by Humayun accomplished such a feat against the Gujaratis at Mandisor.

The two armies faced each other... The tents were hardly pitched, when Saiyid Ali Khan and Khurasan Khan, who commanded (the enemy general) Sultan Bahadur's advanced guard, were defeated by the royal forces, and fell back upon their main body. The army of Gujarat was greatly dispirited, and the Sultan called a council of war. Sadr Khan advised giving battle on the morrow... Rumi Khan, who commanded the artillery, was adverse to a pitched battle, because the guns and rockets were of little use [in that situation]. They were very strong in artillery, and except the Emperor of Rum (The Ottoman Empire), no other potentate could equal them. He therefore counseled the entrenching of the army and the carrying on of warfare daily. If the Mughals advanced, they might be met with a discharge of the guns and rockets and a large number of them would be killed. Sultan Bahadur acquiesced in this view, and ordered an entrenchment to be formed around his camp. For two months the two armies remained confronting each other. Frequently during the day brave men desirous of fame sallied out in search of adventures; but the Mughal soldiers seldom ventured within range of the guns and rockets. Then the Emperor posted his troops around the position of the enemy, to cut off his supplies of grain and fodder and fuel. These dispositions caused a famine to ensue in the enemy's camp. Grain was not to be procured, the grass all around was consumed, and the imperfectly armed Gujaratis, through fear of the arrows, dared not venture far from the camp. The horses and animals and many men perished from want, and the army was dismounted. When Sultan Bahadur perceived that if he remained longer he would be taken prisoner, he went off by the rear of his pavilion and fled towards Mandu... When his men heard of his escape, they took flight.³²

A successful blockade of this type required vast numbers of men. Almost all of the possible methods of breaking down a defensively oriented enemy army while operating from the tactical offensive—whether they involved patience or brute force—required substantial numerical superiority. This requirement was one pressing reason for the great

growth in army sizes in India during the Mughal era. The region's great natural wealth and highly militarized population made this rapid expansion possible.

Naval Tactics

These vast armies were complemented by growing navies. Even before its borders reached the sea, the Empire had to fight for control of India's great rivers and inland waterways. Both the Mughals and their rivals eventually assembled fleets consisting of hundreds of ships. The most dramatic expansion of the Mughal navy took place after the conquest of Bengal and Gujarat finally provided the Empire with deepwater ports. Yet Akbar did more than just expand the fleet's area of operations—he provided it with a coherent structure. His navy was a dramatic departure from the earlier ad-hoc collections of purchased and requisitioned civilian vessels, which were often assembled and then discarded with each season or campaign. The new organization reflected of Akbar's ongoing program of reform and rationalization, which extended throughout the civil and military institutions of the state. Naval administration is described in detail in the *Ain-I-Akbari*. The navy had four primary objectives—the maintenance of a fleet for both transport and combat, the retention of a corps of skilled seamen, the protection of civilian commerce and the enforcement of tolls and tariffs. There were 12 separate categories for sailors, each with its own pay scale. These included navigators, helmsmen, quartermasters, pursers, gunners and ordinary seamen. Each ship had both an official “captain”—usually a high ranking soldier or civil official—and a sailing master. The navy accepted any “experienced seamen acquainted with the tides, the depths of the ocean, the time when the several winds blow... familiar with shallows and banks” who were also “hale and strong, a good swimmer, kind hearted, hard working, capable of

bearing fatigue and patient.”³³ Not only did they recruit Indians of all sorts—they enlisted Persians, Arabs, Africans and Europeans.

The overall organization of the navy closely resembled that of the Mughal army. It was divided into two primary units—a Western fleet based in Gujarat and an Eastern fleet based in Bengal. Each of these was built around a nucleus of ships maintained and manned by the central government. The funds for this “standing navy” came from taxes and tolls on civilian shipping and the proceeds from Crown lands set aside especially for that purpose. As was the case with the army, the highest-ranking officers—or *mansabdars*—were provided with land grants—*jagirs*—of their own. They were expected to use their earnings from these properties to buy or build additional ships and crew them with sailors and marines. In times of need these forces might be further supplemented by impressed merchant vessels or ships owned by naval mercenaries.

Mughal naval tactics emphasized boarding over gunnery, and their ships usually carried very large compliments of soldiers and marines relative to their size. This was not surprising, as many “sea” battles actually took place in the close quarters of rivers, estuaries and bays. In such an environment, close cooperation between naval and land forces was essential. Navy vessels often served as transports for infantry, cavalry and even elephants. In amphibious operations they carried men directly into battle. They also provided security and acted as a supply train for troops moving overland along rivers and coastlines. In regions like Bengal—intersected by numerous rivers, estuaries and lakes—it was literally impossible for armies to function without naval support. A number of naval actions—especially galley fights—devolved into what were essentially land battles afloat, with thousands of soldiers and sailors fighting from ship to ship. In other instances

the fighting took place in bodies of water so confined that sailors and marines continually exchanged artillery and even small arms fire with soldiers on the shore.

There are few detailed tactical descriptions of Mughal naval battles, but the most common formation appeared to be a double or triple line abreast. The larger, more heavily armed sailing ships formed the vanguard. They attempted to blast holes in the enemy formation, gaps that could be exploited by galleys emerging from the rear ranks. As the enemy lost cohesion the Mughal vessels would swarm over them in a mass melee and boarding action. There were also specialized defensive formations, reminiscent of the wagon laagers employed by Mughal ground forces. Groups of ships and large rafts were lashed together to form floating forts. Heavy artillery pieces from army siege trains were brought on board the rafts to supplement the ships' existing guns. Wagons lashed to the decks, stacks of crates and bales of straw or cotton formed makeshift battlements. When these platforms were ready, galleys towed them into position. They were used as mobile batteries to support amphibious operations, to attack enemy shore installations or to protect the entrance to a friendly river or harbor. In more confined spaces they could block a waterway entirely, and for this reason they often served as pontoon bridges.

The concept of the portable fort was also applied on land. Mughal squadrons usually carried large complements of laborers and engineers and ample supplies of building materials. The pioneer detachments dredged and deepened channels to allow the safe passage of ships and cleared roads through the wilderness to allow the advance of ground troops. The construction of fortifications, however, was their most important task. Their creations ranged from entrenchments and rudimentary field works to surprisingly elaborate fortresses constructed from earth, mud brick and logs. These emplacements

were crucial in consolidating Mughal gains. They provided safe bases for garrison troops once the army and navy had moved on and they commanded roads, waterways and other strategic points. Hastily built fortifications even provided fire support for warships in some close quarters engagements.³⁴ As one account of a battle between Mughal and Gujarati squadrons vividly illustrates, naval actions could match the ferocity of land battles.

The hostile fleets drew up in the opposite lines, and a discharge of cannon and muskets, shells, and rockets, wheels, (heavy crossbows) and every kind of fire missiles commenced on both sides. The scattering flames and sparks shone on the water like a fiery mountain, and such clouds of smoke ascended, that the vaulted heavens became as it were the roof of a furnace. The sun sheltered itself in the smoke from the fierceness of the heat, and was eclipsed. Sight could not pierce the thick clouds, and breath failed from the density of the atmosphere. At length the boats ran foul of each other. The rings and grapnels, which were made in order to drag away the enemy's boats, now began to be used. So violent a struggle ensued, that the waves were crimsoned with the blood of those whom the guns had destroyed.³⁵

Diplomacy and Siege

The best solution, however—on land or by sea—was to succeed without fighting at all. As the Empire expanded, open field battles of any sort became increasingly rare. The tactical dilemma presented by the new system and the lethality and rate of fire of the weaponry involved meant that any combat was extraordinarily violent and costly. Indian battlefields in this era were especially nightmarish places, swept by fire from a multitude of missile weapons both great and small, riddled with obstacles, traps and hidden dangers and shrouded by dust, smoke and fear. A later Mughal poet summed up the horror of this setting.

They charged with their spears and swords,
And shed profuse blood on that battlefield.
From the smoke of gun-wagons and
From the dust raised by the infantry,
The earth up to the sky became pitchy dark.
From profuse spilling of blood on that battlefield,
One roaring sea of crimson was spread.
The heads of warriors looked like ripples therein,
Their corpses swam like fish therein.³⁶

In battles like these, aggressive maneuver and attack were obviously extremely hazardous, but withdrawing from the fight was even more dangerous. A defeated army was faced with the prospect of a retreat under withering fire followed by the enemy's attempted envelopment and relentless pursuit by wolf packs of light cavalry and horse archers. Worse yet, the highly militarized nature of the Indian population led to fiendish difficulties for any force withdrawing through hostile territory. Stragglers typically became prey for bandits, guerrillas and irregular militias of all sorts. For all of these reasons, casualties were often horrific. Battles like Panipat, Khanua and Tukaroi may have resulted in combined death tolls of over 20,000 with at least several times that many wounded, captured and missing—figures that exceeded those from many engagements involving similar numbers in later conflicts like the Napoleonic Wars or the American Civil War.³⁷ Senior officers and even commanding generals were frequently among the victims. Any commander who did decide to offer battle was clearly playing for extraordinarily high stakes, both for himself and for his state. Even a victory was likely to involve punishing casualties. A defeat could very easily lead to the destruction, dissolution or surrender of his army. Second chances were rare.

As an alternative to violence—which Jos Gommans describes as “the second best option,”³⁸ the Mughals resorted to posturing, intimidation, diplomacy and bribery. Outright cash payments and the promise of *mansab*, or high office in the Imperial ranks, were used to induce their opponents to give up without a fight—or perhaps, for honor’s sake, to show up on the battlefield but retire after making only a token demonstration. The terms of such agreements were quite generous, and the Mughals often showed remarkable patience even with enemies who were in rebellion against them or who had violated previous treaties or agreements. Later critics saw this flexibility as a sign of weakness, assuming that a reluctance to fight implied a lack of ability, resources or resolve on the part of the Mughals. These historians frequently describe an era when display, ritual and mock battles replaced actual combat. This idyllic period is contrasted with the onset of the colonial era and the advent of a more modern style of warfare that William R. Pinch describes as “far bloodier, noisier and more expensive... a total and all-encompassing hell.”³⁹ Such an explanation, however, does not account for the true horror of an all-out engagement waged under the earlier system. Rulers and commanders had had their fill of “total hell” during the bloody birth and expansion of the Empire, and they and their successors were quite happy to avoid battle when other solutions were available. The Mughals’ later preference for flowery wars and silver instead of lead was an outgrowth of their position of overwhelming strength. The upsurge in battlefield violence and mortality that accompanied the Empire’s decline and fall arose not so much from novel technology and tactics as from the realities of conflict between equally matched successor states. With few chances to overawe, persuade or suborn the opposition, open combat was often the only option. Avoidance of battle was a luxury for the strong, not an

option for the weak—or even for the aspiring. Like Babur, Sher Shah and Akbar, later warlords—from Sivaji and Ahmad Shah Durrani to Clive, Wellesley and Cornwallis—would have to earn their bona fides on the battlefield.

Fortresses and Sieges

Some leaders who doubted their ability to face the Mughals in battle instead placed their faith in fortifications. The open field engagements of the initial expansion were followed by a phase in which sieges became the predominant form of combat.

Adversaries like the Rajputs and the Deccani sultans had some truly formidable fortresses to fall back on. The *trace italienne* and other European innovations were not widely adopted in South Asia for one simple reason—the existing forts were already quite resistant to artillery fire and only required minimal retro-fitting to place their own defensive guns. The true revolution in Indian fortress design had taken place much earlier, during the 14th century, in response to the introduction of the more powerful *maghribi* trebuchet from the Middle East and the emergence of the first primitive gunpowder weaponry. The resulting installations were massively over-engineered, with concentric rings of alternating moats, earthworks and enormous stone walls, some of which exceeded 15 meters in thickness. The great wealth available to most Indian rulers meant that few expenses were spared, and staggering volumes of materiel were used for these constructions. The adage about “quantity having a quality all its own” was well understood. Many builders along the rugged frontiers of northern India also had the luxury of commanding terrain on which to place their forts. Mountains and hilltops, apart from making defense easier, also made the sprawling footprints of European-style fortifications impractical.⁴⁰ Contemporary descriptions of some of these fortresses make

clear the difficulties in store for any attacker. The Sultan of Gujarat's fort at Surat included "ditches... twenty yards wide, and filled with water... built of stone, *chunam*, (quicklime mortar) and burnt bricks... double walls five yards thick and the twenty yards high... likewise built of stone, *chunam*, and burnt brick... four walls fifteen yards thick and twenty yards high... each stone firmly fastened to the next with cramps of iron, having molten lead poured into the interstices."⁴¹ The fort of Asir in the Deccan was even more of a nightmare for would-be besiegers.

They reported that they had never seen in any country a fort like this; for however long an army might press the siege, nothing but... extraordinary good fortune... could effect its capture. Old soldiers, and men who had travelled into distant lands, men who had seen the fortresses of Iran and Turan, of Rum, Europe, and of the whole habitable world, had never beheld the equal of this. It is situated on a high and strong hill, and three smaller hills, each having a fort, stand around it, like a halo round the moon. The ways of entrance and exit were difficult to discover. Near it there was no other hill commanding it, and no way of approach. All around was level ground, and there were no trees or jungle to serve as cover... It was impossible to conceive a stronger fortress, or one more amply supplied with artillery, warlike stores, and provisions... Were the fortress placed upon level ground, its reduction would be difficult; but such a hill, such a well-secured fortress, and such artillery, were not to be found in any one place on the face of the earth. After the capture of the fortress accounts were taken of the munitions. Of pieces of artillery small and great, there were more than 1300... There were great numbers of mortars and also many *manjaniks* (trebuchets)... On every bastion there were large iron cauldrons, in each of which... oil could be boiled and poured down upon the assailants in case of assault. No account was taken of the muskets. Of provisions of all sorts, wines, medicines, aromatic roots, and of everything required for the use of man, there was vast abundance. When, after a protracted siege of eleven months, the place fell into the hands of the Imperial army, the quantities of grain, oil, etc., which remained, even after some thousands of men had been fed, seemed as if the stores had never been touched. The

stores of ammunition were such, that thousands of *mans* were left, although the quantity consumed had been enormous. For throughout the siege a constant firing was kept up night and day, with object and without object; so that in the dark nights of the rainy season no man dared to raise his head... There were large chambers full of powder. There were no springs of water in the fortress; but there were two or three immense reservoirs, in which the (rain) water was collected and stored from year to year, and amply sufficed for the requirements of the garrison. In the dwelling of each officer of importance there was a separate reservoir, containing a sufficient supply of pure water for his household. Nor had all this preparation been made for the occasion; it had been kept up from the foundation of the fortress. The rulers of the country had incessantly cared for the strengthening and provisioning of the fort, more especially in respect of artillery. The revenues of several *parganas* (districts) were specially and separately assigned to keep up the supply of artillery... The population in the fortress was like that of a city, for it was full of men of every kind. After the surrender, the inhabitants came out, and there was a continuous throng night and day for a week.⁴²

Yet both of these fortresses, just like the mighty citadels of Chitor and Ranthambor, eventually fell to the Mughals. Hiding behind stone walls was ultimately no more successful than waging open battle—it usually only delayed the inevitable outcome. Even more so than engagements in the open field, a siege allowed the Mughals to effectively leverage the vast resources at their disposal. The target fortress was surrounded with lines of circumvallation, a system of massive earthworks which included not only zigzag trenches and sunken gun emplacements but also *sirkob*, or siege towers. These might be built of stone or timber but were often constructed of piled earth, some of sufficient size to become literally artificial hills, higher than the fortifications they surrounded. Cannon and snipers placed atop these platforms delivered plunging fire into the defenses and spotters stationed there monitored the enemy's movements and directed accurate gunnery

against them from all quarters. Once the fortress was isolated from the outside world, the final approaches were made both above and below the surface. *Sabats*, trenches covered with roofs of wood, canvas and leather, were used to cover teams of sappers and elephants and to place heavy guns for point blank fire against the walls. Such shelters were not immune to cannon and musket fire, but they did force the defenders to fire blind and they also prevented the use of simpler weapons like dropped stones and heated or caustic liquids. At the same time mines were dug under the walls, packed with explosives and set off to cause a collapse. Once the walls were breached, if the defenders were not yet ready to give up, the shamsherbaz and other shock troopers were unleashed.

The sheer scale of these undertakings was daunting. Firing gigantic siege guns that launched projectiles weighing more than a ton—that could blast enormous craters, flatten walls and destroy several buildings with a single shot—and creating an artificial terrain of miniature mountains and chasms “so wide that ten horsemen abreast could ride along it, and... so high that an elephant-rider with his spear in his hand could pass”⁴³ through one of them, the Mughals were literally capable of reshaping the geography of a place. Thousands of men and beasts were involved in this great work—not just soldiers and war elephants but carpenters, masons, engineers, laborers and all of their assorted draft animals. All of these required many tons of rations and fodder to continue their labors. Ownership of the Indian heartland and its vast wealth meant that the Mughals could mobilize the resources needed to overwhelm lesser opponents. No matter how much food and ammunition the defenders might hoard inside their walls, the Mughals could always bring more. Anyone that they could not overpower, they could outlast.

Guerrilla Warfare and Counterinsurgency

If direct confrontations, either on the battlefield or from behind the shelter of fortress walls, were not successful, the Mughals' enemies resorted to more indirect means. Sher Shah Suri, Humayun's nemesis, was famous for his use of deception, misdirection and Fabian tactics. He preferred to avoid battle, giving ground and luring his opponents far away from their home bases and then to striking at their supply lines and advance outposts instead of their army proper. He only fought when conditions were ideal, when the enemy was distracted, depleted and exhausted. Sher Shah's victories at Chausa and Kanauj came only after he led Mughal armies on a long chase across much of northern India, from Bihar to Bengal and back. Of course, when all else failed, he was not averse to outright treachery, as his false cease fire and surprise attack at Chausa proved. It is not clear, however, whether Sher Shah's bag of tricks would have worked so well against the more mature Mughal military system of Akbar and his successors—an institution that was much more efficient in the gathering and utilization of resources.

The last resort for the Mughals' rivals was to scatter their forces and commence guerrilla warfare. This applied both to organized states, like Rajput kingdoms or Deccani sultanates, that on occasion dispersed their armies for irregular operations, and to local communities and leaders that rose in rebellion against the Empire. The latter were well accustomed to fighting with limited resources and against long odds. The chaotic final decades of the Delhi Sultanate, marked by weak central authority, a predatory nobility and widespread civil disorder, had forged a distinct culture of military necessity among the townsfolk and villagers of northern India. Fighting was above all a matter of self defense. Many commoners had access to at least basic arms and to military training.

Local militias and mercenary bands were commonplace, and most of these were—through bitter experience—well schooled in the principles of irregular warfare. The advent of gunpowder was a boon to would-be rebels. The musket was the quintessential underdog’s weapon—easily mastered by amateurs, so simple and cheap to manufacture that it could be made by almost any village blacksmith and ideally suited for skulking, ambushing and sniping. When threatened, guerrilla forces could use their muskets, bows and crossbows from the shelter of homesteads and hamlets specifically constructed to serve as miniature fortresses or while lurking in thickets, canebrakes and woodlots turned into mazes of spider holes, man traps and sniper nests. Irregulars fighting in this manner influenced the Mughals’ own light infantry tactics—many musketeers in Imperial service originally learned their trade as members of local militias. Partisans fighting on home ground could offer a stern test even to well-trained regulars.

News came in that Raja Awesar, who had continually infested the roads since the accession of the Emperor, and had kept up rebellion in the vicinity of Agra, had now become a regular brigand... he had already had many severe encounters, and obstinately fought skirmishes with some of the renowned Amirs, and had slain many excellent men, and was now hidden in the jungle of the village of Nourahi in the *pargana* of Jalesah. At midday... when the men (of the Mughal force) were off their guard and marching in loose order... suddenly the rattle of musketry and arrows burst on them, and they found themselves engaged in a hot skirmish. The Raja with the help of the villagers had erected crows'-nests in the trees, and from that vantage... many useful men became targets for arrows and musket-balls, and some were martyred, and others were wounded. At the very beginning of the battle... a musket-ball struck Husain Khan (the Mughal commander) below the knee, glanced off and struck his saddle and spent itself on the head of his horse. He became faint and nearly fell from his saddle, but with great presence of mind he grasped the pommel of his saddle and kept his seat... Confusion then raged, and so

many men were killed on both sides, that imagination was too weak to number them... towards evening the breeze of victory blew to the side of the small handful of holy warriors, and the infidels company by company and crowd by crowd took to flight, but not before our soldiers were so tired that they could scarcely wield a sword or shoot an arrow. In that thick forest they became so commingled, that friend could not be distinguished from foe, and yet through weakness they could not make an end of one another.⁴⁴

Yet while guerrilla warfare had become a traditional craft in many Indian communities, the country's new rulers had their own extensive history of irregular operations to draw upon. For centuries, Central Asian rulers had struggled to impose their will both on lesser tribes and on rebellious sedentary peoples. Raids, counter-raids, skirmishes and ambushes were commonplace on the frontiers between steppe land, mountains and settled regions. Babur and Humayun learned these tactics from both sides. In the aftermath of their defeats and setbacks, they spent as much time in the role of the hunted as that of the hunter. During his travels through Afghanistan, menaced by hostile tribesmen, Babur learned the value of constant vigilance.

At night, the Isakhail Afghans attempted a surprise; but as I had been particularly cautious, they did not succeed. The whole army had been drawn up in battle array, with right and left wing, centre and vanguard, at their stations, armed and ready to maintain their posts; and there were foot-soldiers on the watch all round the camp, at the distance of rather more than a bowshot from the tents. In this manner the army passed the night. Every night I drew out the army in the same manner; and every night three or four of my most trusty chiefs in turn went the rounds about the camp with torches. I myself also took one round. Such persons as had not repaired to their posts had their noses slit, and were led about the camp in that state... The whole army was divided into six bodies, each of which, in its turn, was appointed to keep watch for one whole day and night.⁴⁵

Early in his reign Akbar, still unsure of the safety of his borders, embarked on a campaign of fortress construction. Over time, however, as the danger of overt military action by hostile states diminished, the emphasis shifted from the protection of cities to control of the countryside. Troops were dispersed to small garrisons and outposts throughout the Empire to contain the threat of raiding, banditry and, most importantly, local rebellions. Modest fortifications of earth and timber were in many ways more vital to the national defense than great stone citadels. Both the Mughals and their rivals, however, realized that a mere military presence was not sufficient to deal with the problem of rebellion. Like modern practitioners of counterinsurgency, they understood the need to gain the support of the population, using both the offer of reward and the threat of punishment. District commanders had the task of convincing the inhabitants that the central government, not local leadership, was the institution best capable of protecting them and their property and ensuring prosperity. In many cases the population was encouraged to actively participate in the keeping of order, with local militias co-opted to serve as gendarmes and auxiliaries. Preferential treatment for the obedient was complemented by harsh penalties for the recalcitrant. Rebellious communities might be subjected to confiscation and destruction of property, taking of hostages, imprisonment or execution of leaders, internal exile, or, in the most extreme cases, the execution of all military-age men and the enslavement of the women and children. Farid Khan Suri, the future Sher Shah, displayed his mastery of the principles of counterinsurgency while serving as the governor of a province.

He said ...“The cultivators are the source of prosperity. I have encouraged them... and shall always watch over their condition, that no man may oppress and injure them; for if a ruler cannot protect humble peasantry from the lawless, it is tyranny to exact revenue from them. There are certain *zamindars* (local chieftains)... who have not presented themselves at the Governor's court, do not pay their full revenue, and harass the villages in their neighborhood... I cannot have patience while they refuse to come to me, and continue to oppress and injure the people.” He ordered his father's nobles to saddle 200 horses, and to see how many soldiers there were in the *pargana*, and he sent for all the... men of his tribe who were without *jagirs*, (land grants) and said to them, “I will give you subsistence and clothing... Whatever goods or money you may get from the plunder of these rebels is yours, nor will I ever require it of you; and whoever among you may distinguish himself, for him I will procure a good *jagir*... I will myself give you horses to ride on.” When they heard this they were much pleased, and said they would not fail in doing their duty... He put the men who had engaged to serve him in good humor by all sorts of favors, and by gifts of clothes, etc., and presented them also with a little money. He then sent to the cultivators for horses, saying, “Bring your horses to me as a loan for a few days, as I particularly require them. When I return after finishing this business, I will give you back your horses.” They willingly and cheerfully agreed to lend their horses, and from every village they brought one or two horses, and put on the saddles which they had ready in their houses. Farid gave to every one of his soldiers who had not one of his own, a horse to ride, and hastened against the rebels, and plundered their villages, bringing away the women and children, cattle and property. To the soldiery he made over all the property and animals which came into their possession; but the women and children and the peasantry he kept himself in confinement, and sent to the head-men, saying, “Pay me my rights; if not, I will sell your wives and children, and will not suffer you to settle anywhere again. Wherever you may go, thither will I pursue you; and to whatever village you may go, I will command the head men to seize and make you over to me, or else I will attack them also.” When the head-men heard these words, they sent to say: “Pardon our past offences, and if hereafter we do anything you do not approve, punish us in any way you choose.” Farid Khan sent to say in reply, “Give security, in order that if

you offend and abscond, your security may be held responsible for your appearance.” So the head-men, whose wives and families he had in confinement, paid what was due from them to the Government, and gave security for their appearance, and so released their wives and families. There were some *zamindars* who had committed all sorts of offences, such as theft and highway robbery, and refusing to pay revenue, never came to the Governor's presence, but were insolent from confidence in their numbers. Although these were often warned, they took no heed. Farid Khan collected his forces, and commanded that every one of his villagers who had a horse should come riding upon it, and that he who had not a horse should come on foot. And he took with him half his own soldiers, and the other half he employed in collecting revenue and other local duties. When the soldiers and peasantry were assembled, he marched towards the villages of the recusants, and at a distance of a *kos* (~2 miles) threw up an earthen entrenchment; and ordered them to cut down the neighboring jungle. His horsemen he directed to patrol round the villages; to kill all the men they met, and to make prisoners of the women and children, to drive in the cattle, to permit no one to cultivate the fields, to destroy the crops already sown, and not to permit any one to bring anything in from the neighboring parts, nor to allow any one of them to carry anything out of the village, and to watch them day and night; and he every day repeated the order to his force to invest the village, and not to permit a soul to go out. His footmen he also ordered to cut down the jungle. When the jungle was all cut down, he marched from his former position, and made another entrenchment nearer the village, and occupied it. The rebels were humbled, and sent a representative saying, that if Farid Khan would pardon their fault, they would submit. Farid Khan replied that he would not accept their submission, and that there could be nothing but hostility between him and them... Although the rebels humbled themselves in every way, and offered to pay a large sum of money, yet Farid Khan would not accept the money, but said to his men, “This is the way of these rebels: first they fight and oppose their rulers; if they find him weak, they persist in their rebelliousness; but if they see that he is strong, they come to him deceitfully and humble themselves, and agree to pay a sum of money, and so they persuade their ruler to leave them alone; but as soon as they find an opportunity, they return to their evil ways.” Early in the morning, Farid Khan

mounted and attacked the criminal *zamindars*, and put all the rebels to death, and making all their women and children prisoners, ordered his men to sell them or keep them as slaves; and brought other people to the village and settled them there. When the other rebels heard of the death, imprisonment, and ruin of these, they listened to wisdom, repented... and abstained from theft and robbery.⁴⁶

Although local rebellions were surprisingly frequent, they were, virtually without exception, doomed to failure. All of these uprisings were by their very nature particular and isolated, tied to very specific issues, affronts and considerations of honor, inheritance, caste and clan. This meant that rebels had to go it alone against the resources of a powerful state. An individual headman's assertion of zamindari rights or a single district's complaints about excessive taxation were not a sufficient pretext for their neighbors to join them in a general rebellion. Instead the Mughals were more likely than not to encounter a competing local faction, family or tribe whose aid they could enlist in putting down the uprising. Nothing resembling true revolutionary movements and wars of national liberation would emerge until much later in the Empire's lifespan, with the rise of groups like the Marathas and the Sikhs. Despite their position of overwhelming strength, the Mughals did need to exercise caution when suppressing insurgents. Contrary to the concept of rebellion driven by scarcity proposed by Irfan Habib and other adherents of the Aligarh School in their studies of the "agrarian crisis" of the later Empire, the most serious threats often came from the most prosperous regions. It required substantial resources to assemble a private army capable of offering anything like a credible challenge to the central government. The richest local leaders were often the ones who most jealously guarded their wealth. By defeating them in a fight to the finish,

the Mughals would also end up harming themselves, laying waste to some of their most productive territory. Given the invariably adverse consequences and the lack of any true winner in a rebellion, there was great incentive for both sides to reach a negotiated settlement before the outbreak of fighting.

Notes for Chapter 4

1. Jos Gommans, *Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500 - 1700* (New York: Routledge, 2002), 39-40
2. Perhaps the best description of the sophisticated cultural and intellectual world that Babur inhabited before his unexpected detour into nomadism is in Stephen Dale's *The Garden of the Eight Paradises: Babur and the Culture of Empire in Central Asia, Afghanistan and India, 1483 – 1530* (Boston: Brill, 2004).
3. Gommans, 44
4. Central Asian archery tactics are described at length in Chapter 5 Timothy May's *The Mongol Art of War: Chinggis Khan and the Mongol Military System* (Yardley, PA: Westholme, 2007) and Chapter 2 of Erik Hildinger's *Warriors of the Steppe: A Military History of Central Asia, 500 B.C. to 1700 A.D* (New York: Sarpedon, 1997). Also see "Archery" in the *Encyclopedia of Islam* (Brill).
5. For more on the codes of chivalry and military conduct that influenced the early Rajputs and other medieval Hindu kingdoms, see B.N.S. Yadava's "Chivalry and Warfare," in *Warfare and Weaponry in South Asia, 1000 – 1800*, ed. Jos Gommans and Dirk Kolff (New Delhi: Oxford, 2001), 66 – 98.
6. William Irvine, *The Army of the Indian Moghuls: Its Organization and Administration* (London: Luzac & Co., 1903), 57. One issue that blurs the distinction between true infantry and support personnel is the frequent use in the primary sources of Persian terms like *piyadeh*, which can refer both to servants (footmen) and infantry (foot soldiers).
7. Kolff quotes figures for Jodhpur, Orissa and Abdullah Khan on p. 223 -226. For Bengal see *The Riyazu-s-Salatin*, Chpt. 33. For Bihar see *Akbarnama*, Volume 3, chpt. 251. For Akbar's Afghan campaign, see Monserrate, *The Commentary of Father Monserrate S.J. on His Journey to the Court of Akbar*, trans. J.S. Hoyland (New Delhi: Asian Educational Services, 2003), 83.
8. Gladiators are described in *Ain-i-Akbari*, Volume 1, chpt. 177. William R. Pinch describes the rise of armed ascetics and religious orders—from whose ranks many of the shamsherbaz apparently came—and their entry into the Indian military labor market in *Warrior Ascetics and Indian Empires*, (New York: Cambridge University, 2006). Chapters 1 and 2 in particular address their interaction with the

Mughals. Also see Gommans Chapter 1, especially p. 42 – 51 and W.G. Orr, “Armed Religious Ascetics in Northern India,” in *Warfare and Weaponry in South Asia*. 185 – 201.

9. See Gommans 121 – 126 for more on the Mughals’ use of elephants.
10. There are some descriptions of Babur’s infantry fighting in close formation. See the description of Khanua in *Baburnama* Volume 2, Chapter 64 where soldiers were arrayed “in ranks as straight as rows of fir trees.” Iqtidar Alam Khan argues that the Mughals used mixed formations of foot archers and musketeers. See Chapter 7 of *Gunpowder and Firearms: Warfare in Medieval India* (New Delhi: Oxford, 2004). According to the *Ain-i-Akbari*, only a quarter of each senior officer’s infantry complement was actually composed of musketeers. Town militias and other irregular forces clearly used mixed formations. Niccolo Manucci even describes men and women fighting together during village uprisings, the men using muskets and the women carrying bows. See Niccolo Manucci, *Storia do Mogor, or Mogul India*, trans. William Irvine. (London: Asiatic Society of Bengal, 1907), 134.
11. Jean-Baptiste Tavernier, *Travels in India*, trans. V. Ball (Macmillan: London, 1889), 391
12. Francois Bernier, *Travels in the Mogul Empire*, trans. Archibald Constable. (London: Oxford University, 1914), 55
13. Manucci, 278
14. From the journal of Geleynssen de Jongh, translated and excerpted by Gommans in *Mughal Warfare*. See p. 159 – 160.
15. See Chapter 6 of Khan for more discussion of the role of small unit commanders.
16. *Ahkam-i Alamgiri*, chpt. 19
17. The battle of Tukaroi (discussed later in this chapter) is the most prominent example of a recovery from near disaster.
18. *Baburnama*, Volume 1, chpt. 76

19. Central Asian formations and tactics are discussed at some length in Chapters 5 and 8 of May and Chapter 2 of Hildinger. An even more detailed examination of the Central Asian battle array can be found in Gerhard Doerfer's *Türkische und Mongolische Elemente im Neupersischen* (Wiesbaden: Franz Steiner, 1975), Volume IV, 82 – 92.
20. From advice to officers in *Akbarnama*, Volume 1, chpt. 93: “Be careful to give your servants [Turkish] and Arab horses, for there is no finer decoration for a soldier than a good horse; and let the uniforms of the one thousand be colored and smart.” See the illustrations referred to in Chapter 3 of this text for examples of camouflage clothing. One of the most famous examples of Rajput soldiers dressed in bright orange or yellow uniforms was at the later battle of Samugarh, where after the Raja Ram Singh and his elite guard were wiped out in a desperate frontal assault on Aurangzeb's forces, the ground littered with their bodies was “as yellow as a field of saffron.” From *The History of India*, Volume 7, chpt. 65 (*Muntakhabul Lubab Muhammad Shahi*).
21. From *Ain-i-Akbari*, Volume 1, chpt. 44 on standards and musical instruments: “The *Alam*, or standard. When the king rides out, not less than five of these are carried along with the *Qur*, wrapped up in scarlet cloth bags. On days of festivity, and in battle, they are unfurled. 6. The *Chatrtoq*, a kind of *Alam*, but smaller than it, is adorned with the tails of Thibetan yaks. 7. The *Tumantog* is like the *Chatrtoq*, but longer. Both insignia are flags of the highest dignity, and the latter is bestowed upon great nobles only. 8. The *Jhanca* is an Indian flag. The *Our* necessarily contains a flag of each kind; but on great occasions many are displayed. Of musical instruments used in the *Naqqarahkhanah*, I may mention, 1. the *Kuwargah*, commonly called *damamah*; there are eighteen pair of them more or less; and they give a deep sound. 2. The *naqqarah*, twenty pair, more or less. 3. The *duhul*, of which four are used. 4. The *Karaná* is made of gold, silver, brass, and other metals: and they never blow fewer than four. 5. The *surna* of the Persian and Indian kinds; they blow nine together. 6. The *nafir*, of the Persian, European, and Indian kinds; they blow some of each kind. 7. The *sing* is of brass, and made in the form of a cow's horn; they blow two together. 8. The *sanj*, or cymbal, of which three pair are used.” The ritual gift of flags, drums and robes to new officers is described many times in the *Ain-i-Akbari*.
22. *Memoirs of Humayun*, chpt. 19
23. Sar-i-Pul is described in *Baburnama*, Volume 1, chpt. 76

24. *Baburnama*, Volume 2, chpt. 12
25. Qandahar is described in *Baburnama*, Volume 2, chpt. 12
26. For example, see *Shahnameh*, Volume 3, chpt. 60. “Let us construct a trench before the host, as warriors use, then draw the sword, provoke a fight and slay our foes.”
27. The use of caltrops to stop elephants is described in *Akbarnama*, Volume 1, chpt. 53. According to the author this is a tactic that dates back to the campaigns of Timur.
28. Haidar Mirza describes the use of two-man missile weapon/shield teams in *Tarikh-i-Rashidi*, chpt. 60. Babur used infantry equipped with large shields as skirmishers on a number of occasions. Other armies also deployed infantry well in advance of their main force. See the battle description on pages 37-38 above (Note 31) See *Baburnama*, Volume 1, chpt. 69 for a description of skirmishing tactics and also for a description of field fortifications. Sher Shah Suri also relied on field fortifications extensively, including the use of sandbagged entrenchments. See *The History of India*, Volume 4, chpt. 103 (*Tarikh-i Sher Shah*). The use of individual fighting holes is described in *The History of India*, Volume 6, chpt. 73 (*Akbarnama* of Shaikh Illahdad).
29. See *Muntakhabu'rukhs*, Volume 2, chpt. 52 for a description of Tukaroi.
30. *The History of India*, Volume 4, chpt. 88 (*Tarikh-i Sher Shah*)
31. *The History of India*, Volume 5, chpt. 113 (*Tabakat-i Akbari*)
32. *The History of India*, Volume 5, chpt. 48 (*Tabakat-i Akbari*)
33. *Ain-i-Akbari*, Volume 1, chpt. 203. The various naval ranks and duties are listed in that chapter. Atul Chandra Roy describes this naval organization further in Chapter 2 of *A History of the Mughal Navy and Naval Warfare* (Calcutta: World Press, 1972).
34. Atul Chandra Roy describes a number of Mughal naval formations and tactics—including the “floating fort”—in Chapter 3 of Roy. Chapter 13 of Jadunath Sarkar’s *Studies in Aurangzib’s Reign* (London: Sangam Books, 1989), although it describes a later period, provides some of the best descriptions of Mughal naval

tactics and operations in actual combat, based on eyewitness accounts. This is especially true of the interaction between naval and ground forces.

35. *The History of India*, Volume 1, chpt. 72 (*Tarikh-i Sind*)
36. *The Riyazu-s-Salatin*, chpt. 43
37. The most conservative estimates of casualties at Panipat were 15,000 enemy dead and an unspecified but apparently sizeable number of Mughal troops killed in action. The opposing forces at Khanua and Tukaroi were much larger. Both of these battles also led to catastrophic defeats for the opposition, but, especially in the latter case, the Mughals absorbed much worse punishment in the process. Exact casualty figures do not exist, but the numbers of fallen must have been staggering.
38. Gommans, 97
39. Pinch, 78
40. For more detailed descriptions of medieval and early modern Indian fortifications, see Sidney Toy's *The Fortified Cities of India* (London: Heinemann, 1965) and Konstantin Nossov's *Indian Castles 1206-1526: The Rise and Fall of the Delhi Sultanate* (New York: Osprey, 2006).
41. *The History of India*, Volume 5, chpt. 90 (*Tabakat-i Akbari*)
42. *The History of India*, Volume 6, chpt. 80 (*Akbarnama* of Shaikh Illahdád)
43. *The History of India*, Volume 5, chpt. 84 (*Tabakat-i Akbari*)
44. *Muntakhabu-'rukh*, Volume 2, chpt. 43
45. *Baburnama*, Volume 1, chpt. 100
46. *The History of India*, Volume 4, chpt. 81 (*Tarikh-i Sher Shah*)

Chapter 5: Learning War - Organization, Recruitment and Training

As the Mughal army expanded from Babur's small band of adventurers to the armed force of a sizeable state, it grew increasingly diverse. Warriors from Central Asia were joined by soldiers from India, Persia and the Middle East and eventually by troops from as far away as Europe and Africa. All of these men were recruited, organized and managed according to a sophisticated system of ranks, classifications and reporting. There was no shortage of willing recruits, as India was one of the world's most highly militarized societies and with its own unique warrior culture. The wealth of the growing Empire was also an irresistible attraction for soldiers from abroad. Aspiring warriors, both nobles and commoners, pursued martial arts, hunting and other combat sports as a way to prepare themselves physically and mentally for the rigors of military service. Once enrolled in the ranks they participated in a variety of drills, maneuvers and exercises designed to hone their skills and maintain their readiness for combat. Officers also took part in more cerebral pursuits, sharpening their wits by playing strategy games and reading manuals on weapons training and tactics. Military training was more than purely technical and practical—it encouraged the creation of a unifying Mughal martial culture.

Ranks and Organization

In the aftermath of his defeat by Sher Shah Suri, Humayun schemed and planned for the re-conquest of India. Worn down by battles with the Afghans and a civil war against his own brothers for control of what remained of the Mughal state, his forces were desperate for manpower. The embattled Emperor sought new recruits from all quarters, and he could not afford to be too choosy about who he accepted into his ranks. About this time nearly five hundred Mongol soldiers came from beyond the river Oxus to seek for employment; but as very few of them were armed, the general consulted me what he should do with them; I said, “give each of them a bow and a quiver of arrows, and advance them a small sum of money to support them for a month, by which time the business with the Afghans will be settled.” He took my advice, and having advanced the money to the Mongols, they joined the army as volunteers.¹

Like his father Babur before him, Humayun in a time of crisis was forced to revert to the same informal system of recruitment and organization used by his Turkish and Mongol nomadic ancestors. In this scheme, the tribal chieftain relied primarily on the *yikittlar*, an inner circle of retainers and household troops linked to him by bonds of family and clan. This core was complemented by allies—*beglar*, or chiefs, and their followers as well as *ichkilar*, or independent warriors. These soldiers might be drawn to him by more distant family ties, friendships, traditional alliances, the prestige of serving an illustrious leader or simply the prospect of material gain. During their time in the wilderness Babur and Humayun supplemented their core of Timurid relatives and vassals with both the contingents of so-called *mehman beglar*, or “guest” chiefs, and companies of outright mercenaries. Once the process of building—or rebuilding—an empire was underway, however, a more sophisticated plan was required. The Mughal military system

that emerged under Akbar maintained some of the basic elements of the traditional order, but it also incorporated a number of the additional components required to successfully combine the strength and flexibility of nomadic warrior tradition and the discipline of a sedentary state.²

Babur and his officers had already grasped the basics of this combination as they created a new army based on both *qazzaqis*—Central Asian horsemen who still practiced the trades and skills of their tribal ancestors, even if many of them now were raised in towns and cities—and *tajiks*—the traditionally sedentary craftsmen, peasants and mountaineers who became infantrymen and artillerymen. After his invasion of India, Babur did not take long to start recruiting native soldiers. He often referred to these troops as “Hindus,” although their actual religious backgrounds were probably quite diverse.³ They included both cavalymen from the remnants of the defeated Lodi and Rajput armies and foot soldiers drawn from both standing forces and local militias. At the same time adventurers from Central Asia and Iran, attracted by the success of the new Emperor and the prospect of plunder in the wealthy territories of India, also flocked to Babur’s standards. Most recruits did not join as individuals but as part of contingents led by nobles, chieftains or mercenary captains. Babur’s achievement in deploying novel and complex weaponry, formations and tactics is even more remarkable considering that he was often forced to work around such pre-existing divisions. The prevailing Central Asian military culture, however, with its emphasis on discipline and tactical excellence, probably made this process less difficult than it could have been. Humayun continued with an ad-hoc table of organization. It would be his enemy Sher Shah Suri that began to introduce a more rationalized system. Akbar in turn would build on this program, adding

both his own innovations and examples drawn from the records of the earlier Delhi Sultanate.

Akbar's new order was the so-called *mansabdari* system, named after the concept of *mansab*, or office. In this scheme a central standing army led by the Emperor and his associates was complemented with forces mobilized by *mansabdars*, or office holders, that could be called upon if needed. As the Empire grew the central army based in the capital was supported by provincial armies under the command of *subahdars*, or governors, with their own supporting corps of mansabdars. Large standing forces were maintained in the imperial capital and each provincial capital with smaller units posted in each *chakla*, or district. Each senior officer had two ranks, a *zat*, or civil, rank and a *sawar*, or military, rank, with the former always equal to or less than the latter. As this combination implies, military institutions and civilian governance in the Empire were closely intertwined. All high ranking government officials, even those with obviously civilian functions like secretary of the treasury or chief archivist, were commissioned officers and had their own mansabdari obligations. Many of these functionaries probably played little role in actual combat, delegating control of their troops to hired professional officers or turning over the reins to their superiors or more accomplished peers when on campaign. Some leaders, however, excelled in both their civilian duties and in battlefield command. Todar Mal, Akbar's treasury secretary, was one of the more notable examples of such a double expert. The Mughal army had no true general staff as later generations of military professionals would understand the concept, but the forced interaction, socialization and cooperation between civil officials, support personnel and line officers

probably played a part in that institution's acknowledged excellence in support, engineering and logistics.

Mansabdar ranks, in keeping with both the traditional Central Asian decimal system and the similar form of organization used by the Delhi Sultanate, were typically granted in increments of 100 or 1,000, although the table of ranks would grow more complex over time. Most new officers were inducted at a probationary rank—usually 10 or 20—which was then raised to 100 or higher after the completion of their first successful inspection. Especially valued recruits, however, could be immediately signed on at much higher ranks. The most senior *amirs*, or field grade and general officers had ranks over 5,000. The sawar rank, as its name suggests, referred to the number of cavalymen each officer was expected to recruit and prepare for action. Mansabdars often reported to more senior mansabdars, so the actual forces led by higher ranking officers were much larger than their numerical designations. In addition, their cavalry forces were typically complemented by sizeable contingents of foot soldiers. Most contracts stipulated that the officers maintain infantry units at least half the size of their cavalry contingents. They would also require support personnel to manage supplies, maintain equipment and care for horses and other draft animals. Holders of ranks over 5,000 often functioned as division, corps or army commanders. Officers lower on the ladder might also receive *mashrut*, or brevet ranks, temporary promotions for the duration of a posting or campaign during which they were personally responsible for more troops and usually received corresponding bonus pay.

The first mansabdars were selected and appointed directly by the Emperor. The sovereign and the *mir bakshi*, or chief of military personnel, continued to sign off on all

new hires and promotions, but as the army grew most likely candidates were chosen based on the references and recommendations of existing officers. In contrast to the earlier system, where battlefield plunder and other windfalls made up a substantial portion of an officer's income, the mansabdars were guaranteed a generous annual salary. This could be paid out in cash or through the assignment of *jagirs*, or land grants, the tax receipts from which would be used to support both the officer and his men. Compensation packages often combined both forms of income, with lower ranking officers typically getting all or most of their pay in cash and senior officers relying more on jagir revenues. Land grants were awarded on a temporary basis and frequently transferred in order to reinforce officers' dependence on the central authority and prevent the emergence of local fiefdoms. Greed also effectively bound officers to the Empire. Salaries were usually extremely generous, much higher than those paid to officers of comparable rank in the armies of contemporary powers like the Safavid or Ottoman Empires. The lure of a fat paycheck did more than keep existing officers motivated and content—it was a potent weapon against the Mughals' rivals. Enemy commanders and notables were frequently suborned with the promise of mansab. Even when conflicts were resolved through force, awards of office were one of the primary means of reconciliation. The Mughals made great efforts to incorporate defeated enemies into their system. Offers of well compensated positions in the new order made it less likely that the losers would grow resentful and rebellious. If nothing else, recruitment of former enemies made for easier surveillance and control.

Mansabdars were regularly promoted for merit—and demoted or fined for poor performance. Promotions could be awarded both for conspicuously gallant or effective

performance in battle and for the steady, diligent performance of more mundane administrative duties—especially for having all of the troops associated with their rank properly assembled and equipped at every muster, drill and mobilization. As with commissions, promotions were often granted on the recommendation of an officer's superiors. Not all officers, however, were able to start their careers as mansabdars—by either convincing their employers that they were fully capable of leading large numbers of men, or as was more likely, by already having their own contingents on hand. Aspiring soldiers who did not meet these requirements but still showed leadership potential were recruited by the central army as *ahadis*, or junior officers. The *ahadis* in many ways resembled the corps of officers-in-training retained by the contemporary army of Habsburg Spain. These men were assigned a wide range of tasks. Some were given command of their own small units while others were assembled together—usually as small groups of cavalry—to serve as flying columns or ready reserves. A number of them served as orderlies for more senior officers. *Ahadis* were attached to all sorts of units—cavalry and infantry as well as engineers, quartermasters and other support troops. The completion of all of these varied tasks and assignments would certainly make for very well rounded and flexible officers. It is not clear, however, if individual *ahadis* were permanently assigned to a particular branch as part of a predetermined career path or if they were actually rotated through various postings so that they could familiarize themselves with many different aspects of the army and military service. Whatever their duties, competent *ahadis* could work their way up through their own table of ranks and eventually earn promotion to mansabdar. Other junior officers were recruited directly by individual mansabdars, especially those of higher rank, to command the smaller units

within their contingents. Common soldiers were also promoted to serve as non-commissioned officers, but they usually did not command units larger than a squad. In some much rarer cases, enlisted men did become commissioned officers.⁴

While their rank designations were tied directly to the size of the cavalry contingents they led, mansabdars also commanded forces of infantry and support troops. Akbar originally oversaw the creation of a *dakhil*, or central personnel bureau, for the recruitment and organization of infantry. Each senior officer was assigned a unit of infantry from this pool to complement his own mounted troops and foot soldiers. About a quarter of these soldiers were musketeers, with the remainder being foot archers or heavy infantry. Over time the responsibility for mobilizing foot soldiers for mansabdari contingents shifted from the central government to the individual officers. Akbar and his successors, however, maintained strict control over muskets and other gunpowder weapons as well as the men trained in their use. A number of mansabdars were eventually allowed to recruit their own complements of musketeers, but once assembled these troops reported to *darogahs*, or superintendents, hired by the Crown and attached to the officers' units. Their pay was drawn from the Imperial treasury, not the officer's own allotment. Only the most trusted officers were allowed to recruit musketeers without supervision, and this privilege did not become widespread until the later Empire. The central and provincial armies continued to maintain large forces of musketeers. Artillerymen and their weapons remained in the central standing army, under the control of the Emperor or his governors.⁵

The Indian Warrior Culture and the Military Labor Market

Recruits for all branches of the army were plentiful. Mansabdars were hired from martial elites in all corners of the expanding Empire and also from beyond its borders. A prestigious and lucrative career in Imperial service was a lure for adventurers from all over the region—and eventually from all over the world. Nobles, chieftains and professional soldiers from Central Asia, Iran and the Middle East as well as members of the native Indian nobility like the Rajputs were typically well versed in horsemanship and mounted warfare and could draw upon large groups of retainers, tribesmen or mercenaries from their communities with similar skills. Most had little difficulty in assembling and leading their own contingents of cavalry and other troops. This was especially true considering that many soldiers of Central Asian, Persian and other “foreign” origins were actually natives of India, members of settler communities dating back to the era of the Delhi Sultanate who had deep connections to their local communities and to the military labor market. For foot soldiers both the individual commanders and the agents of the Empire turned increasingly to commoners from the agricultural heartland of India, products of that region’s own unique martial culture. The spreading disorder and lack of central authority that accompanied the decline of the Delhi Sultanate had produced a militarized society where both communities like towns and villages and institutions like religious orders, guilds and merchant houses were forced to assemble bands of armed men for self protection. These local militias served as a proving ground for countless young men, and their proliferation guaranteed that many ordinary Indians had access to arms and military training. While defending their home territories against local rivals and bandits or against the more organized forces of aspiring warlords

they learned a variety of skills that would make them assets even as part of a larger, organized army—mastery of missile weapons, skirmishing, field fortification, and guerrilla tactics. Some of them did take advantage of their training by leaving home, either as individuals or as groups, to offer their services as mercenaries. Eventually many would find their way into the regular armies of both the Mughals and their enemies.

While military service had clear practical applications, as a means of self defense and a way of acquiring and protecting material wealth, it also offered more intangible rewards. Warrior traditions were an essential part of most South Asian communities in this era, encompassing a wide variety of castes, tribes, and ethnicities. The artificial distinction between peaceful and warlike groups that existed under British rule had no counterpart under the earlier Empire. Essentially, all Indians were members of a “martial race.” By becoming soldiers they both served their communities and proved their own personal worth and honor. Military service, with its enforced discipline, asceticism and self sacrifice, was often idealized as an essential stage in the transition from youngster to mature adult. Some of these *jawans*, or young men, went on to become career soldiers, but successful service provided many veterans with the financial stake required to start civilian careers as farmers or tradesmen. Soldiering was the most direct avenue of social mobility open to commoners in the Empire and its borderlands. It was more than just a potentially lucrative career—it was a way for individuals and families to permanently change their stations in ways far deeper and more significant than a simple change of occupation or increase in pay. After years of faithful service, soldiers often assumed the caste, clan or ethnic identities of their leaders and comrades, learning their languages, traditions and folkways. In many cases these new classifications were more prestigious

ones, and they could be passed down to succeeding generations. The most capable and charismatic soldiers, especially among the militias and mercenary companies at the periphery of the military labor market, could rise rapidly from humble backgrounds to positions of leadership. Over the course of a career—or more likely over the course of a few generations—commoners made the transition from enlisted men to officers to commanders. The most successful of them took and held territory, becoming *zamindars*, or local chieftains. They rationalized their new status by taking on the habits, attitudes and chivalric code of the true nobility. Many of these “spurious Rajputs,” as Dirk Kolff describes them, became powerful rulers in their own right. They diversified their forces, supplementing homegrown infantry forces with cavalry, rudimentary artillery and other mercenary contractors. Some of them bitterly opposed the new Mughal order, waging protracted guerrilla campaigns in rugged frontier regions like Gondwana and Bundelkhand. Others were more cooperative and were inducted into the Mughal officer corps and rewarded with high ranks and prestigious postings.⁶

Other warriors fought to achieve religious goals. Many Muslim soldiers tried to live up to the ideal of the *jihadi* or *ghazi*, the Islamic holy warrior and guardian of the faith. Hinduism in this era, however, also had a distinct martial component. Some of the most important gods, demi-gods and mortal heroes of Hindu myth and legend—Krishna, Rama, Arjuna and many others—distinguished themselves as warriors. *Satyagraha* and other organized pacifist movements remained in the distant future. Military service fit well into the first of the four *ashramas*, or Hindu stages of life, in which the *brahmacharya*, or novice, was expected to endure austerity, strict discipline and rigorous training in preparation for becoming a *grihastha*, or adult head of household. *Sanyasa*,

the final stage of life, involved the renunciation of material possessions and worldly concerns, but this period of further hardship and self sacrifice could also be seen not as an end point but as preparation to re-enter the arena in the next life. Not all *sanyasis*, however, were old men. Some younger Hindus outside of the ordinary Brahmin priestly class pursued religious vocations by joining monastic orders. Most of these groups were composed of mendicant holy men, not tied to any central holding or headquarters. Their programs of asceticism and renunciation often included rigorous physical training and study of the martial arts. Such instruction was seen as a method of physical, mental and spiritual improvement, but it also had more practical uses. Warrior monks might be required for the task of self defense, to ensure the mere survival of their order in a very violent world. By selling their services as mercenaries they could provide the income needed to support their fellow faithful. On a larger scale, they could protect their co-religionists from oppression by secular authorities, intolerant Muslims or rival Hindu sects. For similar reasons, a number of Sufi orders and other Muslim minority sects also recruited and trained armed followers. Their commanders were often referred to as *sayyids* or *sheikhzadeh* for their supposed status as descendants of the Prophet or of famous Sufi saints.

Like their more well-known contemporaries in China and Japan, the most proficient of these warrior monks became remarkably skilled in hand to hand combat with a wide variety of weapons. Some of them were recruited to become *shamsherbaz*, part of the Mughal “gladiator” corps of heavy infantry specializing in shock combat. Over time, however, the training and skills of armed sanyasis and Sufis became more diverse. While the earliest bands of armed holy men used very basic equipment and

shock tactics, reminiscent of early Celtic and Germanic warriors or Highlanders charging into battle with claymore and targe, over time the most successful such groups became much more diverse in their methods and organization. They added units of cavalry, archers and musketeers to their formations and mastered combined arms tactics. During the later Empire, associations of supposedly pious warriors like the Hindu Gosains and the Muslim Barha Sayyids developed surprisingly worldly interests. They expanded from strong positions in the mercenary labor market and spread their networks of followers into commerce, politics, government service and even organized crime. The Sikhs, who also started out as an obscure late medieval sect, were even more successful at translating military force into secular authority, eventually establishing their own independent state after the collapse of the Empire.⁷

South Asia was an environment militarized to the point of saturation. By some estimates, more than 10% of the adult male population was under arms in some capacity.

⁸ This does not include the vast numbers of veterans, men who had been soldiers as young adults before embarking on civilian professions and who could be quickly re-armed and re-trained if needed. This wealth of military labor was both opportunity and challenge for the Empire. There was virtually no theoretical limit on the size of the Mughal army. If all of the more than four million men accounted for in Abu Fazl's survey of potential soldiers were successfully mobilized, the resulting army would have been larger than the total active duty, reserve and paramilitary forces of the present day Republic of India or the active and reserve troops of People's Republic of China.⁹ This vast pool of labor could be expanded even further with specialized mercenary talent—especially cavalymen, artillerymen and sailors—from Central Asia, the Middle East,

Africa and Europe. The actual forces deployed by the Mughals were impressive enough, far exceeding those of contemporary European powers. By late in Akbar's reign the Mughals had several hundred thousand soldiers under arms, with individual field armies at times exceeding 100,000 men. The abundance of trained personnel meant that new recruits could be integrated quickly. There was little need for basic training or "boot camp" in the modern sense or even programs like that employed by the contemporary army of Habsburg Spain, which placed individual recruits with experienced units in garrisons or rear areas where they could gradually and safely learn the soldier's trade. The Mughals' enemies, however, could also draw on this wealth of military talent. Even minor states and principalities on the periphery of the Empire could assemble armies numbering in the tens of thousands. More ominously, the armed population within its borders posed a constant threat of rebellion. Most actual uprisings were local in both scope and objectives, lacking any national or unifying cause and fighting without any support from foreign powers. Yet the abundance of well armed and well trained men combined with the considerable wealth available even to minor chieftains and notables in India's abundant agricultural and commercial economy meant that even small rebellions could be quite costly to suppress. The Mughals also tapped into India's vast wealth, extracting taxes and tariffs to provide the pay, equipment and support required for their ever-growing armies. The very process, however, of collecting the funds needed to turn a large portion of their armed subjects into a coherent military force raised the risk of alienating local leaders and turning other groups of potential soldiers against them.

Even with these underlying tensions, the Mughals found no shortage of eager volunteers. They began to recruit infantry from the agricultural heartland around the

capital cities of Delhi and Agra almost immediately, but they found even more fertile ground as the Empire expanded. The more rugged terrain of the Empire's eastern reaches, in portions of the present day Indian states of Uttar Pradesh, Bihar and West Bengal, had long been home to some of the region's most tenacious local militias and guerrilla bands. These *purbiyas*, or Easterners, volunteered in large numbers to join the Mughal infantry. Men from the areas surrounding the towns of Bhojpur and Buxar and in the province of Bundelkhand—*Bhojpuris*, *Baksariyas* and *Bundelas*—had gained a reputation as skilled archers and skirmishers, and they would soon become formidable musketeers. Soldiers from this part of India would remain a mainstay of the Imperial army throughout the Mughal era and would continue to play a large role in the armies of the various successor states and that of the British East India Company. Babur and Humayun also relied extensively on infantry units of Afghan mountaineers from regions like Khorasan and Badakshan. Sher Shah Suri, for obvious reasons, aggressively recruited his countrymen, both mercenaries from Afghanistan proper and Afghan settlers who had been resident in India since the foundation of the Lodi sultanate. Akbar initially had reservations about employing these troops, given the continuing bitter resistance by partisans of the Lodi and Suri dynasties. Over time, however, as the Empire's position grew more secure, Afghans were increasingly integrated into the corps of infantry. As the Mughals expanded southwards, tribesmen and hill folk from the Deccan highlands were recruited as foot soldiers. Many of these men were referred to as *Telangas*, after the Telangana region of modern Andhra Pradesh. Like their northern counterparts, they would also become a major component of later Indian and colonial armies. In the south the Mughals also encountered the *Habshis* or *Sidis*, soldiers of African descent. Such troops were

frequently described as “Abyssinians,” but their numbers included both Ethiopians and a number of other East African nationalities. The Deccani Sultanates recruited these soldiers in large numbers, both as mercenaries and military slaves. They had earned a reputation as highly skilled infantry, and the Mughals made efforts to hire them away whenever possible.¹⁰

Soldiers from the other branches came from even more diverse backgrounds. Cavalrymen came from Central Asia, Iran and the Middle East, drawn by the offer of generous salaries and the prestige of Imperial service, joining Rajputs and other members of India’s native nobility. Babur’s original corps of artillerymen was trained by advisors from the Ottoman Empire and Persia. The Mughals would continue to recruit expert gunners from these regions and also from Europe. Sailors, being sailors, came from almost everywhere. Many of them were drawn from the port cities of Bengal and Gujarat. Others were Arabs, Europeans and Africans—the Sidi mercenary troops also included large numbers of skilled sailors and marines.

Recruitment and Classification

The abundance of trained men and eager volunteers meant that the Empire never had to resort to conscription. Military drafts of any sort were rare in South Asia during this period. Sher Shah Suri was one exception. He imposed conscription on ethnic Afghans during the campaign to overthrow the Mughals. His war against Humayun was one of the few conflicts of this era that had any objective of national liberation or restoration—the effort to return the Afghans to their “rightful” place as the rulers and ruling class of India—and that may have had much to do with Sher Shah’s unusual methods. Only a few states on the Empire’s far eastern frontiers practiced conscription as

standard practice, drafting large numbers of subjects for both military service and public works projects. Countries like Ahom (located in the present day Indian state of Assam) and Arakan (in southwestern Burma and eastern Bangladesh) were governed by ruling families of Burmese descent, and their attitudes and policies were influenced by the societies and cultures of Southeast Asia rather than South Asia. When these states finally came to blows with the Mughals during the later Empire, the resulting wars were remarkably savage even by the harsh standards of the day. Both sides saw the other as almost totally alien and unworthy of mercy and compromise. Ahom especially was able to endure protracted warfare against the Mughals by imposing a draft, mobilizing large numbers and inspiring fanatical resistance. Within the borders of the Empire, zamindars, town councils and local officials sometimes drafted residents into their militias. This was often done on a temporary, ad-hoc basis in order to respond to an emergency like a rebellion, border raid or outbreak of bandit activity. In areas where the local military culture was especially deeply rooted, young men were expected to join their militia or to volunteer for mercenary or government service. While they may have been under no legal obligation to comply, the social and peer pressures to do so were considerable.

Another source of manpower that the Mughals bypassed was military slavery. This institution—essentially a form of lifetime conscription—was widespread in the Islamic world. The *mamluks* of the Abbasid Caliphate, the *yeniceri*, or Janissaries, of the Ottoman Empire, the *ghulams* of the Safavids and even the elite slave soldiers of the earlier Delhi Sultanate were all organized according to the same general principle. Boys and young men from foreign and minority groups were conscripted and then required to undergo years of training, a process which included both military instruction and political

and religious indoctrination. These military slaves were usually formidable soldiers, but they also imposed significant liabilities. The extensive training period meant that these corps could not be expanded quickly to meet a crisis or opportunity. Their intensive indoctrination and elitist attitudes often made them into insular institutions that did not cooperate well with other military and civilian authorities and that, in the worst case, actively competed against them. The history of the Delhi Sultanate, in which military coups led by former slaves led to a grim succession of caudillos and men on horseback, was a particularly ominous precedent. While their southern neighbors in the Deccani kingdoms continued to employ military slaves, the Mughals avoided this practice almost entirely. With such a great supply of trained, willing men available there was no need to risk the possible negative outcomes. Akbar might have also been discouraged by the coup plots hatched by Turani nobles and ill disposed to rely on another elite group isolated from the mainstream of Indian society. The Indian economy did not rely on mass slave labor. Slaves were mostly a luxury for the wealthy, providing skilled domestic labor. This context may have influenced the Mughals' deployment of armed slaves. Most such servants acted as palace guards or bodyguards for individual officers. The closest thing to a true corps of slave soldiers were the *shagirdpeshas*. This term, which was also used to describe general laborers, referred to a unit maintained by Akbar composed of former criminals and prisoners of war. These men—unlike ordinary prisoners, who were usually demobilized or incorporated without prejudice into the army proper—had committed some crime or dishonorable act that required them to earn their freedom by service.¹¹

Large army units typically kept *jamadars*, or recruiting officers, on staff. While in garrison these officers and their assistants advertised for recruits as needed and then

oversaw the induction of the new personnel into the ranks. The Mughals, however, did not recruit only in rear areas or during peacetime. Armies conducted frequent roll calls while in the field and often recruited while on campaign, taking advantage of pauses in the action to make good losses from combat, illness, accidents and desertion. In such a highly militarized region, suitable volunteers could be found at almost every stop. Unemployed soldiers, both singly and in groups, sought out the army wherever it was located. Some were drawn by recruiter's agents making the rounds of likely towns and villages or by the posting of newsletters. Others came uninvited, hoping that jobs would be open when they arrived. Private contractors also worked as jamadars, travelling the countryside and searching out likely candidates. They received finder's fees for the recruits they brought in, and in the best case they might be rewarded with a commission for providing large numbers of men. The widespread and nonspecific usage of the term "jamadar," which could be applied to commissioned recruiting officers, private contractors, junior line officers and mercenary captains, suggested the fluid nature of the military labor market. Mansabdars were responsible for recruiting their own contingents, and they were usually hired with a substantial number of retainers already in their employ. As the army grew larger and more impersonal and as their own ranks increased and their personnel requirements grew, many of them had to go beyond their networks of kinship and patronage and rely on the services of professional recruiters. As the Empire continued to expand, officers and entire units from the armies of former enemies were also inducted into Mughal service. Contemporary accounts describe defeated enemy commanders being brought to the royal court as prisoners and leaving it as commissioned

Mughal officers, often on the recommendation of the Imperial generals who had fought against them.¹²

Detailed records were required for tracking all of this manpower. Every unit was required to keep a detailed *chehra*, or muster roll. New mansabdars were expected to prepare a listing of all the troops they brought into service with them and then update their rolls each time they recruited additional soldiers, underwent inspection or received a promotion. These reports were extremely detailed, including not just the names, ranks and ages of individual soldiers but also information like height, complexion, hair and eye color and scars and identifying marks. Enlisted soldiers were classified according to a complex system of ranks and duties. The divisions for ordinary cavalymen were the simplest. The ranks *yek aspa*, *do aspa* and *seh aspa*, or “one-horse,” “two-horse” and “three-horse,” were assigned in ascending order of seniority and skill. Originally, in the more fluid Central Asian system of recruitment and organization, the assumption was that all cavalymen, both officers and enlisted, would provide their own mounts. If troopers could report for duty with extra animals, that was seen as a mark of prosperity, prior success and, presumably, competence. As the Mughal system matured, however, cavalry horses were more often bought and paid for by the central treasury or from the allotments of senior officers. The high attrition rate of horses during military operations, especially in India’s adverse climate, made the idea of enlisted cavalymen and even junior officers staying mounted out of their own pockets unrealistic. In this circumstance, the numerical ranking system probably dictated which troopers, based on seniority and proven ability, got priority access to remounts. Eventually some favored officers received supplemental pay, granted with the express purpose of maintaining a higher proportion of two-horse

and three-horse troopers and a corresponding larger pool of remounts. Rankings for other soldiers were more detailed. Musketeers, for example, were classified according to three ranks and five sub-ranks, for a total of 15 individual pay grades, presumably based on skill and performance. There were 12 classifications for sailors, including officers, mates, clerks, cooks, gunners, topmen and ordinary seamen. Humans were not the only ones to be ranked and ordered. When applicable, muster rolls were also kept for horses and other draft animals, with details about breed, *dagh* (branding), coloration and other distinguishing physical characteristics. Different breeds and sexes of animals were rated by their specific purpose and effectiveness. For example, there were 7 different classifications for warhorses and 11 for elephants—7 for males and 4 for females. Officers' contracts often stipulated which grades of animals they were required to keep on hand, ensuring that most of their stock would be of high quality.¹³

Employment for officers was at will and could be terminated on short notice by either party. There were no specific periods of enlistment. Commissions were indefinitely renewable, and they were reconfirmed after each official inspection. Most officers underwent inspection on a yearly basis, but those in more distant postings might go three or more years between inspections. Promotions were typically granted on specific dates throughout the calendar, corresponding with the start of the new year or important holidays. Promotions were also awarded after campaigns to those officers that had distinguished themselves in action. A promotion was not official, and the increased rate of pay did not begin until a mansabdar had passed his first inspection at the new rank and proved that he had mobilized all of the additional manpower and other resources required for that station. Likewise, officers could be demoted or even sacked for failing

inspections or for poor performance in the field. Able-bodied mansabdars rarely left Imperial service voluntarily. Terms of service for enlisted men varied, but most of them apparently signed on for a series of short term contracts. This was consistent with a military culture in which many young men served for a few years before embarking on civilian professions. Some enlisted men did become career soldiers, but few of these stayed in the ranks much past the age of 40. Soldiers in good standing, officers or enlisted, were rarely forced to leave. The Mughal army, unlike many of its contemporaries, did not draw down or demobilize significant numbers of troops during peacetime. There was considerable pressure on the Empire to keep as many of its armed subjects on the payroll as possible. As Jos Gommans notes, “Supply determined demand to the extent that the Mughal state could not afford to leave the bulk of military labourers to competing employers or, equally inadvisably, to let them start their own military enterprise and... create their own demand.”¹⁴

Sports and Military Training

This supply of soldiers only continued to grow as communities trained new generations of their young men to fight. Villages and towns maintained *akharas*, or gymnasiums, where aspiring soldiers practiced various martial arts, often under the instruction of professional trainers and arms masters. Their sports included gymnastics, boxing, wrestling, *pata hilana* (fencing), *rustam khani* (staff fighting), *gatika* (mace fighting) and *tir andazi* (archery). As firearms became more widely available, local militias also began regular training in musketry. Soldiers from “foreign” backgrounds, especially those of Central Asian extraction, had their own traditions of martial sports. They competed in what the Mongols described as the “Three Manly Sports,” wrestling,

horse racing and archery, the latter practiced both on foot and while mounted. Organized competitions included the *al-qabaq* or *bombog kharvaa*, sometimes referred to as “gourd shooting” or “ball shooting,” in which mounted archers shot at spherical leather targets from a variety of positions. A typical array consisted of three targets, the first of which was to be fired at from the front during the approach, the next to be engaged from the side as the rider passed and the last to be shot at after he had passed, using the rearward-facing “Parthian” shot. Hunting was another popular method of gaining practical experience in archery and horsemanship.¹⁵

The Mughal elites participated in a wide variety of organized combat sports that were designed to prepare them physically and mentally for the hardships of battle and to publicly display their warlike and virtuous qualities. These games included contests of man against man, men against beasts and beasts against each other. Players competed individually to prove their mastery of martial pursuits such as boxing, wrestling, fencing, archery and horsemanship. In teams they pursued equestrian sports like *buzkashi* and polo, which often degenerated into rowdy near-battles. The most violent games of all took place in the gladiatorial arena, where fully armed and armored combatants frequently risked serious injury and even death.¹⁶ Hunting was the most popular sport involving men and animals. The targets ranged from creatures as humble as ducks and hares to truly dangerous game like lions, tigers and elephants. Hunts were conducted both by individuals and small groups acting alone and with the assistance of thousands of soldiers and servants. Weapons used included muskets, bows, lances and even swords. Animals were also forced to fight amongst themselves. Pit fighters came in all weight classes—giants such as elephants and buffalo, middle-sized beasts like camels and

antelope and even creatures as tiny as quail. Contests could take place both within and across species lines. Several disciplines of hunting also involved the use of animals as weapons. These included falcons, dogs, cheetahs and “Judas” beasts—tame deer, antelope and elephants trained to lure their wild cousins into range.¹⁷

Many of these sports produced tangible, practical results. They promoted physical fitness and sharpened important military skills like weapons handling, horsemanship and teamwork. Hunting brought game to the table and supported trade in valuable animal products such as ivory, hides and furs. Animals captured alive served as beasts of burden, ornaments in royal menageries, gifts to foreign dignitaries and part of a lucrative international trade in exotic beasts. Dangerous and overpopulated animals were culled. Likewise, captive beasts were transported to areas where the numbers of that species were declining.¹⁸

These events were also a source of diversion and entertainment—at least for their human participants. The sporting life of the Mughals, however, was about much more than fun and profit. Their contests also served vital cultural, social and ritual functions. Many of the Mughals’ games—like the Imperial dynasty itself—had their origins in Central Asia and were still played “following the rules of Chingiz Khan.”¹⁹ They were tangible connections to cherished ancestors and a heroic past. Moreover these contests served as demonstrations of and object lessons in essential virtues—strength, courage, charisma, chivalry, justice and mercy. They became “worship... performed under the veil of pleasure.”²⁰ Not all sports were conducted in the rough and tumble of hinterland and wilderness. Many events took place before large audiences, in arenas and manicured

hunting parks, with scripted outcomes and clear messages—productions as elaborate and meaningful as the Passion plays and *intermezzi* of Renaissance Europe.²¹

Strength and prowess were the most obvious virtues on display. Many games—boxing, wrestling, fencing—were clear contests of skill and athleticism, with obvious winners and losers. Even greater tests of strength were to be found in combat against savage beasts. High-ranking Mughals—up to and including the Emperor—were expected to prove their mettle in the lists and on the hunting field. Yet sport did more than exhibit the strength of the individual—it manifested the awesome military and economic power at the disposal of the Emperor and the state. Many Imperial hunting parties were literally armies on the march, with thousands of warriors and camp followers accompanying the monarch. Such processions served as a show of force and an obvious warning to any that might witness them. In the most extreme instance, the Emperor exercised his power to literally reshape the landscape, commissioning the construction of vast hunting parks and game preserves that were intended as representations of Paradise on Earth. The sovereign asserted his divine right of ownership of the land and all creatures on it. The hunting of certain beasts was a royal prerogative. “No man may meddle with lions but the King.”²²

Courage was another essential value. Emperors were expected to make public displays of bravery. Akbar was especially renowned for engaging in dangerous, even foolhardy stunts:

Deeds which could not come within the mould of speech, and which could not be weighed in the balance of reason were displayed by this enthroned one. Ridings upon *mast* (rutting), men-killing, driver-throwing elephants, the sight of whom melted the gall-bladder of the iron-livered ones of this art were exhibited by this holy personality. When a *mast* and vicious elephant had killed its driver, and committed several other murders, so

that it was a terror to the city, this assisted of heaven and protected by God came, as he was walking between the garden and the courtyard, placed his foot on the elephant's tusk and smilingly took his seat and set the elephant to fight with *mast* and quarrelsome elephants. In the very thick of the fighting, when he saw that the driver of the other elephant had lost control of the animal, that Lion of God leapt from his own elephant to the other... For it was impossible to approach this animal... much less, to ride it, and to control it with severity, and to engage it in fight with another elephant like itself. ²³

This same high standard of courage was also expected from the Emperor's servants. Diligent participation in the usual hazardous sports was not always enough. Jahangir once devised a ritual in which his courtiers were forced to prove themselves by boxing with a full-grown lion. The animal had been conditioned by its trainers to show restraint, but such an exercise was clearly not for the faint-hearted. ²⁴ Sporting events were often tests of nerve even for passive spectators. Pit fights and staged hunts were frequently designed to minimize the barriers between combatants and audience. It was not uncommon for enraged animals to break through the barricades and put the spectators to flight.

The beasts themselves were also seen as exemplars of courage. Hunters and other sportsmen hoped to be associated with the most virtuous qualities of their animal friends and foes. Brave human competitors were often referred to as "lions" or "tiger-hearted." Even humbler creatures could win recognition for their courage. "A jackal attacked a fawn and the weak was about to be injured by the strong. The fawn's mother saw what had happened and... she summoned up her courage and ran to the place, and boldly assailed the jackal several times. He had a bad time, and flung himself into a pond..."

When the ray of His Majesty's attention was directed to this a shout arose from among the spectators.”²⁵

While strength allowed leadership by intimidation, and courage provided leadership by example, charisma and personal magnetism were required for a leader to receive true devotion. Devotion was expected in the hunting field as on the battlefield, where both a commander's life and the fate of his undertaking might depend on the actions—and self-sacrifice—of his subordinates. This was especially true of an Emperor, whose personality was expected to be forceful enough to sway even beasts. Akbar could supposedly force animals to submit through sheer force of will. “His Majesty remained standing where he was, and looked furiously at the tiger. The brute cowered down before that divine glance, and turned right about trembling all over. In a short time it was killed.”²⁶ Even more remarkable was the Emperor's ability not just to cow “enemy” creatures but also to befriend a host of other animals—hawks, hounds, elephants, cheetahs. This retinue of furred and feathered allies served as a metaphor for all the diverse human factions of the Empire united under the rule of a single wise and benevolent master.

Kindness and chivalry were other essential values. Of all the sports, hunting best allowed the Emperor and his agents to fulfill their roles as defender of the weak. Just as his subjects owed him obedience and service, he owed them his protection in return: Superficial, worldly observers see in killing an animal a sort of pleasure... but deep enquirers see in hunting a means of acquisition of knowledge, and the temple of their worship derives from it a peculiar luster. This is the case with His Majesty. He always makes hunting a means of increasing his knowledge, and besides, uses hunting parties as occasions to enquire, without having first given notice of his coming, into the condition

of the people and the army. He travels *incognito*, and examines into matters referring to taxation... He lifts up such as are oppressed, and punishes the oppressors. On account of these higher reasons His Majesty indulges in the chase, and shows himself quite enamored of it. Shortsighted and shallow observers think that His Majesty has no other object in view but hunting; but the wise and experienced know that he pursues higher aims.²⁷

The royal hunting party spent months at a time processing around the boundaries of the Empire. A typical Emperor might spend more than a third of his reign in the field. His duties while on the hunt included surveillance of local officials, intimidation of potential rebels and wrongdoers and the doing of good deeds. The Emperor typically granted audiences and received petitions from subjects in each locality he visited. Proceeds of the day's hunt were often distributed among the poor. The ruler also emphasized his role as protector by supervising—or actively participating in—the destruction of man-eaters, cattle killers and other problem animals.²⁸

Justice was also an objective of sport. Success or failure in the arena or on the hunting ground was often understood as a reward for virtuous conduct or a punishment for sins. Such attitudes were often expressed in frankly religious terms. The Emperor and other notables were often described as being blessed or under God's protection. Divine intervention might mean the difference between victory and defeat or between a narrow escape and a gruesome demise. There was consternation when one of Akbar's bravest and most loyal retainers was fatally mauled by a tiger—until it was revealed that the victim was a “shameless one” who had disobeyed his parents and lusted after another man's wife. Then it was understood that his death was “a retribution for his disrespect to his father.”²⁹

Enemies and evildoers also received more direct punishments in the presence of animals. Many formal punishments were staged as a ritualized parody of sport. Prisoners of war were sometimes paraded in front of spectators while clad in costumes made from animal hides, reinforcing their status as human prey. Those captured in the act of treachery or rebellion, along with common criminals, might be pitted against ferocious beasts—usually elephants—while unarmed or equipped with only rudimentary weapons. The victim's inevitable defeat and doom were proof of his wickedness.³⁰ Yet justice is cruel if not tempered by mercy. Executions were sometimes halted at the last moment; the beasts were called off or only allowed to inflict minor harm. It was presumed that such an ordeal would chasten the victim and discourage him from returning to rebellious ways or a life of crime. On one notable occasion, Jahangir pardoned a convicted bandit after he managed to fight off his elephant executioner while armed only with a dagger.³¹ Clemency was also granted to condemned animals. The leader of the hunt often made the symbolic gesture of sparing the last few surviving creatures, either taking them into captivity or releasing them back into the wild.

While animals might be used as instruments of justice, they were not immune to judgment themselves. Mughal observers often attributed human qualities to beasts and treated them accordingly. Animals used for both military and sporting purposes were assigned ranks and classifications and listed on their own muster rolls. They were rewarded for meritorious service and punished for failure. An especially successful hunting cheetah was honored with an official proclamation by Akbar and promoted to be the “commander” of its pack. Jahangir built an elaborate tomb for an antelope that had excelled in the fighting ring. The later Emperor Aurangzeb even sent a war elephant into

exile for not showing him proper respect.³² Creatures that sinned severely enough were put to death. While Akbar was on a hunt, “his eye fell upon a serpent which was nearly seven yards in length and which had consumed several spotted deer... and was about to destroy more. He ordered the noxious animal to be destroyed so that it received retribution for its actions.”³³

The boundary between human subjects and animal subjects became blurred. Similar qualities were attributed to both. They could be courageous yet willful, loyal but stubborn, resourceful and also devious. All of the Emperor’s creatures had to be kept in line. It is no surprise that royal hunting expeditions often ended up in pursuit of two-legged prey:

They were both ruffians and occupiers of rough places, and they lived by audacity which the ignorant call manliness. The officers of the quarter were continually complaining of their wickedness. At last the Shahinshah went towards that village for the sake of hunting... A [subject] obtained an interview through the huntsmen and represented the oppression practiced by those stubborn ones, stating they had killed his innocent son and plundered his property. The King... who made hunting a means of inquiring into such matters, became indignant on hearing the victim's complaint and announced that he would next morning proceed there and chastise the evil-doers. At dawn he went off to hunt, attended by a few men, and sent off a party ahead... Those who had gone on ahead came and reported that the rebels had heard of the Shahinshah's coming and had fled. The flame of majestic justice rose higher...³⁴

Hunting often served as a prelude to real combat. Royal hunting parties were often sizable armies in their own right. Large numbers of troops might move to threaten rebels or neighboring states under the pretext of sport. Even in times of peace, large, organized hunts served as military exercises, testing the Mughal army’s abilities in tactics,

maneuver and logistics. In the classic *nerge* or *qamargha*—the “ring hunt”—troopers cordoned off large areas and systematically encircled and destroyed thousands of animals as if they were an enemy army. While hunting, soldiers used the same maneuvers that they would employ in a real battle—“hammer and anvil” attacks, flanking movements and envelopment. In smaller groups, however, hunters also practiced the equivalent of guerrilla tactics. They relied on stealth and concealment, lurking in hides and blinds, wearing camouflage clothing and sometimes even using specially trained animals as lures. The pursuit of dangerous games prepared individuals for combat. Sports toughened bodies and provided training in vital skills like armed and unarmed combat, marksmanship, horsemanship and survival in the outdoors. They also promoted mental fitness, forcing competitors to think quickly and keep their heads under pressure.

Sporting events were highly public affairs, places where aspirants might make a name for themselves by proving their prowess and bravery in front of a crowd—or in the presence of a few very important people. During Jahangir’s near-fatal encounter with the lion one retainer stood his ground instead of fleeing and was savaged by the beast. The Emperor rewarded him handsomely for his courage. “I had witnessed the way in which he offered his life... after he had recovered from the pain of his wounds and had the honor of waiting on me, I bestowed on him the title of Anira’i Singh-dalan. Anira’i they call in the Hindi language the leader of an army, and the meaning of Singh-dalan is a lion-slayer. Giving him a special sword of my own, I increased his mansab.”³⁵ Babur was especially fond of wrestling, rewarding one victorious fighter with “ten thousand *tankas* (silver coins) and a saddled horse, a complete dress, and a vest wrought with buttons.” One of Akbar’s first claims to fame was the precocious wrestling ability he

displayed as a boy, when he was able to best many grown men in the ring.³⁶ Sport was clearly an avenue of advancement for aspiring royals as well as lesser lights. One of the defining moments of the later Emperor Aurangzeb's early career took place at an elephant fight. When one of the combatants broke through the barriers and attacked the crowd, the young prince mounted his horse and succeeded in turning the beast away—while his three brothers and future rivals fled in fear.³⁷

The influence of sport extended beyond dramatic rites of passage—it also changed lives in subtler, more gradual ways. Games were an important mode of socialization. Above all they were crucial for instilling a warrior ethic. The virtues displayed on the sporting field were also the ideal virtues of a soldier. Such qualities were always in demand, for the Mughal Empire was first of all a military state. Aspiring princes were expected to serve apprenticeships as military officers. All government officials of note were technically soldiers, regardless of their actual duties and were expected, at least in theory, to mobilize contingents of troops and lead them into battle if called upon to do so. Not all of these notables, however, were professional warriors. Exposure to violent competition, as participant or spectator, was one way to promote military virtues and to—mentally if not physically—toughen up soft-handed bureaucrats and scholars.³⁸

Games also shaped a unifying culture. The Mughal elites were remarkably diverse. There was no inherited nobility outside of the royal family. Literally any position short of Emperor was at least theoretically attainable by anyone talented and driven enough to earn it. Such promise attracted adventurers from not just all parts of India but from all over the world. As the Empire expanded, the ranks of the Mughal government and military grew to include Indians of all sorts, Mongols, Turks, Persians, Arabs, Europeans

and black Africans—Muslims, Hindus, Christians and Jews. Sports were a way to pursue a common cause and shared values that transcended ethnic and religious distinctions, to shape what Jos Gommans described as a “movable, deracinated elite...fully devoted to imperial service.”³⁹ If all of the Mughals were no longer descendants of Timur and Chingiz Khan by blood, they could at least be so in spirit. Over time certain standards of etiquette and behavior were established for the Mughal gentleman. In this so-called *sharif* or “exalted” culture, a young man of means was not only encouraged to learn music, art, poetry and the Persian classics—he was also expected to master fencing, archery and horsemanship. A number of noble women also learned polo, target shooting and hunting, although they were usually required to conduct their sports separately from men.⁴⁰ Such martial training for females was not always purely academic. In a few rare cases Indian women of high status were called upon to lead troops in battle when male commanders were unavailable or indisposed. In one of the most famous such instances, the Rani of the principality of Chauragarh led the defense against a Mughal invasion, fighting at the front, suffering serious wounds and eventually committing suicide in order to avoid capture. Chand Bibi, a princess of the Deccan sultanate of Ahmednagar, was appointed to command the garrison of the capital during Akbar’s campaigns in the south. When a Mughal army attacked the city she oversaw the defense during a three-month siege and then negotiated a cease-fire on her own authority. The Mughals themselves were seldom in a position so desperate that they needed to call upon female warriors. In one notable exception, Nur Jahan, the wife of Jahangir and an expert hunter and marksman, apparently took part in the fighting following an attempted military coup against her husband. At the other social extreme, women also occasionally fought alongside men as

members of irregular forces and local militias. Outside of a few very specific roles—such as personal attendants and harem guards and the *urdubegi*, bodyguards assigned to an army's female servants and camp followers—women were not enlisted into any regular military units.⁴¹

The Mughals also engaged in more cerebral competitions. They played a wide variety of card games and board games, both for simple recreation and for the purpose of sharpening mental acuity and tactical thinking. The most popular card game was *ganjifa*. It is a four or five-handed bidding and trick-taking game roughly similar to bridge or spades. A standard *gad*, or deck, consists of 96 cards divided into 8 suits of 12. There are however, a number of variant rule sets and custom decks. A version popular in Akbar's court used a deck of 144 cards, with 12 suits of 12. Most cards were decorated with fanciful images of animals or famous figures from history and mythology. Akbar, however, devised a deck in which the suits and individual cards corresponded to the various branches of administration and industry, with their officials and various duties. His Majesty has also made some suitable alterations in the cards. Thus the *Dhanpati*, or lord of treasures, is represented as a man distributing money. The vazir sits on a *candali*, (chair) and inspects the Treasury; but the ten other cards of this suit are representations of the ten classes of workmen employed in the Treasury... the jeweller, the melter, the piece-cutter (*mutallas-saz*), the weighman, the coiner, the *muhur* counter, the *bitikchi* (writer) of *dhan* pieces, the *bitikchi* of *man* pieces, the dealer, and the *qurcgar*. His Majesty had also the king of assignments painted on the cards, who inspects *farmans*, (orders) grants, and the leaves of the *daftar* (ledger); the vazir sits... with the *daftar* before him; the other cards show officers employed in the Financial Department, as the paper maker, the *mistar* maker, the clerk who makes the entries in the *daftar*, the illuminator (*muqawwir*), the *naqqash* (who ornaments the pages), the *jadwalkash* (who draws blue and gold lines on the pages), the *farmán* writer, the *mujallid* (bookbinder), the

rangrez (who stains the paper with different colors). The *Padishah-i qimash* also, or king of manufactures, is painted in great state, looking at different things, as Tibetan yaks, silk, and silken stuffs. The *vazir* sits near him... enquiring into former proceedings. The other ten cards represent beasts of burden. Again, the *Padishah-i Chang*, or lord of the lyre, is painted sitting on a throne, and listening to music; the *vazir* sits before him, enquiring into the circumstances of the performers, of whom pictures are given on the remaining cards. Next, the *Padishah-i zar-i safid*, or king of silver, who is painted distributing rupees and other silver coins; the *vazir*... makes enquiries regarding donations. On the other cards, the workmen of the silver mint are depicted, as before those of the gold mint. Then comes the *Padishah-i shamshir*, or king of the sword, who is painted trying the steel of a sword. The *vazir*... inspects the arsenal; the other cards contain pictures of armorers, and polishers.... After him comes the *Padishah-i Taj*, or king of the diadem. He confers royal insignia, and the *candali* upon which the *vazir* sits, is the last of the insignia. The ten other cards contain pictures of workmen, as tailors, and quilters... Lastly, the *Padishah-i Ghulaman*, or king of the slaves, sits on an elephant, and the *vazir* on a cart. The other cards are representations of servants, some of whom sit, some lie on the ground in worship, some are drunk, others sober. ⁴²

Such a detailed accounting of the various cards and their functions suggests a type of strategy game much more complex than standard *ganjifa*, perhaps something more akin to present day “Magic” style collectible card games. Board games were also popular at court, including *parchesi*, *chaupar*, (similar to checkers) and *shahtranj*, or chess. Akbar was an enthusiastic chess player, often playing simultaneous matches against multiple opponents. He saw chess as an ideal way to “test the value of men, and to establish harmony and good fellow-feeling at Court.” It is probably no coincidence that Mughal authors made frequent use of gaming metaphors, especially those related to chess, when describing warfare and diplomacy. ⁴³

Formal Military Training

Games played both on the hunting field and in the parlor served as indirect preparation for war, but it is clear that the Mughals also performed various military drills and exercises in direct preparation for combat. Babur well understood the value of realistic training and the dividends it paid in battle. Describing his victory at Qandahar, he explained:

Though my men were few in number, yet I had been at great pains to train and exercise them in the best manner. Perhaps on no other occasion had I my troops in such perfect discipline. All my household dependants who could be serviceable were divided into bodies of tens and fifties, and I had appointed proper officers for each body, and had assigned to each its proper station on the right or left, so that they were all trained and perfectly informed of what they were to do; and had orders to be on the alert, and active, during the fight. The right and left wings, the right and left divisions, the right and left flanks, were to charge on horseback, and were drawn up and instructed to act of themselves, without the necessity of directions from the *tawachis*, (officers) and in general the troops knew their proper stations, and were trained to attack those to whom they were opposed. ⁴⁴

Babur was also highly critical of commanders that did not train so diligently and did not “exercise the army, or accustom it to discipline, or to battle array, so as to be prepared and able to fight with readiness when the enemy came.” ⁴⁵ Later leaders followed his example. Sher Shah Suri conducted regular drills for his troops. Akbar expected that his soldiers should always be “exercised in warfare, lest from want of training they become self-indulgent,” ⁴⁶ and he punished officers who did not meet these

expectations. Standard unit inspections were frequently accompanied by some sort of drill and maneuvers. The commanding officers were also expected to show proficiency in basic military skills like horsemanship, archery and musketry, and their troops also were supposed to practice with their weapons regularly. The training of musketeers appeared to emphasize marksmanship over rate of fire, with frequent target shooting sessions. Akbar instituted regular musters in which all of the artillery pieces in a unit were test fired and then every soldier fired his personal weapon. Presumably the officers and men took pains to be well prepared for these occasions. Jahangir apparently continued this practice, although his version appeared to be more ritualized. “On the first day of every month, it was the rule with my father to set the example to his amirs by discharging his musket, and this was followed by the whole train, from the highest dignitary to the lowest functionary enrolled in the service of the state, whether cannoneer or matchlockman... In imitation of the same example, I have continued the practice, a shot from my gun... being followed by one from every individual in my armies, high or low.”⁴⁷ There are frequent references to the importance and frequency of drill and training, but unfortunately there are few surviving detailed accounts of these exercises. Unlike the elaborate descriptions of the sporting lives of the elites preserved in memoirs and chronicles, most of the more mundane paperwork regarding military training has been lost. Like hunting and other athletic contests, many of these military maneuvers and war games may have had strong elements of pomp and circumstance. It is important to note, however, that in other armies of this period, no real distinction between ritualized parade ground drill and training in actual tactics had yet emerged. Close order drill still had a practical value above and beyond mere ceremony or even the reinforcement of discipline—mastery of those same

maneuvers was required for survival on the battlefield. The Mughal army was less reliant on linear formations than its Western contemporaries, but the maneuvers it performed for display may have still reflected those used in actual combat. The *ivim*, or Mongol-style parade formation, used on occasion in Babur's army seems to suggest this. It was circular in shape, reminiscent of a qamargha hunting ring or battlefield encirclement in progress. At other times units were assembled at muster in their standard yasal or battle array.⁴⁸ Officers and other notables also received individualized instruction. Akbar kept a large number of gymnasts, boxers, wrestlers and other martial artists on retainer at his court. Many of these men performed in contests and other exhibitions, but aside from their role as entertainers they may have also assisted in physical training. Jahangir's later account suggests such a role. He studied at length under a Deccani fencing master and was so impressed by the man's skills that he granted him the title of "*Varzesh Khan*" or "Chief of Sports" at the court.⁴⁹ Mughal emperors and generals also kept animal trainers on staff to prepare horses and elephants for the rigors of combat. Akbar hired a "superintendent over every troop of ten, twenty, and thirty, elephants... to look after the condition and the training of the elephants. He teaches them to be bold, and to stand firm at the sight of fire, and at the noise of artillery; and he is responsible for their behavior in these respects."⁵⁰

Aside from any trainers employed by the state, a number of private citizens earned their livings as arms masters in akharas and gymnasiums around the country. These institutions ranged from training grounds for militiamen and other commoners to exclusive fencing salons for the nobility. More literate practitioners of the martial arts could also turn to a variety of written manuals. Instructional books on military-related topics in wide circulation by the end of Akbar's reign included works on swordsmanship,

an illustrated guide to archery, *faras nameh*, or treatises on horsemanship and the care of horses as well as “Hidden Books of Medicine,” manuals on first aid and field medicine so named because of their small size, which made them easy to carry in a pocket or pouch. More general works on military science from the Delhi Sultanate were also still available, although these were rapidly becoming obsolete with the ongoing rapid changes in technology, tactics and doctrine. It is unclear how many official instructional books, the equivalent of modern military field manuals, were actually produced by the Mughal state. Like so many of the Empire’s other routine government documents and bureaucratic paperwork, none of these survived until the present day. Some experts apparently compiled their own observations, such as the officer in Shah Jahan’s army who produced a treatise on the art of war with the fanciful title of *Dastur-e-Jahan Kusha*, or “Method of World Conquest.” How widely such works were distributed or whether they influenced actual military operations is unknown. Practical military analysis, however, occasionally appeared under the guise of history. Many official and semi-official chronicles tended towards hagiography if not outright propaganda. Yet amongst the accounts of Mughal heroes enjoying the “wholesome sherbet of martyrdom” and wicked enemies being forced to taste the “bitter wine of defeat” there are genuine efforts to think critically and learn the lessons of past campaigns. Perhaps the most striking example of these is the *Tarikh-i Sher Shah*, a biography of the man who nearly destroyed the Mughal Empire. Commissioned by Akbar and written by a serving officer, this work contains extensive, detailed analysis of Sher Shah Suri’s battles and campaigns. Equipment, tactics and doctrine are discussed at length, and the narrative includes explanations of irregular warfare and counterinsurgency as well as major combat operations. It appears obvious

that this document was created so that the Mughals could learn both from their own mistakes and from the exploits of a gifted enemy commander and then incorporate these examples into their policy going forward.⁵¹

Notes for Chapter 5

1. *Memoirs of Humayun*, chpt. 41
2. The influence of Central Asian culture and nomadic traditions on the early Mughal military are described at length in Chapter 2 of Jos Gommans' *Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500 - 1700* (New York: Routledge, 2002).
3. Babur makes reference to "Hindu" amirs (field grade or general officers) in his army during his campaigns in the east after the defeat of the Lodis and the Rajputs. It is not clear whether he was referring simply to native Indians or actual members of the Hindu faith. See *Baburnama*, Volume 2, chpt. 85.
4. The Mughal system of military ranks and its evolution over time are described in great detail in M. Athar Ali's "Organization of the Nobility: Mansab, Pay, Conditions of Service," in *Warfare and Weaponry in South Asia, 1000 – 1800*. Ed. Jos Gommans and Dirk Kolff (New Delhi: Oxford, 2001), 232 –274. Also see Chapter 3 of Gommans. The training and duties of ahadis is described in *Ain-i-Akbari*, Volume 1, chpt. 170, and frequent references are made to them in the listings of the various line and support unit. See for example Volume 1, chpt. 107.
5. The evolution of Mughal policy concerning the recruitment of infantry and musketeers is discussed in Chapter 7 of Iqtidar Alam Khan's *Gunpowder and Firearms: Warfare in Medieval India* (New Delhi: Oxford, 2004).
6. Dirk Kolff describes the highly militarized society North India and the dynamics of the military labor market in "The Polity and the Peasantry," in *Warfare and Weaponry in South Asia, 1000 – 1800*, 202 – 231 and in even greater detail in *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450 – 1850*. (New York: Cambridge, 1990), especially in the first two chapters. The rise of the "spurious Rajputs" is explained in Chapters 3 and 4.
7. William R. Pinch describes the rise of armed ascetics and militant religious orders—from whose ranks many of the shamsherbaz apparently came—and their entry into the Indian military labor market in *Warrior Ascetics and Indian Empires*, (New York: Cambridge University, 2006). Chapters 1 and 2 in particular address their interaction with the Mughals. Also see Gommans Chapter 1, especially p. 42 – 51 and Orr, W.G. "Armed Religious Ascetics in Northern India," in *Warfare and Weaponry in South Asia*, 185 – 201.
8. Kolff makes this assertion in the introduction to *Naukar, Rajput and Sepoy*. See page 3.
9. Abu Fazl counted approximately 4.4 million soldiers. In 2006 India had about 3.9

million active, reserve and paramilitary troops. The Chinese frontline and reserve soldiers totaled about 4.2 million. These figures are taken from “The Asian Conventional Military Balance in 2006: Overview of Major Asian Powers” published by the Center for Strategic and International Studies.
http://csis.org/files/media/csis/pubs/060626_asia_balance_powers.pdf

10. See Chapter 5 of Kolff for a discussion of the purbiya and Deccani military cultures.
11. “Shagirdpesha” is used in other contexts to describe laborers or support personnel, so these men may have been relegated, at least in part, to humbler work. Akbar however, does state that he trusted them in hazardous situations that some ordinary soldiers would not endure. See *Akbarnama*, Volume 3, chpt. 132
12. The dynamics of recruiting are described in Chapter 3 of Gommans and Chapter 5 of Kolff. For an example of recruiting in the field see *Akbarnama*, Volume 2, chpt. 67.
13. The grading system for horse and elephants is described on several occasions in the *Ain-i Akbari*. The ranks for sailors are listed in *Ain-i Akbari* Volume 1, chpt. 203. Ranks for musketeers are described in Chapter 6 of Khan. See also *Ain-i Akbari*, Volume 1, chpt. 181.
14. Gommans, 67
15. Martial arts training in Indian communities is described in Chapter 1 of Kolff, especially pages 25 – 31. For an explanation of Central Asian sports and their military applications, see Timothy May’s essay “The Training of an Inner Asian Nomad Army in the Pre-Modern Period,” *The Journal of Military History* 70, no. 3 (Jul., 2006): 617-635.
16. Akbar’s retinue of gladiators is described in p. 30-31 and 60-61 of *The Commentary of Father Monserrate S.J. on His Journey to the Court of Akbar*, trans. J.S. Hoyland (New Delhi: Asian Educational Services, 2003). They are noted on the official roster of the Emperor’s attendants in *Ain-i-Akbari* Volume 1 Chapter 179. Their games were dangerous enough that Monserrate felt compelled to complain to the Emperor about the resulting injuries.
17. For a good overview of the hunting techniques practiced by the Mughals and their Central Asian antecedents, see Chapter 2 of Thomas Allsen’s *The Royal Hunt in Eurasian History* (Philadelphia: University of Pennsylvania, 2006).
18. Hunting was a big business, one that spanned national borders. For more on the vast international trade in animals, animal products and hunting expertise, see Allsen, Chapter 12.

19. Gulbadan Begum, *The Humayun-nama*, chpt. 47
20. *Akbarnama*, Volume 2, chpt. 135
21. In Chapter 3 Allsen describes the evolution of the Central Asian hunting park. He notes that the modern word “paradise” probably has its origin in the Old Persian term *paridaida* for “enclosure,” a word that was used in reference to such parks.
22. Thomas Roe, *The Embassy of Sir Thomas Roe to India* (London: Hakluyt, 1926) 402
23. *Akbarnama*, Volume 2, chpt. 27
24. This event is described in *The Journal of John Jourdain, 1608 – 1617*. (Cambridge: Hakluyt, 1905) p. 160.
25. *Akbarnama*, Volume 2, chpt. 59
26. *Ain-i-Akbari*, Volume 1, chpt. 206
27. *Ain-i-Akbari*, Volume 1, chpt. 204
28. For an excellent description of the dynamics of royal hunting expeditions, see Gommans p. 99-110.
29. *Akbarnama*, Volume 2, chpt. 123
30. Allsen in Chapter 8 discusses the use of animals as instruments of punishment. See p. 155-156. Roe describes executions by elephant in Jahangir’s court in p. 108 and 215.
31. The pardoned man eventually returned to a life of crime and was finally executed for certain—this time by hanging. See *Jahangirnama*, Volume 1, chpt. 72.
32. The remarkable cheetah is described in *Akbarnama*, Volume 2, chpt. 139. The champion antelope is mentioned in *Jahangirnama*, Volume 1, chpt. 23. For a description of Aurangzeb’s quarrel with the elephant, see Manucci p. 19-21.
33. *Akbarnama*, Volume 2, chpt. 97
34. *Akbarnama*, Volume 2, chpt. 66
35. *Jahangirnama*, Volume 1, chpt. 43

36. The lucky wrestler's awards are described in *Baburnama*, Volume 2, chpt. 82. Akbar's victories in the ring are described in *Akbarnama*, Volume 1, chpt. 101. As a committed pugilist, Akbar kept a large retinue of wrestlers and boxers in his court. See *Ain-i-Akbari*, Volume 1, chpt. 178.
37. See Hamiduddin Khan Bahadur, *Akham-i-Alamgiri*, chpt. 12 for a description of this event.
38. See Ali's essay "Organization of the Nobility" for a more detailed explanation of the interplay between the Mughal military and civilian administration.
39. Gommans, 92
40. The *sharifi* culture persisted well into the 19th century, even under British rule. David Lelyveld, in *Aligarh's First Generation: Muslim Solidarity in British India* (Princeton: Princeton University, 1978), describes the upbringing of the noted scholar Sayyid Ahmad Khan in such an environment. See Chapter 2. Jahangir's wife, Nur Jahan, was an avid target shooter and hunter. Her tiger-slaying exploits are recounted in *Jahangirnama*, Volume 1, chpt.79.
41. The exploits of the brave Rani are described in *The History of India*, Volume 6, chpt. 73 (*Tabakat-i Akbari*). Chand Bibi's defense of Ahmednagar is described in *Akbarnama*, Volume 3, Chapter 125.
42. *Ain-i-Akbari*, Volume 1, chpt. 224 Ganjifa is described at length in Rudi von Leyden's article "The Search for Ganjifa," in *The India Magazine* (June 1983).
43. Akbar's chess playing is described in *Ain-i-Akbari*, Volume 1, chpt. 224. For one of many examples of a chess metaphor used to describe military affairs, see *Akbarnama*, Volume 2, chpt. 75.
44. *Baburnama*, Volume 2, chpt. 12
45. *Baburnama*, Volume 2, chpt. 10
46. *Ain-i-Akbari*, Volume 3, chpt. 213
47. *The Memoirs of Jahangir*, chpt. 23. Regular practice in marksmanship by both officers and men was established by statute. See *Ain-i-Akbari*, Volume 2, chpt. 32 and *Mir'at-i Ahmadi*, chpt. 86.
48. For a description of the circular Mongol parade formation see *Baburnama*, Volume 1, chpt. 81.
49. *Jahangirnama*, Volume 1, chpt. 56

50. *Ain-i-Akbari*, Volume 1, chpt. 98

51. Notice how frequently the *Tarikh-i Sher Shah* is referenced in the discussions of tactics and operations in Chapter 4 of this work. See supplementary materials in bibliography for Marshall and British Library reference numbers of various instructional works.

Chapter 6: Supporting War – Logistics and Non-Combat Operations

Critics of the Mughal military system frequently describe it as cumbersome and inefficient, emphasizing the deliberate pace of its operations and the large numbers of camp followers and supposedly non-essential personnel who accompanied armies on campaign. These assumptions, however, are not well grounded in fact. The Imperial war machine was often slow to move, but it moved with a purpose. Caution and attention to detail, not a lack of capability, dictated its slow and steady pace. Most of the vast number of “camp followers” who marched with the Mughal army were in fact skilled and well-paid professionals—pioneers, porters, animal handlers, craftsmen, cooks, clerks, physicians, engineers—who were vital to its success. They kept the troops fed, sheltered, healthy and equipped in the field and cleared the way for their progress, building roads, bridging rivers and at times literally reshaping the terrain in front of them. The Mughals also had to manage many other tasks outside of combat. These included the manufacturing, procurement and stockpiling of weapons, equipment and other supplies, management of prisoners, maintaining a police force and gathering intelligence. The large logistical establishment and the relatively high status of support personnel in this system were more reminiscent of a modern military than a medieval one.

Logistics in the Field

Babur well understood that the most powerful weaponry, cleverest tactics and most diligent training were of no use if an army lacked access to supplies and support. This was especially true in his evolving model of warfare based on discipline, patience and the ability to reshape the battlefield—a system in which the shovel could be as potent a weapon as the musket and where pack mules were as important as warhorses. He worked tirelessly to deny his enemies essential resources. In circumstances where a direct confrontation was not feasible, raiding, destruction of herds and stockpiles and interdiction of supply lines were inflicted so that “what the sword could not achieve was completed by famine.”¹ Similar tactics could also force an enemy on the defensive to commit to battle before they were ready. Babur did not lose sight of his own logistics, even during his first forays as a youthful commander or later when forced to lead a ragtag force through the wilds of Afghanistan. He detailed officers to acquire and distribute any available stocks of both weapons and more mundane goods. “I dispatched commissaries and officers to collect the whole force of my territories, horse and foot, with all possible speed... I also dispatched commissaries and officers to procure *turas*, (large shields) scaling-ladders, shovels, axes, and all kinds of necessaries and stores for the use of the army. I appointed a place where the men, both horse and foot... were to assemble.”² Yet Babur’s early setbacks, and his travails in the wilderness meant that even the most carefully crafted plans, schedules and inventories could not always be realized. He and his men were often forced to essentially live off the land, to find whatever goods they could get by barter, bluff or brute force. Babur’s task after the conquest of India—and the continued work of his successors—was to ensure that Mughal armies would never again

be forced to live hand-to-mouth. In pursuit of this objective they created a truly formidable organization devoted to logistics and support.

Both contemporary enemies and later critics were impressed by the Empire's logistical prowess. Stephen Peter Rosen, a historian who is typically skeptical of the capabilities of the Mughal military on the battlefield, is much more appreciative of their abilities in support, comparing them to other acknowledged masters of logistics in warfare. "The Mughal army adopted military practices that have been associated with a 'Roman' or 'American' way of war—a brute force, engineering approach to military affairs."³ By Akbar's reign the Imperial army employed many thousands of support personnel, with separate military departments devoted to manufacturing, engineering, transport and the management of both human and animal laborers. A Mughal army on the march resembled a mobile metropolis, with hundreds of tents and portable buildings divided into districts for the various line units and support specialties and "always made on one plan, so that anyone who has spent a few days in camp knows his way about... as well as he does about the streets of his own city."⁴ When the army was encamped in potentially hostile territory, all of these structures were surrounded by earthworks, entrenchments, palisades and other field fortifications. Abul Fazl's description of the encampment of a relatively minor peacetime force that accompanied the Emperor on hunting trips and inspection tours hints at the sheer scale involved.

*It would be difficult to describe a large encampment, but I shall say something on the equipage used for hunting parties and short journeys. The *gulalbar* is a grand enclosure, the invention of his Majesty, the doors of which are made very strong, and secured with locks and keys. It is never less than one hundred yards square. At its eastern end a*

pavilion of two entrances is erected, containing 54 divisions, 24 yards long, and 14 broad... There are also other pavilions and tents for the servants... Adjoining to this is a *sarapardah* (large canopy) of carpet, 60 yards square, within which a few tents are erected, the place for the *urdubegis*, (armed female retainers) and other female servants. Farther on up to the private audience hall, there is a fine open space, 150 yards long and 100 yards broad... In the midst of the plain is a raised platform, which is protected by an awning... This is the place, where his Majesty sits in the evening, and none but those who are particularly favored, are here admitted. Adjoining to the *gulalbar*, there is a circular enclosure, consisting of twelve divisions, each of thirty yards... and a tent containing forty divisions, over which twelve awnings are spread, each of twelve yards, and separated by canvasses. This place is... 150 yards in length and breadth, containing sixteen divisions, of thirty-six square yards... In the midst of it the state-hall is erected, by means of a thousand carpets; it contains seventy-two rooms, and has an opening fifteen yards wide. A tentlike covering... made of waxcloth, or any other lighter material, is spread over it, which affords protection against the rain and the sun; and round about it, are fifty awnings, of twelve yards each. The pavilion, which serves as *diwan-i khas*, (private audience hall), has proper doors and locks. Here the nobles, and the officers of the army, after having obtained leave through the *bakshis* pass before the Emperor... Outside of it, to a distance of 350 yards, ropes are drawn, fastened to poles, which are set up at a distance of three yards from each other. Watchmen are stationed about them. This is *diwan-i am*, (public audience hall) round which... the various guards are placed. At the end of this place... is the *naqqarah khanah*, (enclosure for the military band) and in the midst of the area the *akasdiah* (large light tower used as a guide for incoming troops at night) is lighted up. *Several encampments, as just now described*, are sent off, and one of them is put up by the *farrashes* (laborers) on a piece of ground which the *mir manzils* (quartermasters) have selected as an eligible spot, whilst the other camp furniture is sent in advance, to await the approach of his Majesty. Each encampment requires for its carriage 100 elephants, 500 camels, 400 carts, and 100 bearers. It is escorted by 500 troopers, *mansabdars* and *ahadis*. Besides, there are employed a thousand *farrashes*,

natives of Iran, Turan, and Hindustan, 500 pioneers, 100 water-carriers, 50 carpenters, tent-makers, and torch-bearers, 30 workers in leather, and 150 sweepers.⁵
(Emphasis mine)

The encampment of a true field army during wartime would have been much more Spartan but far larger and more populous. Such a force was accompanied by a large contingent of support personnel, often at a ratio of one or more for every fighting soldier. Like the regular infantry they were recruited in great numbers from the sedentary peoples of India, Afghanistan and Iran. Critics of the Mughal military have often suggested that this glut of camp followers made their forces cumbersome and unresponsive, but all of these workers had a purpose and very specific duties. Pioneers and other laborers were responsible for literally clearing a path for the army as it moved, “to level the inequalities of the road, and to cut down the jungle, to admit the guns and carriages passing without difficulty.”⁶ This might entail repairs and improvements to existing roads or the creation of entirely new routes through forests, mountains and waste land as well as the bridging of rivers. They were supervised by a corps of engineers who oversaw not just road building but the construction of field fortifications and the dismantling of enemy structures. As a Mughal army passed through hostile territory, its pioneers typically left behind a network of small forts constructed of earth and timber, placed to secure their flanks and rear and to consolidate their gains. Other laborers were responsible for setting up and striking camp each time the army moved. When it was safe to do so, they often proceeded well ahead of the main force so that the soldiers would find their accommodations ready for them at the end of a long march. Guides were also sent forward to direct each unit to the proper route as it passed and to record and report their

progress. Scouts ventured even further ahead to search for enemy forces, ambushes and other dangers.⁷ While fighting was not the primary occupation of engineers, pioneers and other laborers, they were often exposed to many of the same hazards as their comrades in the combat arms. They frequently came under enemy fire while constructing siege works or building bridges during contested river crossings. Casualties in such operations could be quite severe, and the promise of bonus pay was used to keep workers at their posts while in danger. During the most intense fighting at the siege of Chittor, more than 100 laborers were killed in action each day, and Akbar rewarded the survivors so handsomely that “silver and gold were reckoned at the rate of earth.”⁸ On extended campaigns line troops were also called upon to perform manual labor as circumstances demanded. During peacetime, Imperial hunting parties and inspection tours were accompanied by large engineering and work crews that made repairs and improvements to the roads and bridges they travelled over or built entirely new structures as needed. Such work not only made their passage easier—it spread good will, facilitated civilian commerce and prepared for the time when those routes would be needed by real field armies travelling to the frontier in haste.

While at rest the army had access to blacksmiths, carpenters and other craftsmen who made necessary repairs to weapons and equipment. The soldiers were fed as units in large field canteens by a small army of cooks who were led by a *mir bakawal*, or Master of the Kitchen. *Mir manzils*, quartermasters and logisticians, organized and distributed foodstuffs and other supplies. These goods were carried by thousands of porters and their beasts of burden. Some of these were employed directly by the state, but many others were hired from the ranks of the *Banjaras*, a caste of professional porters and sutlers.

Originally a nomadic tribe from the present-day state of Rajasthan, they traveled and settled all over South Asia, selling their services to states across the region. The employment of porters was typical of how the Mughals managed their support services—with a cadre of state employees supplemented by private contractors as needed. In the Mughal military, the combat arms and support branches appeared to more closely integrated than they were in other contemporary armies, where logisticians, engineers and even artillerymen were often administratively and socially isolated from the “real” soldiers. This may have been an outgrowth of the Imperial government bureaucracy, in which officials commonly held both civilian and military ranks. Commissioned officers were routinely delegated to supervise the more mundane departments of the army, such as quartermasters, animal handlers and common laborers. Many of these laborers were paid on the same scale as infantrymen, and a number of them were included on the rolls of the *dakhil*, or central personnel bureau. Along with musketeers and other foot soldiers, mansabdars were also assigned porters, pioneers, carpenters and blacksmiths from this pool. Workers of such humble status had the opportunity to advance in rank and become non-commissioned and even commissioned officers. Akbar did caution such “risen men” to keep the tools of their former trades close at hand, as a reminder that what they gained by merit could be just as easily lost by complacency and poor performance.⁹

The Mughal army also employed many thousands of non-human workers. These included the animals used for fighting—war horses and war elephants—as well as countless beasts of burden—horses, mules, oxen, camels and elephants. Even as their utility in combat diminished, elephants retained their role as essentially living tractors and bulldozers, used for pulling the heaviest artillery pieces, towing boats and barges,

grading roads, clearing timber and other obstacles and even dismantling enemy fortifications. The Mughal military kept as many as 40,000 elephants on duty and even larger numbers of lesser draft animals. A large field army, for example, may have had as many as 100,000 oxen on hand. All of these animals—and the men who worked with them—were as carefully managed and regimented as the other branches of the army. Animals were listed on their own muster rolls and subjected to periodic roll calls and inspections. Each species and classification of animal had its own department.¹⁰ Oxen and their handlers, for example, were managed according to the following rules:

In the stables, one man is appointed to look after four head of cattle. Eighteen such keepers in the first stable get 5 *dam* (small denomination coins) per diem, and the remaining keepers, 4 *dam* (*d.*) In other stables, the salary of the keepers is the same, but each has to look after six oxen. Of the carriage drivers, some get their salaries on the list of the Ahadis, (junior officers) others get 360 *d.*, others 256 *d.* down to 112 *d.* *Bahals*, or carriages, are of two kinds: *chatridar* or covered carriages, having four or more poles, which support the *chatr*, or canopy, and those without a covering. Carriages also suited for horses are called *ghurbahals*. For every ten wagons, 20 drivers and 1 carpenter are allowed. The head driver, or *mirdahah* and the carpenter, get each 5 *d. per diem* and the others, 4 *d.*... If a horn of an ox was broken, or the animal went blind, the *daroghah* (superintendent, or in this case, wagon master) was fined one-fourth of the price, or even more, according to the extent of the injury. Formerly the *daroghahs* paid all expenses on account of repairs, and received for every day that the carriages were used, half a *dam ung* (lubricant) money. *Ung* is hemp smeared with *ghi*, (clarified butter) and twisted round about the axle-tree which, like a pivot, fits into the central hole of the wheel, and thus prevents it from wearing away or getting broken... At first, it was only customary for the carts to carry on marches a part of the baggage belonging to the different workshops; but when the drivers performed the duties of the *daroghahs*, they had also to provide for the carriage of the fuel required... and for the transport of building materials. But subsequently, 200 wagons were set aside for the transport of building materials,

whilst 600 others have to bring, in the space of ten months, 150,000 *mans* (1 *man*, or *maund* = about 40 pounds) of fuel to the Imperial kitchens... The allowance of grain for every cart-bullock was fixed at 4 *seers* (1 *seer* = about 2 pounds) and 1½ *d.* were given for grass... There were also appointed for every eighteen carts twelve drivers, one of whom must understand carpenter's work. Now, if a bullock dies, government supplies another in his stead, and likewise pays for the *ung*, and the expense of repairs. The cattle that are worked are mustered once a year by experienced men who estimate their fatness or leanness; cattle that are unemployed are inspected every six months. ¹¹

Manufacturing and Procurement

Unlike their predecessors under Babur and Humayun, the men and beasts of the Mughal army during the reign of Akbar rarely had to live off the land. As the Empire grew, its forces had the luxury of operating from interior lines. Continuing expansion was gradual and incremental, and Imperial armies rarely had to travel deep into the wilds, far beyond frontiers and friendly territories. Both operations and tactics were deliberate and methodical, with their newly occupied territories secured through construction of roads and outposts and their front lines and battlefields shaped by field fortifications and the careful coordination of cavalry, infantry and artillery. Not surprisingly, Mughal armies and their large contingents of support personnel usually moved fairly slowly while on campaign, averaging perhaps ten miles a day. In emergencies, however, some forces—especially cavalry operating independently—could move much faster. In order to forestall a military coup by generals from Central Asia, Akbar gained surprise over the assembling rebel forces by leading his Imperial guard on a march of over 70 miles in about 36 hours. In order to put down a rebellion in the newly conquered province of Gujarat he led a division of cavalry from Agra to Ahmedabad, covering a distance of

more than 600 miles in 9 days and once again catching the enemy unprepared. Yet in most cases it was the Mughals who were the emergency that their adversaries were forced to respond to. As their holdings continued to expand they gained the luxury of patience, the ability to act rather than react and to dictate the time, place and pace of wars, campaigns and battles. The Mughal armies may have been slow, but they were far from cumbersome. They could operate in almost any terrain and all year round, outside of the traditional Indian campaigning season during the fall and winter dry period.¹²

The Mughal military was so flexible in large part because it maintained an extensive organization devoted to procuring and manufacturing the supplies and equipment that all of its soldiers and the people supporting them would need in the field. A special supplementary tax was assessed on all agricultural holdings, and the proceeds from this fee, often including payments of foodstuffs in kind, were used to stock *thanas*, or supply depots distributed throughout the Empire. These supplies could be used in response to civilian disasters like droughts and floods, but they were most commonly used to provision armies encamped nearby or passing through en route to the frontier. Keeping all of the Emperor's men fed required extensive planning and attention to detail. The "Master of the Kitchen" was not simply a ceremonial post.

Trustworthy and experienced people are appointed to this department; and all good servants attached to the court, are resolved to perform well whatever service they have undertaken. Their head is assisted by the Prime Minister himself. His Majesty has entrusted to the latter the affairs of the state, but especially this important department. Notwithstanding all this, his Majesty is not unmindful of the conduct of the servants. He appoints a zealous and sincere man as *mir bakawal*, or Master of the Kitchen, upon whose insight the success of the department depends, and gives him several upright persons as assistants. There are also treasurers for the cash and the stores...

In the beginning of the year the Sub-treasurers make out an annual estimate, and receive the amount; the money bags and the door of the store-house being sealed with the seals of the *mir bakawal* and...every month a correct statement of the daily expenditure is drawn up, the receipt for which is sealed by the same two officers, when it is entered under the head of the expenditure. At the beginning of every quarter, they... collect whatever they think will be necessary... *sukhdas* rice from Bahraich, *dewzirah* rice from Gwalior, *jinjin* rice from Rajori and Nímlah... ducks, water-fowls, and certain vegetables from Kashmir... The sheep, goats, fowls and ducks... are fattened by the cooks. Fowls are never kept longer than a month. The slaughter-house is without the city or the camp, in the neighborhood of rivers and tanks, where the meat is washed, when it is sent to the kitchen in sacks sealed by the cooks. There it is again washed, and thrown into the pots. The water carriers pour the water out of their leather bags into earthen vessels, the mouths of which are covered with pieces of cloth, and sealed up; and the water is left to settle before it is used. A place is also told off as a kitchen garden, that there may be a continual supply of fresh greens. The *mir bakawal* and the writer determine the price of every eatable... and they sign the day book, the estimates, the receipts for transfers, the list of wages of the servants... and watch every transaction. Bad characters, idle talkers, unknown persons are never employed; no one is entertained without security, nor is personal acquaintance sufficient.¹³

Of course the quality of fare enjoyed in peacetime and by the highest ranking officers was not always available to ordinary troops. During extended operations they often had to rely on much more basic iron rations. As one observer noted during a difficult campaign, “the horseman as well as the infantry soldier supports himself with a little flour kneaded with water and black sugar, of which they make small balls, and in the evening... they make khichari, which consists of rice cooked with grain... in water with a little salt.”¹⁴

Whatever the army could not prepare in advance and carry with it could be purchased on site. Field forces were usually assigned their own generous treasuries, so that necessary goods could actually be purchased with hard currency and not simply requisitioned and exchanged for promissory notes and scrip. A supply of ready cash also meant that the army could keep its troops' pay reasonably current and it could recruit in the field as needed to make good its losses. Forces were also accompanied by private merchants who sold both basic commodities and luxury goods and by bankers who advanced short term loans to individual officers and, in more exigent circumstances, to the commander and the army as a whole. As Jos Gommans notes, while the Mughal army may have been in some sense a "nomadic" institution, it had evolved far beyond its distant tribal origins or even the ad-hoc, patchwork organization of the early days under Babur. It was an army of "professional soldiers depending on the logistical and financial assistance of professional transporters, bankers and merchants."¹⁵ For this reason it rarely had to rely on foraging and plunder. When the Mughals did conduct such actions, it was usually done as a calculated measure of intimidation and coercion against enemy or rebellious populations. Likewise, they did not normally have to resort to the practice of quartering, or forcing civilians to provide shelter for troops—an imposition that was a major point of contention between states and their subjects in other early modern settings. The Empire's network of military bases and depots and the elaborate portable housing provided while on campaign made it unnecessary. Like foraging, however, quartering was sometimes used as a punitive measure. Mughal troops billeted in rebellious or recently occupied towns and villages maintained a higher level of surveillance and

control and served as an unspoken threat to hostile forces still in the field, whose families and neighbors were now under close guard.¹⁶

In addition to foodstuffs and other consumables, the Mughals also maintained large stocks of manufactured goods. Much of this equipment—especially weapons and ammunition—was made in state-run *kar khaneh*, or workshops and factories. The Emperor's agents were especially interested in controlling the manufacture of and maintaining a monopoly over gunpowder weaponry. In the case of artillery they were reasonably successful. There were few foundries capable of building cannon left outside of the state's control, and most of those could be easily monitored. Assembling both the financial resources and the technical expertise to establish an independent gun-founding operation—and doing so in secret—would have been a very difficult task. The Empire, however, was much less successful in preventing the proliferation of small arms. Muskets were inexpensive and mechanically simple, and they could be manufactured by any competent village blacksmith. Once its formula was understood, gunpowder also became ubiquitous. It could be mixed, ground and corned with tools found in any kitchen. Charcoal and sulfur were widely available. Unfortunately for the central authorities, the best deposits of saltpeter—the most difficult to obtain component—were located in the eastern regions of Empire where armed commoners and local militias were most prevalent.¹⁷ Yet even as small arms became commonplace, the Mughal workshops—at least for the equipment issued to elite troops—maintained higher standards for quality control, testing and inventory management.

When a (musket) barrel is completed lengthways, before the transverse bottom piece is fixed to it, they engrave on it the quantity of its iron and the length, both being expressed

in numerals. A barrel thus far finished, is called *daul*. In this imperfect state they are sent to His Majesty, and delivered, in proper order... At the same time, the weight of the ball is fixed, and the order is given for the transverse section of the matchlock... When the barrels are polished, they are again sent... and preserved in proper order. They are afterwards taken out, and closed by the order of His Majesty with a transverse bottom piece. Having been put to an old stock, they are filled to one-third of the barrel with powder, and fired off. If no *tarawish* (failure) takes place, and the trial is satisfactory, they take the barrels again to His Majesty, who gives the order to finish the mouth piece of the barrel. After this the gun is again placed on the stock, and subjected to a trial. If the ball issues in a crooked line, the barrel is heated, and straightened by means of a rod introduced into it, and, in the presence of His Majesty, handed over to a filer. He adorns the outside of the barrel in various ways, according to orders... The wood and the shape of the stock are then determined... Several things are marked on every matchlock... the weight of the raw and the manufactured iron, the former marks being now removed, the place where the iron is taken from, the workman, the place where the gun is made, the date, its number. Sometimes... one of the unfinished barrels is selected, and completed at His Majesty's command. It is then entered in another place, the transverse bottom piece is fixed, and the order is given to make the cock, the ramrod, the *pargaz* (the socket for the ramrod)... As soon as all these things have been completed, a new trial is ordered; and when it succeeds, they send in the gun, and deliver it a third time... In this state the gun is called *sadah* (plain)... The order for the color (enamel) of the barrel and the stock is now given; one of the nine kinds of color is selected for the stock. ¹⁸

As with personnel, the military goods produced by the state workshops were supplemented by the products of private craftsmen and merchants. This was especially true of less sensitive equipment like edged weapons, armor, tools, saddles and tack. While soldiers in the Imperial standing army and the dakhil personnel pool were equipped mainly from government stores, mansabdars and other officers usually had to purchase equipment for themselves and their troops from private vendors. A portion of

their salaries was designated for this purpose. Fortunately weapons, armor and other metal goods of very high quality were widely available in Indian markets. The superior quality of these items was widely acknowledged by both native and foreign observers, and such products were in high demand by consumers abroad.¹⁹

There were few commodities or manufactured items that could not be gathered, assembled or readily purchased within the borders of the Empire. India was one of the wealthiest regions on Earth, lacking only in two strategic resources. The first of these was precious metals. That absence, however, was easily remedied, as the Mughals traded a wide variety of both raw materials and finished goods for specie from Europe, the Middle East and Central Asia. The other deficit was more problematic. Throughout the Imperial era South Asia was a net importer of horses—animals essential for transportation, labor, and, above all, warfare. The Mughals employed vast numbers of cavalry—by Akbar’s reign they probably had more than 100,000 horse soldiers in their front line forces and as many as 400,000 with the inclusion of allies, local militias, and mercenaries. Ideally, each one of these troops would have not just a single horse but at least one remount—and any of these animals might have to be replaced on short notice. India’s harsh sub-tropical climate, the prevalence of disease and parasites, the demands of campaigning and combat operations, and the inherent fragility of the horse led to a tremendous rate of attrition, much higher than what could be made good through local breeding. Even when Indian horses were available in large numbers such *tattu* breeds were acknowledged to be of inferior quality than foreign stock. *Arabi* and *tazi* horses from the Middle East were quite popular for racing and hunting and as officer’s mounts, but *turki* horses from Central Asia were the working steeds of choice for Mughal cavalry. They were larger than Indian

or Arab horses and were considered to be more reliable in both constitution and temperament. Both the high losses and the inferior quality of native animals drove a massive influx of imported stock, amounting to many millions of horses over the course of the Empire's expansion. Turki horses were primarily imported overland from Central Asia, through the passes of Afghanistan, by professional horse traders from those regions. They sold their stock at horse fairs around the periphery of India. Both private citizens and government purchasing agents attended these fairs to buy animals already on hand and to place orders for future shipments. A smaller number of horses came by ship from Persia and Arabia. These were sometimes referred to as *bahri* horses, or "sea horses." There were also horse breeding grounds within India, especially in more rugged areas like Rajasthan, southern Gujarat and parts of the present day states of Uttar Pradesh and Bihar—terrain that was unsuitable for agriculture but ideal for grazing stock. These places were also popular staging areas for imported horses and sites for horse trading fairs, as the easy grazing allowed animals to recover and regain condition after the arduous journey from Central Asia. Even if the Indian horses were not as popular as their foreign counterparts, the Empire's insatiable demand meant that there was still a market for them as draft animals, spare mounts or mounts for aspiring soldiers of lesser means. Other species—camels, donkeys, mules, and oxen—were bred within India in large numbers. Native animals of these types were judged to be of high quality, and there was little need for imported stock. As with horses, these animals were raised in marginal areas ideal for grazing but not for agriculture. In the case of elephants, access to tracts of outright wilderness, like the dense forests and jungles of Gondwanaland, eastern Bengal and the Nepali frontier, was ideal. The long gestation period—nearly two years—and late

breeding age—about 25 years—of elephants made it more practical to catch new animals in the wild than to breed them in captivity. In all of these instances, regions of seemingly unproductive “waste” land were essential in assembling the Mughals’ vast four-legged army of working and fighting animals. As Jos Gommans frequently notes, the Empire’s position on the border of ecological, economic and cultural zones—between humid and arid, settled land and wilderness, agricultural and pastoral, sedentary and nomadic—and its ability to effectively utilize resources from both sides of that divide were among its greatest assets.²⁰

Medicine

Even if soldiers were adequately fed, well armed and equipped and provided with mounts and other animal helpers, they could not perform their duties if they were not healthy. For this reason the Mughal court and the armies in the field kept dozens of doctors on staff, and the Emperor and other high ranking officials also retained personal physicians. They held doctors in quite high esteem. A number of physicians became commissioned officers, and a few became senior mansabdars, with sawar ranks as high as 5,000. Most of these healers were trained in *yunani*, or Greek, medicine, the system then prevalent in the Islamic world. As the name implies, it was originally derived from the teachings of Classical physicians and scientists like Hippocrates and Galen. Arab and Persian scholars preserved and compiled these works during the medieval era and supplemented them with their own original research. The most prominent of them was Hakim Ibn Sina, or Avicenna, whose compendium, *The Canon of Medicine*, was still a standard text in the early modern period. Over time the Mughals’ “Greek” doctors were supplemented by a growing number of practitioners trained in the indigenous Indian, or

Ayurvedic, system of medicine. Earlier Arab trade with India had already led to the inclusion of some Ayurvedic elements into the yunani school. Akbar, with his eclectic tastes, decided that these teachings were worthy of further investigation. Eventually some physicians began to cross train in both disciplines.²¹

While there were a number of doctors on hand to treat nobles and officers, it is not clear how many physicians were assigned to care for ordinary soldiers. The Mughals' approach to civilian public health, however, was quite generous. By Jahangir's reign, *khalisa* revenues—taxes collected from districts administered directly by the Crown—were being used to build hospitals and pay medical staff in the Empire's major cities.²² Practical considerations alone suggest that treatment for wounded and sick troops would command the same high priority and commitment of resources. If a wounded soldier did make it to a doctor, his chances of recovery were surprisingly good. Indian and Central Asian physicians in this era were highly skilled in first aid and emergency medicine, and they were capable of performing remarkably complex surgical procedures. Babur was quite impressed by the ability of a Mongol surgeon who treated his men.

He was wonderfully skilful in surgery. If a man's brains had come out he could cure him by medicine; and even where the arteries were cut he healed them with the utmost facility. To some wounds he applied a kind of plaster; and to some wounded persons he gave a medicine to be swallowed... He also said, 'A man had once the bone of his leg broken in such a manner that a part of the bone, of the size of the hand, was completely shattered to pieces. I cut open the integuments, extracted the whole of the shattered bones, and inserted in their place a pulverized preparation; the preparation grew in the place of the bone, and became bone itself, and the leg was perfectly cured.' He told me many similar strange and wonderful stories of cures.²³

Other doctors were able to perform simple brain surgery—usually to relieve a buildup of pressure inside the skull—and plastic surgery to repair facial injuries and rebuild damaged or severed noses and ears. Indian physicians, however, also had serious deficiencies.²⁴ Like their contemporaries in Europe and other parts of the world they had an excellent grasp of anatomy but little understanding of biochemistry, microbiology or infectious disease. Sickness was often blamed on an imbalance of bodily humors and treated with highly counterproductive measures like bleeding. Medics in the field were nearly helpless in the face of epidemics. The Mughal military, like most other pre-modern armies, lost many more men to disease than to combat. Even the highly esteemed and highly paid personal physicians of the elites were often unable to save their charges from serious illness. A poet of the day summed up their distress.

Bid the druggist close his shop,
I've tried his drugs a thousand times,
Remove the doctor's forefinger, that the sick man
May cease chiding, and the pulse will remain calm.

The antidotes do the work of poisons,
Methinks the asp thereof has got new life.²⁵

One especially critical medical failure did have a very positive outcome for the Mughals. After his accidental death, Sher Shah Suri was succeeded as leader of the new Sur Dynasty by his equally capable son Islam Shah. The Afghan empire might very well have continued to thrive and expand, and the Mughal Empire could have been stillborn, were it not for a fateful narrowing in the new king's urethra. This urethral stricture caused a painful retention of urine. At that time the standard treatment for such an ailment was a crude version of the modern systoscopy—a heated wire was forced through the passage

in order to clear the blockage. Islam Shah's physician was apparently not competent enough to accomplish this task. By some accounts, the king was so mistrustful of his doctor that he attempted to perform the procedure on himself. Unfortunately for the Afghans and very fortunately for the Mughals, whoever did end up holding the wire had an unsteady hand. The heated tip penetrated far too deeply and ruptured the king's bladder. He eventually died of this injury, after days of agony. Islam Shah was followed to the throne by a child king, who was promptly assassinated. That murder provoked the civil war which gave Humayun his chance to return to India and begin the process of winning back his empire. After Humayun's own untimely death, Akbar continued that process. His achievements ensured that it would be almost two more centuries before the Mughal Empire faced another threat to its existence as dire as that posed by the Suris.²⁶

The bodies of men of rank who died of misadventure were normally returned to the capital or to their home territories for funeral ceremonies and burial. Common soldiers who were killed in action or died in the field of other causes, however, were buried or cremated where they fell. In anticipation of high casualties from combat or disease, cemeteries were sometimes prepared in advance along with the quarters for living soldiers, so that troops arriving at the front found "tents... filled on one side, and graves upon the other."²⁷ Enemy dead were also disposed of on the spot, but on occasion their remains were used to send a message. Babur, while suppressing a rebellion by Afghan tribes, built a series of grisly monuments to commemorate his success and deter any future impertinence.

The moment my troops advanced upon them, the Afghans found that they could not stand their ground, and in an instant a hundred or a hundred and fifty of them were brought

down; of these some were brought in alive, but only the heads of the greater part of them... Orders were given for beheading such of them as had been brought in alive, and a minaret was erected of their heads at our next halting-place... The troops, immediately on coming up to the *sangar*, (earthworks) stormed and took it, and cut off a hundred or two hundred heads of the refractory Afghans, which they brought down along with them. Here also we erected a minaret of heads... a general massacre ensued, and a number of heads were cut off and brought back to the camp... Of the heads a pile of skulls was formed in the Bannu country.²⁸

Prisoners

Towers of skulls were a demonstration that would have been familiar to Timur or Chingiz Khan. The use of such methods by the Mughals suggests continuity with that “barbaric” past, but Babur and his successors were clearly conflicted over their treatment of defeated enemies—between their supposed roles as enlightened, merciful rulers and the harsh realities of seizing and holding an empire. By the start of Babur’s career, there had already been some moderation in Central Asian attitudes towards the rules of war. Widespread massacres and other forms of collective punishment against defeated foes were not as widespread as they were in Timur’s day, and the weight of reprisals usually fell more heavily on fighting men than on noncombatants. Babur himself profited from this development. After forcing Shaibani Khan and the Uzbeks to conduct a lengthy siege at Samarqand, he was still granted terms and allowed to leave the city with his troops under arms. In an earlier era, such temerity might have resulted in the slaughter of Babur, all of his men and perhaps a substantial portion of the city’s inhabitants. Babur, Shaibani Khan and their Turkish and Mongol contemporaries subscribed to the *mazab-i-intikham*, or Laws of Retaliation.²⁹ This code may have had its roots in the nomadic era, with its

tribal conflicts, blood feuds and vendettas. Its precise provisions are unclear, but under certain circumstances it allowed for the withholding of quarter from defeated enemies and the summary execution of those already in custody, assuming they had committed some wrongs against their captors. There were, however, clearly procedures and rituals in place for offering and receiving surrender. As Babur noted, “the Afghans, when they are reduced to extremities in war, come into the presence of their enemy with grass between their teeth, being as much as to say ‘I am your ox’.”³⁰ Babur often granted such requests for quarter, yet on many other occasions he did not. His decisions to spare or execute prisoners appear random and arbitrary, but they may have been in accordance with conditions established in the Laws of Retaliation or some other personal code of honor. He may also have been more ruthless with opponents that were culturally alien to him, such as Afghan tribesmen or Hindus, who did not follow the established rules and norms and therefore were not entitled to their protection.

By the end of Akbar’s reign, the Mughals had adopted a more systematic and enlightened approach to the treatment of defeated enemies. There were reasons both moral and practical for such a change. Mercy was a central tenet of Islam, and a warrior who exercised forbearance could expect that “his reward in this world and the next will be enhanced.”³¹ Fair and humane treatment of the newly subjugated was also in accordance with the “Akbari Constitution” and the concept of an Empire and a supremely gifted, divinely appointed Emperor dedicated to the pursuit of the common good. The avoidance of unnecessary violence and cruelty made it more likely that those incorporated by the growing Empire would accept their lot and not seek revenge for past crimes or rebel out of fear of future atrocities. A number of commanders in the field

issued standing orders against unnecessary plunder and attacks on civilians and disciplined subordinates who harmed prisoners that had been promised clemency.³²

Akbar himself issued proclamations mandating the protection of non-combatants and defining clear rules of war.

One of the glorious boons of His Majesty... was the abolition of enslavement. The victorious troops... used in their tyranny to make prisoners of the wives and children and other relatives of the people of India, and used to enjoy them or sell them. His Majesty... out of his thorough recognition of and worship of God, and from his abundant foresight and right thinking gave orders that no soldier of the victorious armies should in any part of his dominions act in this manner. Although a number of savage natures who were ignorant of the world should make their fastnesses a subject of pride and come forth to do battle, and then be defeated by virtue of the emperor's daily increasing empire, still their families must be protected from the onset of the world-conquering armies. No soldier, high or low, was to enslave them, but was to permit them to go freely to their homes and relations. It was for excellent reasons that His Majesty gave his attention to this subject, for although the binding, killing or striking the haughty and the chastising the stiff-necked are part of the struggle for empire—and this is a point about which both sound jurists and innovators are agreed—yet it is outside of the canons of justice to regard the chastisement of women and innocent children as the chastisement of the contumacious. If the husbands have taken the path of insolence, how is it the fault of the wives, and if the fathers have chosen the road of opposition what fault have the children committed? Moreover the wives and innocent children of such factions are not munitions of war! In addition to these sound reasons there was the fact that many covetous and blind-hearted persons from vain imaginings or unjust thoughts, or merely out of cupidity attacked villages and estates and plundered them, and when questioned about it said a thousand things and behaved with neglect and indifference. But when final orders were passed for the abolition of this practice, no tribe was afterwards oppressed by wicked persons on suspicion of sedition. As the purposes... were entirely right and just, the blissful result ensued that the wild and rebellious inhabitants of portions of India placed the ring of

devotion in the ear of obedience, and became the materials of world empire. Both was religion set in order, for its essence is the distribution of justice, and things temporal were regulated, for their perfection lies in the obedience of mankind.³³

Yet the proclamation of such noble ideals did not mean that the Mughals would refrain entirely from brutality. Like other aspects of governance and warfare, reprisals were being centralized and rationalized. Akbar and his successors worked to ensure that the decision to employ force and violence beyond the requirements of combat should be made by the authority of the ruler and the state or their appointed representatives, not at the individual discretion of officers or soldiers. The new rules did not put an end to the seizure of property or even the enslavement of defeated enemies but mandated that such measures should only be carried out with the proper authorization. There were specific circumstances that, at least for the Imperial authorities, justified the use of such harsh sanctions. The most urgent of these was rebellion or participation in warfare by unauthorized combatants—by civilians fighting outside of the armed forces of a recognized ruler or state. Such opponents were treated as bandits and criminals. They were often refused quarter or subjected to summary punishment and execution after capture. Communities that supported guerrillas and irregular militias involved in rebellion or organized outlawry risked severe collective punishments. These measures could include fines, seizure of property, and the involuntary quartering of government troops. In the most extreme cases entire villages were dismantled, with their populations sent into internal exile or with all military-age men put to death and the women and children taken into bondage and shipped off to the slave markets of Central Asia or Persia. Akbar's successor Jahangir, with the assistance of his notorious enforcer and

hanging judge Abdullah Khan Firoz Jang, would pursue an especially harsh program of suppression against militias, rebels and otherwise unruly subjects. Jahangir's reign in general was marked by a harsher attitude towards prisoners of all sorts and appeared to be a step back from Akbar's more enlightened attitudes.³⁴ The specter of a more organized rebellion by India's unusually well armed population and the relative fragility of the Mughal central authority are obvious explanations for the use of such extreme measures as a prophylactic. Other contemporary states, however, were also struggling, with limited success, to gain a monopoly on organized violence. The high incidence of civil disorder and criminal violence in early modern Europe also influenced that region's ongoing dialog on the rules of war. Guerrillas and other irregular combatants did not fare well under this emerging code of conduct. Collective punishments against noncombatants became less and less acceptable, but even by the end of the 19th century, articles like the Hague Conventions allowed civilian combatants operating clandestinely and without authorization from a regular military organization to be treated as criminals and not prisoners of war.

The Mughals were also puzzled and frustrated by local rebellions because such actions seemed so obviously futile. What chance did a single village, town or tribe have against the resources of one of the world's most powerful states? Even more organized and recognized combatants could expect harsh treatment from the Empire if they continued to wage war past any reasonable hope of victory. While the Mughals did not hesitate to take lives if they deemed it necessary, they preferred not to waste lives, and they usually offered generous terms to enemies who agreed not to fight a pointless battle or unnecessarily extend a siege. While there were no rules as clearly defined as the

ancien regime “siege in form,” it was expected that a besieged enemy would surrender soon after a practicable breach was made in their defenses. If the assailants were forced to take their objective by storm, the consequences for the defenders were usually dire. Beyond any desire for punishment on the part of their commander, attacking soldiers forced to endure extended close combat and heavy casualties were likely to lose control and take out their frustrations on the defending troops and their civilian wards.³⁵ One of the worst single atrocities in the history of the Empire took place after such a bitterly contested siege. When the fortified city of Chittor finally fell to the Mughals after an extended struggle outside its walls followed by bloody street fighting inside them, Akbar allowed a merciless sack and ordered a general slaughter of adult males. More than 20,000 may have perished in this massacre. The Emperor was incensed by the punishment the defenders had inflicted on his forces, and he was particularly angry that a large number of civilians had taken up arms to defend their city. His judgment might also have been impaired because he had been fighting on the front lines with his troops and was still experiencing the stress and disorientation of combat.³⁶ Akbar and Babur often led from the front, and commanders during this era were usually very close to the action. Such direct participation during battle could have prevented leaders from thinking critically and maintaining a degree of detachment in its aftermath. They may have fallen prey to the same temptations as the men they commanded and continued to lash out even after the fighting was done. Even the highest ideals and standards of conduct were not always a match for the passions of the moment.

Some members of the Indian nobility, most notably the Rajputs, preferred death to dishonor and would perform *shaka*, or suicide by combat, rather than face capture. For

most soldiers from South and Central Asia, however, surrender and captivity were not an irredeemable shame. There are a few reported incidents of high ranking prisoners committing suicide shortly after being captured, but it is unclear whether these acts were motivated by shame or by fear of future punishment. Ordinary prisoners who managed to survive the emotionally charged moments in the immediate aftermath of combat and capture had reasonably good long term prospects. Captives often remained for a time with the force that had taken them, and they were typically made to work as camp followers in order to earn their keep. Sometimes they were assigned to special punishment details or probationary detachments so that they could earn their way into the Empire's good graces. If there were fortresses or military bases nearby, these installations could be used to warehouse prisoners. Some of those captives were granted parole and allowed to take up civilian lodgings in the area under minimal supervision.³⁷ Parolees were frequently required to post money or valuables as bail in order to guarantee their good behavior. Special captives—those of high rank or those who had distinguished themselves with especially valorous or treacherous behavior—were transported to the capital for review and disposition at the royal court. Prisoners charged with criminal or treasonous deeds might be subjected to acts of public, ceremonial humiliation, like being paraded through the streets dressed in rags or wearing animal costumes symbolizing their status as prey. They were lucky if only their pride was harmed. Those convicted of the most serious crimes faced corporal punishment, torture, and execution, (or a combination of all of the above) also administered in public as a salutary example.³⁸ Those prisoners who were seen as both virtuous and potentially valuable were interviewed for admission into the ranks of the Mughal officer corps. The Mughals did not prefer to keep captives

for extended periods. High profile political prisoners were the one exception to this rule. The great fortress at Gwalior was eventually converted into a maximum security prison, the Mughal equivalent of Alcatraz or Guantanamo Bay. Notorious rebels, recalcitrant nobles and losers in Imperial succession struggles were held there, often for the remainder of their lives. Ordinary prisoners of war were disposed of more quickly. Those not singled out for execution or other judicial punishments were released at the end of a war or campaign. Captives were frequently used as leverage against enemies still in the field, and releases and prisoner exchanges were part of the formal proceedings when the Mughals and their opponents finally agreed to cease hostilities. Freed prisoners who were still fit and able rejoined the military labor market. Many former enemy soldiers eventually joined the ranks of the Mughal army, especially if their commanders had already been pardoned and taken on as officers.³⁹

The Mughals sometimes had to imprison or punish their own soldiers for criminal acts or insubordination. Corporal punishments such as whipping, branding and the cutting of noses and ears were administered to enlisted men who committed serious offenses like theft, abandonment of guard posts or absence without leave. The worst offenders could face capital punishment.⁴⁰ Perhaps the most convincing threat to keep soldiers in line, however, was the prospect of being stricken from the rolls and sent home. The abundance of skilled labor in the Indian military labor market meant that miscreants and slackers were easily replaced. Officers that performed poorly could be demoted or even sacked. While punishments for officers who broke the rules were usually more gentlemanly, there were a few spectacular exceptions. Akbar had a sometimes volcanic temper, and on a few occasions he had commanders who failed him publicly humiliated and beaten.⁴¹ The

most notorious instance of rough justice dealt out to a person of high rank took place during the campaign to retake India from the Afghans. Bairam Khan, who had been appointed regent after the death of Humayun, ordered the execution of Tardi Beg, one of his most experienced and respected generals, for cowardice in the face of the enemy. This punishment, imposed after Tardi Beg decided to retreat rather than confront an Afghan force threatening Delhi, was the cause of considerable controversy at the time. The ultimate sanction was more typically carried out against officers and nobles guilty of actual treason—those who defected to the enemy or participated in rebellions.⁴² Mutinies by enlisted soldiers were not seen as such a serious threat. Almost all of these events were not violent uprisings but simple work stoppages motivated by issues like delayed pay or poor rations and accommodations. Such disputes were usually resolved by negotiation. In a few instances the soldiers' complaints were actually accepted as legitimate and their commanding officers were held responsible for these problems.⁴³

Akbar and his agents understood the need for a force separate from the regular army that could enforce the law in a less arbitrary manner, settling disputes and keeping the peace among both soldiers and civilians. They established dedicated police forces supervised by *kotwals*, or police superintendents, that were attached to each military district. Their specific powers, duties and responsibilities were established by statute. Let them (district commanders) be attentive to the regulations of the *kotwal*, or police magistrate; and, if in any of the cities there be no such person, let them strive in giving effect to the sections of the regulations hereafter detailed, and endeavor to execute this office to the best of their ability. As one person, however, cannot execute everything relating to this office, let them use their utmost efforts to entrust the different departments to good men. In this matter, let them assign each his portion of business, of which the

different departments will be here detailed. Let them, therefore, entrust this office to a well-informed person, and let them not ignorantly suppose that it is not fit to be attended to; but, knowing, on the contrary, that it is one of great responsibility, let them labor in this department according to the following detail:

1st. The *kotwal*, in all cities, towns, and villages, must, in connection with the government writers, keep a list of the houses and buildings, and must enter in a book the inhabitants of each quarter, mentioning the individual houses, the men who inhabit them, the number of cultivators, the tradesmen, the soldiers, and others. By also taking bail from every house, he must thus unite the community, and, apportioning the place into divisions, must station a superintendent of every quarter, to be answerable for the good or evil deeds there committed. He must also station a spy in each quarter to give a daily account of every transaction that takes place, and to make arrangements for all the neighbors assisting, whenever a theft, a fire, or other such event, happens. In such matters, let all persons in the neighborhood assist the superintendent of a division and the government police; and, should they not do so on all necessary occasions, they will be to blame, and must be set down as having acted improperly. When any person quits his house, let him give it in charge to a neighbor, or the government policeman appointed to that quarter; and, whenever a guest is in any one's house, whether friend or stranger, let the master of the same acquaint the superintendent of the division of such a one's arrival, whose name will be written in a register. In short, let one or more guards be stationed in every quarter to write down the arrivals and departures, with other transactions in the place; and, when any one comes alone to the division, let them demand bail of him, and not permit him to live there, unless he can give such. Let them send all such as cannot find bail to live in a separate quarter; where a superintendent and a police must be stationed, in order secretly to discover the income and expenses of each individual. Any person whose income is less than his expenses must be certainly in fault, and let them inquire into such accordingly; but, in this matter, by not forgetting what is proper and virtuous, let them know that such an investigation is necessary for good regulation, and not for the purpose of seizing on men's property.

2d. The *kotwal* must appoint one or more brokers, to transact the various kinds of commercial business; and, after taking security from them, must station such in the market-places, that they may afford information regarding such things as are bought or sold. He must also make it a rule that every person buying or selling, without the advice of the above-mentioned brokers, will be deemed in fault; and that both the name of the buyer and seller must be written in the register of daily transactions. Everything, therefore, must be bought or sold in connection with the superintendent of that particular division and the government policemen.

3d. Let him station a nightly guard, for the protection of the division in the by-paths and neighborhood of the city.

4th. Let him take care that there be no strange persons in the division, by-streets, or market-places.

5th. Let him search after and find out thieves, through the aid of pickpockets, shoplifters, and other such persons; and, whenever anything in the neighborhood may be lost or plundered, such persons must either produce the thief or forfeit the benefit of their contract with government in this matter. ⁴⁴

Intelligence

The Imperial government employed other less obvious agents to impose surveillance and control. The Emperor and other high ranking officials routinely placed spies on the staffs of their subordinates so they could immediately detect any disloyalty, dishonesty or negligence. Likewise, intelligence agents were sent to mingle with the general population in order to search out criminal activity or hints of political instability.

⁴⁵ “Experienced spies and traders” visited neighboring countries to map their roads and terrain “make investigations about [their] revenue and expenditure” in anticipation of future military operations. ⁴⁶ Armies already in the field kept their own detachments of scouts and spies. These men spread out through the countryside, searching out the best

routes of advance and discovering the disposition of enemy units. Spies did more than just observe the opposing armies. They often infiltrated these forces, posing as soldiers or laborers. It was very difficult to defend against espionage in armies that were composed of men from a wide variety of ethnic and social backgrounds and that included large numbers of foot soldiers and support personnel wearing only simple uniforms or drab civilian clothes. Convincing disguises were not hard to maintain, at least for a short time. Some spies, however, needed no disguise at all. Itinerant merchants and holy men were often recruited as intelligence agents because they were anonymous, ubiquitous and constantly travelling—people who always had an excuse to be nearby. While in the enemy camp, spies took note of their numbers, equipment and condition, listened for interesting rumors and eavesdropped on important conversations.⁴⁷ While most spies were passive observers, there were sometimes more elaborate deceptions. Humayun's chief engineer concocted an especially devious plan to explore the defenses of an enemy fortress.

His Majesty was much incensed, and said, 'The insolence of these Afghans exceeds all bounds; let us go and take Chunar from them.' He then consulted Rumi Khan, the Engineer... what was his opinion as to the practicability of taking that fortress. Rumi Khan replied, 'If it pleased God, we shall take it by force.'... The engineer then deliberated how he should gain information respecting the strength and defenses of the fortress, and against which of the bastions he should make his attack, or where he should run his mines; in order to effect this measure he adopted the following cruel expedient. He had a faithful Negro slave called Kelafat, whom he flogged in such a manner that the stripes were conspicuous on his back and limbs; he then commanded the slave to go to the Afghans, and say that he was the servant of Rumi Khan; but that his master having unjustly flogged him he had deserted, and had come to offer his services to them; that if he succeeded to get into the fort by these means he should minutely examine it, and then

return to him, when he should be well rewarded. Kelafat strictly complied with the orders he had received, went to the Afghans, was admitted into the fort, where his wounds were dressed and cured; he then informed them that he was well skilled in engineering; that if they would employ him, he would point out to them where they should mount their guns more effectually to annoy the enemy, and would indicate to them where the fortifications required strengthening, in order to prevent Rumi Khan from making any impression on them. The scheme succeeded, and the deserter was allowed to examine every part of the fort. A few nights after this having made his escape, he came and reported all the circumstances to his master; advised him to attack the bastion on the river side, to run a sap on the land side, and to surround the place in such a manner as to cut off all communication with the country. In consequence of this useful information Rumi Khan brought his great guns to bear on the bastion near the river, and appointed different batteries round the fort to various officers.⁴⁸

Some scouts and spies were also assigned to serve as messengers and couriers—the ability to accurately record information and then to carry it quickly over long distances was important for both of these jobs. The Mughals also established a more organized mail service for the transport of official correspondence relating both to the military and the civil administration.

He (Akbar) established posts throughout his dominions, having two horses and a set of footmen stationed at every five *kos*. (1 *kos* = ~2 miles) The Indians call this establishment *dak chowky*. They are employed to convey letters on ordinary business, or expresses to and from court. The footmen will travel 50 *kos* within the twenty-four hours; so that a letter comes from Agra to Ahmadabad in five days; and when especial messengers are required to go quickly, they avail themselves of the post-horses to proceed in the same way. Four thousand runners were in permanent pay, some of whom, on extraordinary occasions... have performed a journey of seven hundred *kos* in ten days.⁴⁹

Waqia nevis, or news writers, were assigned to locations around the Empire. They recorded their own observations, compiled information from dispatches and intelligence collected in their areas and prepared formal reports for their superiors. The most sensitive material was withheld for official use, but the remainder was published as public notices. These newsletters were posted in popular meeting places and kept citizens informed of important events of state like military campaigns, public works, changes to the legal code and the appointment and promotion of officers and officials.⁵⁰

Notes for Chapter 6

1. *Baburnama*, Volume 1, chpt. 39
2. *Baburnama*, Volume 1, chpt. 68
3. Stephen Peter Rosen, *Societies and Military Power: India and its Armies* (Ithaca: Cornell University, 1996), p. 150
4. Monserrate, *The Commentary of Father Monserrate S.J. on His Journey to the Court of Akbar*, J.S. Hoyland, trans. (New Delhi: Asian Educational Services, 2003), p. 76
5. *Ain-i-Akbari*, Volume 1, chpt. 41
6. *Baburnama*, Volume 2, chpt. 69
7. For a description of Mughal army procedures for a route march, including scouting, guides, flank security and crossing of rivers and other difficult terrain features, see Monserrate p. 78-82.
8. *Akbarnama*, Volume 2, chpt. 119
9. The duties and pay of laborers and craftsmen in the *dakhil* are described in *Ain-i-Akbari*, Volume 1, chpt. 181. Risen men are described in Monserrate, p. 206. A sizeable contingent of trained craftsmen was required to care for the army's horses alone. See also A. Jan Qaisar, "Horseshoeing in Mughal India" *Indian Journal of the History of Science* 27, no. 2 (1992): 133 – 144.
10. Jos Gommans provides a good overview of Mughal logistics in Chapter 4 of *Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500 -1700* (New York: Routledge, 2002). Pages 111 – 130 focus specifically on animals. The estimate of the number of oxen present with a large army is in *Jahangirnama*, Volume 2, chpt. 51.
11. *Ain-i-Akbari*, Volume 1, chpt. 123
12. Statistics and estimates of the distances covered by Mughal armies are collected in Raj Kumar Phul's *Armies of the Great Mughals: 1526 -1707* (New Delhi: Oriental Publishers, 1978). See p. 235 – 240. Major campaigns and sieges at Chittor, Ahmednagar and other locations were carried out during the rainy season, often in severe weather. See *Akbarnama*, Volume 2, chpt. 119, *Akbarnama*, Volume 3, chpt. 273 and *Akbarnama*, Volume 3, chpt. 4.

13. *Ain-i-Akbari*, Volume 1, chpt. 49. The special tax to cover supplies is described in *Ain-i-Akbari*, Volume 1, chpt. 198.
14. Jean-Baptiste Tavernier, *Travels in India*, trans. V. Ball (Macmillan: London, 1889) p. 391
15. Gommans, 186
16. Quartering and seizure of property as punitive measures are described in *Akbarnama*, Volume 3, chpt. 220. Outside of such extraordinary circumstances, involuntary boarding of troops in civilian homes was prohibited, as mentioned in *Mir'at-i Ahmadi*, chpt. 86.
17. Gommans describes the production of gunpowder and the saltpeter trade in India in p. 149 – 151.
18. *Ain-i-Akbari*, Volume 1, chpt. 89
19. See Chapter 1 of Simon Digby's *Warhorse and Elephant in the Delhi Sultanate: A Study of Military Supplies* (Oxford: Orient Monographs, 1971) for an assessment of the quality of Indian edged weapons, armor and other metal goods—and their superiority to similar items from abroad.
20. See Chapter 4 of *Mughal Warfare* for a discussion of the animal trade and for horses in particular, Gommans' article "The Horse Trade in Eighteenth Century South Asia".
21. For an overview of Indian medicine in this era, see R.L. Verma's essay, "The Growth of Greco-Arabian Medicine in Medieval India" *Indian Journal of the History of Science*, no. 5 (1970): 337 - 356.
22. See *Jahangirnama*, Volume 1, chpt. 5
23. *Baburnama*, Volume 1, chpt. 84
24. Plastic surgery is described in the Verma article. For an example of treatment of depressed skull fractures see *Tarikh-i-Rashidi*, chpt. 184. Badauni describes the treatment of serious head injuries he suffered in a street brawl in *The History of India*, Volume 5, chpt. 130 (*Muntakhabut Tawarikh*).
25. *Akbarnama*, Volume 3, chpt. 299
26. *The History of India*, Volume 4, chpt. 126 (*Tarikh-i Daudi*)

27. *The History of India*, Volume 7, chpt. 147 (*Tarikh-i Bahadur Shahi*)
28. *Baburnama*, Volume 1, chpt. 99
29. Reference is made to the Laws of Retaliation as applied to the disposition of prisoners in *Tarikh-i-Rashidi*, chpt. 102.
30. *Baburnama*, Volume 1, chpt. 99
31. *Tarikh-i-Rashidi*, chpt. 102
32. Monserrate describes a standing order prohibiting plunder and attacks on noncombatants issued by Akbar during a campaign in Kashmir. Instead of requisitioning supplies he invited the locals to sell them to him at going market rates. See p. 80. Humayun on several occasions rebuked officers who harmed enemies that had already been granted quarter. See for example *Memoirs of Humayun*, chpt. 10.
33. *Akbarnama*, Volume 2, chpt. 65
34. Mughal policies for the suppression of irregular militias and peasant rebellions, especially under Jahangir, is described at length in Chapter 1 of Dirk Kolff's *Naukar, Rajput and Sepoy* (New York: Cambridge, 1990).
35. Immediate surrender after a breach happened on a number of occasions, most notably at Ranthambor, where the garrison wisely capitulated to avoid the fate of their comrades at Chittor the previous year. See *The History of India*, Volume 5, chpt. 43 (*Tarikh-i Alfi*).
36. The events at Chittor are described in *Akbarnama*, Volume 2, chpt. 119.
37. For an example of forced labor by prisoners, see *Memoirs of Jahangir* (Price), chpt. 24. The *shagirdpeshas*, Akbar's probationary units are mentioned in *Akbarnama*, Volume 3, chpt. 132. Parole and bail are described in *The History of India*, Volume 6, chpt. 80 (*Akbar-nama* of Shaikh Illahdad).
38. For examples of humiliation and punishment, see *Muntakhabu-'rukh*, Volume 2, chpt. 45 and *Jahangirnama*, Volume 2, chpt. 60.
39. For examples of formal prisoner releases and exchanges see *Baburnama*, Volume 2, chpt. 31 and *Akbarnama*, Volume 1, chpt. 125.
40. Babur punished soldiers found absent from guard duty by having their noses slit. See *Baburnama*, Volume 1, chpt. 100.

41. See Monserrate p. 82 for a description of how Akbar had an officer publically stripped, thrown into a river and threatened with enslavement for disobeying orders.
42. The demise of Tardi Beg is recounted in *Akbarnama*, Volume 2, chpt. 14.
43. See *The History of India*, Volume 4, chpt. 108 (*Tarikh-i-Sher Shah*) for an account of how Sher Shah managed a mutiny by a regiment of cavalry. He eventually ruled in favor of the striking troops and disciplined their commander.
44. *Mir'at-i Ahmadi*, chpt. 86
45. For examples of leaders snooping on their subordinates, see *Akbarnama*, Volume 2, chpt. 48, where the young Akbar and the regent Bairam Khan apparently spied on each other, and *The History of India*, Volume 4, chpt. 108 (*Tarikh-i-Sher Shah*). The mutiny mentioned above (note 43) was resolved with the help of Sher Shah's agents, who reported the commander's misconduct.
46. *Akbarnama*, Volume 2, chpt. 85
47. William Pinch describes the use of holy men as spies in Chapter 1 of *Warrior Ascetics and Indian Empires* (New York: Cambridge, 2006), especially pages 45 – 50. There are accounts of merchant spies in a number of sources, as in the incident described in 46 above. Sher Shah was renowned as an especially accomplished spymaster. See for example *The History of India*, Volume 4, chpt. 90 (*Tarikh-i-Sher Shah*). Other examples of military espionage can be seen in *Memoirs of Humayun*, chpt. 41 and *Tarikh-i Sind*, chpt. 92.
48. *Memoirs of Humayun*, chpt. 10
49. *The History of the Rise of Mohammedan Power in India*, Volume 2, chpt. 50
50. Gommans describes news writers and public announcements in pages 92 – 94.

Chapter 7: An Unfinished Revolution

Despite all of the successes of the Mughal armies—not just their battlefield victories but their mastery of new technology and complex systems and the translation of that knowledge into political power—many of their later critics remained unimpressed. In comparison to the achievements of their contemporaries in early modern Europe, the pioneers of the true Military Revolution, their works are found wanting. Is such an assessment really valid? Consider the Spanish conquest of Mexico, long considered a milestone event by both historians of the Military Revolution and proponents of the “Western Way of War.” At the forefront of a new era of European exploration and conquest, Cortez and the Spaniards used superior technology, tactics and organization to prevail over the mighty Aztec Empire. The rest, so to speak, is history. Imagine, however, if the results of that conquest had been entirely different. What if the defeated Aztecs had studied, mastered and even improved upon the implements and strategies that had undone them, assembled a highly sophisticated army of their own and then overthrown the new overlords? Perhaps the Spaniards would have retreated and regrouped, working to remedy their deficiencies and incorporate their enemies’ accomplishments. Then they would have launched a second invasion and, after years of further struggle, won a final victory over the Aztecs and dominion over their neighboring states and tribes. Yet this time the Spaniards do not destroy the existing civilization but incorporate it into their new

empire. They continue to advance the arts of warfare and governance, adapting devices and systems from not just their new and ancestral homelands but from all over the world. In time Mexico becomes one of the mightiest military and economic powers on Earth. These hypothetical actions and outcomes appear unlikely, even fanciful, but just such a series of events took place after Babur and his band of conquistadores descended from the mountains of Afghanistan and marched on the capital of the Delhi Sultanate. The drama that unfolded in India over the succeeding decades was as remarkable and transformative as anything that happened in Europe during that era.

Yet while there are obvious parallels between the Indian military revolution and the European transformation, the end results of these processes were very different. The implements and organizations that composed Mughal military power would eventually diverge in form and function from their Western counterparts. In his essay “The Military Revolution: Origins and First Tests Abroad,” John F. Guilmartin provides a sort of checklist for rating the Europeans’ advances. He identifies six key components of the military revolution—infantry, combined arms, artillery, fortifications, sea power and the “community of arms.” This framework is useful in exploring just how and why Indian military institutions evolved so differently from their Western equivalents.¹

Infantry was definitely a major force on the Indian battlefield. Mughal musketeers, however, operated in a much different environment than Western infantrymen. Unlike the Europeans, they had to face not just the threat of artillery and their own opposite numbers, both musketeers and foot archers—but also mounted archers and a multitude of highly mobile and highly lethal gunpowder weapons like camel guns and rockets. Maneuvering in large linear formations on the open field would have been suicidal.

Instead Mughal foot soldiers usually fought in open order as skirmishers or from behind cover—inside barricades or battlements or in trenches and fighting holes. Their training emphasized marksmanship and accuracy over rate of fire. Mughal infantrymen fought more as individuals and small units than as large groups—they behaved more like skirmishers and snipers than grenadiers. For this reason the pike and its successor the bayonet were never widely adopted. Instead the musketeers continued to rely on swords and other edged weapons as side arms. While there was regular training and practice, there was no formal system of drill as Western armies understood it. These soldiers were used as a counter to enemy horse archers, but at the same time they were bound into a symbiotic relationship with their own cavalry. They interfered with the progress of enemy cavalry, sometimes screening their own horsemen from superior enemy forces, but they often needed the protection of friendly cavalry to safely concentrate or maneuver in large numbers.

Babur and Akbar were also at the forefront of the artillery revolution. They employed a variety of cannon very similar to their European counterparts, not just massive siege guns but also field artillery that reshaped tactics and the conduct of battle. The latter type included not just small cannon but even more flexible and agile weapons like camel guns and rockets, devices that did not exist on Western battlefields. Until the later portion of the 18th century and the introduction in Europe of truly powerful horse-drawn field pieces firing projectiles of six pounds or more and fed with bagged charges for more rapid fire and highly effective anti-personnel ammunition like canister and fused shells, Mughal light artillery was as effective and lethal as any in the world.

Fortifications were also important in Indian warfare. Akbar launched a major program of fort construction in the early portion of his reign, when the borders of his Empire were still at risk. Many of his enemies also placed their faith in stone walls. There was no revolution, however, in fortress design. The so-called “Italian style” was never widely adopted. There are a number of reasons for this omission. The traditional stone forts of India were quite different from typical European medieval castles with their high, thin walls. Even before the advent of gunpowder they were massively over engineered, with walls as thick as 60 feet. They were often constructed in a concentric pattern, with rings of progressively higher fortifications designed to contain breaches. There were no outworks, but many of the forts included moats with a rudimentary counterscarp and glacis. In rugged areas like Rajasthan and the Deccan, fortresses could be placed atop commanding heights that were not easily bypassed. This made effective siege gunnery especially difficult. Some concessions were made to gunpowder. New and retrofitted forts included emplacements for defensive guns, exterior earthworks and even thick stands of bamboo and thorn bushes designed to retard the progress of both cannonballs and advancing infantry. Even unmodified, the traditional Indian stone fortress was remarkably resistant to artillery. A number of these installations held out for months against the fearsome Mughal siege train. Later, more sophisticated weapons were also frustrated—even the British artillery of the 19th century often had difficulty making an impression on such defenses.²

There were other reasons for the lack of innovation in this area. For most of its existence the Empire never faced a serious threat of invasion. Its armed forces had two primary missions—to expand and secure the frontiers and to keep the peace within those

frontiers. The greatest potential danger to their home territory was rebellion or civil war, not the actions of a foreign state. An “obsolete” stone fortress was perfectly adequate to project Imperial power and to repel any typical threats—pirates, border raiders, brigands or local rebels. At the same time it could still be overcome by a sufficient weight of heavy artillery—a commodity on which the central government held a near-total monopoly. A brand new Vauban fortress would be more than just an expensive indulgence—it might also be a dangerous temptation for an over-ambitious governor or prince. Finally, the sheer size of Indian armies eventually made fortifications less important. As Geoffrey Parker notes in his comments on the vast legions of the Napoleonic Wars, “Armies were now so mighty that there were enough men to allow commanders to encircle the enemy’s strategic fortresses, to defend their own, and yet still be able to lead forces of unprecedented size into the field.”³ The real Indian innovations in this area were not in the form of castles or other permanent landmarks but in the increasingly sophisticated field fortifications used to protect these armies—both in combat and while at rest—and to consolidate their gains.

The Mughals fielded a large navy, but that force did not conform to the Mahanian ideal of the mature Western military revolution. Instead of pursuing the far reaching “command of the seas” so coveted by Northern European nations the Empire established a system more reminiscent of the early modern Mediterranean order. The emphasis was on littoral and riverine warfare. Fleets of war galleys were the primary striking force. The Mughals focused on points instead of lines, controlling ports and other strategic locations instead of patrolling the open sea-lanes. Their operations involved close cooperation between ships, land forces and fortifications. While this system might appear regressive

or primitive to outside observers—it persisted for a century after the decline of its European counterpart—it adequately served the needs of the state. The Mughals had no plans to acquire overseas colonies. Sea borne trade was not as crucial to their economy as it was for many European powers. They also had access to an extensive network of overland trade routes. The Muslim states in Central Asia and the Middle East were not as impermeable a barrier for the Mughals as they were for Christian countries. India was so wealthy and rich in natural resources and manpower that the Empire did not have to look abroad for many vital commodities. The only items that had to be imported in bulk were horses and precious metals. The former arrived primarily through overland trade with Persia and Central Asia, and the latter were obtained with little difficulty, as foreign demand for Indian goods kept specie flowing into the economy. Outsiders could do little to dictate the terms of trade to the Empire if they wanted to maintain access to its markets. In the end, a blue water navy was a luxury, not a necessity.

The Central Asian military ethic of prudence, discipline and adaptability allowed Babur and his ragtag band of displaced nobles and tribal chieftains to form an effective army, adapt novel technology and tactics and achieve truly remarkable feats on the battlefield. As the Empire and army expanded and grew even more diverse, the leaders of the Mughal military continued to promote these shared values and a community of arms in which professional soldiers of varied backgrounds exchanged information and expertise. A Mongol could share his insights on cavalry tactics, and a Turk might discuss field fortifications while a Rajput explained the essentials of guerrilla warfare and counterinsurgency. The Mughals also took an active interest in military developments elsewhere in the world. A European observer who accompanied Akbar on campaign

overheard the Emperor and his staff discussing and analyzing the battle of Alcazar al Kabir, fought thousands of miles away in North Africa by Portuguese and Moroccan forces.⁴ The Mughals—and all of India—were enmeshed in a vast global web of military thought and innovation. Some of the devices and tactics introduced by Babur, for example, could be traced back through Persia and Anatolia all the way to Central Europe. Akbar continued to adopt foreign technology and practices that he considered useful.

The Mughal military transformation, shaped by its unique environment, eventually took on a very different shape from its Western counterpart. Yet it also undeniably differed in its final outcome—an ending much unhappier than the result of the European revolution. Neither the Mughals or their Indian rivals and successors were able to expand further in space and time—they did not impose their will on the rest of the world or shape the progress of the modern era. Instead a Western-dominated empire would be built on the ruins of their states. So why did this Indian military revolution remain unfinished?

Some explanations are purely military, focusing on the practical and technical reasons why the Mughals lost their ability to successfully fight wars. Perhaps the most obvious factor in the unraveling of the Mughal military system was the decline of the horse archer, who had almost completely vanished from South Asia by the middle of the 18th century. Mounted archers played a central role in the combined arms system of Akbar's armies, but at the onset of the colonial era they were nearly absent from Indian battlefields. The tactical implications of this absence were clear, but its root causes are less certain. The most important problem was a loss of access to the supply of highly skilled horse archers and light cavalrymen from Central Asia, especially those from truly nomadic backgrounds. While civilized and sedentary Turkish and Mongol elites

continued to learn the martial skills of their ancestors and Indian groups like the Rajputs also worked to master mounted archery, there appeared to be no real substitute for the training and practical experience provided by a nomadic life in the wilderness. Babur noted the tactical superiority of the ferocious Mongol tribesmen he employed in his *tulughmeh* flanking detachments and of his Uzbek enemies, more recent arrivals from the steppe. Later Mughal rulers, even after the construction of a vast military machine based in India, continued to recruit fresh talent from the wild margins of Central Asia. By late in the 17th century, however, this pipeline began to dry up. Mughal reverses in Afghanistan and Central Asia may have limited their access to military manpower from those regions. Political upheavals within the Empire would have only complicated this problem—as local leaders began to assert their independence they were hesitant to allow the free passage of mercenaries to potential rivals. Even absent these barriers, there may have simply been many fewer horse archers to go around. This period also saw the culmination of a process often described as the “closing of the nomadic frontier.” The expansion of the Russian and Qing Chinese empires into Central Asia finally forced many tribal peoples to abandon both their nomadic lifestyles and their arts of war. Horse archery may have also begun to fall out of favor due to military contingency within South Asia. The Deccan Wars that dominated the latter portion of the 17th century were fought in an environment very different from the open plains of Central Asia or North India. Large open field battles were rare and skirmishes were typically fought at close quarters in rugged, overgrown terrain with poor visibility. These circumstances limited the effectiveness of horse archers and favored a different type of light cavalry, equipped primarily with sabers, short lances, carbines and pistols. Maratha irregular forces

pioneered this new style of warfare, fighting in a method not dissimilar to the later tactics of the Texas Rangers—units of light horse that prevailed over Comanche mounted archers in the brush country of South and Central Texas, terrain very like that of the Deccan. As the Marathas' political power grew and Maratha soldiers fought in campaigns all over India, their practices may have become a new standard. At the very end of this period, the first battlefield deployment of rifled muskets in any numbers and the introduction of more effective field artillery fed by canister ammunition and capable of sweeping large areas with sustained anti-personnel fire from several times the maximum range of any bow may have finally sealed the horse archer's fate.⁵

The decline of the horse archer disrupted the tactical balance that had prevailed during most of the Mughal era. Indian infantry tactics, with their emphasis on open order, skirmishing and fighting from cover and concealment, had been shaped in large part by the need to both counter enemy horse archers and support friendly horse archers. The foot soldier's role in their absence was less clear. Hints of this problem began to emerge after the Empire matured, large battles decreased in frequency and the emphasis shifted from defense to internal security. Cavalry—and increasing numbers of mounted infantry—often acted independently as patrollers and as a reaction force to suppress border raids and local rebellions while the ordinary infantry stayed behind to serve as garrison troops or a constabulary. Even after the new outbreak of warfare in the Deccan, the irregular, episodic nature of that conflict did not usually require large numbers of infantry fighting in the line of battle. It would prove extremely difficult to rejoin these elements once they had grown apart—especially as the Empire began to decline. Both Indian rivals and European invaders were all too eager to exploit this problem. The disappearance of

mounted archers—and eventually the less numerous and effective artillery fielded by a declining Empire—made Western linear formations much safer and more practical.

When Mughal-style infantry fighting unsupported were forced to confront well-drilled formations of foot soldiers fighting in the European manner they did not fare well.

During his invasion of Sind, the British commander Charles Napier encountered a large force of Baluchi mercenaries fighting in the traditional manner.

The engagement became general along the bank of the river, on which the combatants fought, for about three hours or more, with great fury, man to man. Then... was seen the superiority of the musket and bayonet over the sword and shield and matchlock. The brave Beloochees, first discharging their matchlocks and pistols, dashed over the banks with desperate resolution, but down went these bold and skilful swordsmen under the superior power of the musket and bayonet.⁶

The historian Pradeep Barua later described the precise mechanics of such encounters.

The hallmark of these battles is the tremendous success achieved by even small units of organized European infantry when they advanced with bayonets. The Indians, in contrast, preferred to engage in close individual combat with the *tulwar*, or curved scimitar... The disadvantage of this weapon is that it prevented the Indians from acting in concert and in closely ranked formations, thus considerably diminishing their effect on disciplined European troops. The latter used the shock effect (and flank security) of closed ranks and the longer reach of their pike-like bayonets to sweep the Indians' loose formations from the field.⁷

While the artillery in Akbar's army was comparable to its European counterparts, and for some applications even superior, this competitive edge would not be maintained. By the end of the 17th century many Mughal cannon were inferior in quality to even those used by Asian rivals like the Safavids. A number of contemporary European observers

commented on their poor performance. One of the most serious problems was a deficiency in foundry technology. The bellows and blast furnaces used in India could not generate as much heat as European models, which meant that native gun founders were unable to melt, pour and cast metal in sufficient quantities to form an entire large cannon. The guns either had to be made in parts or the mold had to be filled in several pours. Either technique produced a weapon weaker and less durable than one cast as a single piece. These difficulties also precluded the mass production of inexpensive cast iron guns—which had to be manufactured at higher temperatures due to that metal’s higher melting point. Cast iron would be a key ingredient in the growth of the massive European artillery arsenals of the late 17th century and beyond.

Technological issues also hindered the creation of an overseas fleet. The Mughal navy was constrained by the inability to manufacture cast iron cannon in quantity. As Guilmartin observes in *Gunpowder and Galleys*, the wide availability of inexpensive iron guns was crucial to the development of a more “advanced” European naval system: “If entire fleets of broadside sailing ships capable of exercising command of the seas in the Mahanian sense could have been built and armed, the situation would have been different. But they could not. Until the advent of cast iron... there were simply not enough cannon available. The expense was too great... command of the sea was not truly possible for a nation which relied solely upon bronze cannon.”⁸

The narrative of the European military revolution, however, extends beyond the mechanics of battles of wars. The introduction of novel military technology and organization was ultimately decisive because these systems both demanded and enabled the creation of more efficient, centralized states. Even critics who acknowledge the

Mughals' cleverness on the battlefield argue that they failed at state building, at translating military success into more effective government, a more prosperous economy and a more enlightened society. The historian Abraham Eraly describes a "tainted paradise," an Empire advanced in the ways of destruction and domination but incapable of true creation or transformation.

In every facet of life the Mughal achievement was matchless, and it transformed the lifestyle of the elite throughout India. What the Mughals were, was what the rich and powerful everywhere in India aspired to be... yet in a fundamental sense, India did not change at all. What changed was lifestyle, not life, and that too only of a miniscule elite. There was no transmutation of civilization... Outwardly the Mughal Empire still glittered mesmerizingly, but within the golden, jeweled chrysalis, the flesh was rotting, the spirit dead. The land was desolate... its government inefficient and irredeemably corrupt... its culture effete, its people broken and spiritless... In several areas crucial to the growth and transformation of society, Mughal India lagged way behind Europe, behind even China, Japan and Persia. There was hardly any vigor in the economy, scant spirit of enterprise among the people... most shocking of all was the debasement of the character of man in Mughal India. From the highest amir, indeed from the Emperor himself, down to the man in the street there was a near total absence of civic morality and personal integrity.⁹

Clearly there were limits to the achievements of the Mughals. Central authority was at times tenuous, especially at the furthest reaches of the Empire. Corruption, cliques, and personal agendas hampered the efficient exercise of state authority. Patronage and associations of family, clan and tribe still mattered, both in government bureaucracy and in the affairs of traders and merchant houses. There were vast disparities in wealth, and a large part of the population lived in poverty. Despite their high-minded proclamations and their humane legal code the Mughals still relied on force and the threat of force to

maintain order, and when threatened they were capable of extreme brutality against both external enemies and their own subjects. Riots, local rebellions and other civil disorders were not infrequent. Aside from manmade afflictions, the Empire was periodically troubled by natural disasters like earthquakes, storms, epidemics and famines, to which the government was not always able to respond effectively. Yet the states of early modern Europe were struggling with these same problems. All of the charges made by Early against the Mughals could be leveled against Habsburg Spain, Tudor-Stuart England, *ancien regime* France—or against any state that still lacked the benefit of railroads, steamships, telegraphs, electricity and mass industry and that had not yet fully experienced the Enlightenment and its ensuing expansion in civil rights and civic participation. The prevailing assumption, however, is that all the accomplishments of the modern era were already latent in these emerging yet deeply flawed European polities. Therefore all of the wars, disasters and misdeeds inflicted on Europe during the early modern period were not in vain. Despite the terrible price in human suffering, this time of transition set the stage for the great achievements of the 19th and 20th centuries. The corresponding argument is that because the Mughal Empire was inherently and irredeemably defective—as proven by its failure to survive into the modern era—its tragedies and excesses cannot be justified. It had to be an especially corrupt and morally bankrupt state that demanded such sacrifices from its people without any prospect of reward for future generations.

Was the Mughal Empire truly doomed to failure? If so, its fatal defects were so not readily apparent at the time. At its peak it controlled a population at least five times that of France, ten times that of Spain and 20 times that of England.¹⁰ No empire of

comparable size had existed in South Asia in the last 1500 years. It accounted for nearly a quarter of the world's total economic output. The Mughals' successful management of such vast territory, population and wealth for nearly two centuries suggests no small expertise in statecraft and state building. By the latter portion of the 17th century, the concern both in India and abroad was not that the Mughal state was too weak, but that it was too strong. Communities and local elites within the Empire began to resist a system they saw as both omnipresent and oppressive, one that interfered entirely too much in their economic, political and cultural lives. Likewise, travel narratives from India were used to frame European political commentaries, with the Mughal Empire being used as a cautionary example of tyranny and a state grown out of control and as a focus for thinly veiled criticism of the similar excesses of centralizing Western polities. Yet despite their dominance the Mughals did fail in the end, and they left no true successors in the modern age. So what exactly led to the Empire's fall? Was that process predetermined, a result of insoluble fundamental flaws—or was it the result of chance and preventable misfortunes?

11

In the most basic sense, the Empire was literally too successful for its own good. For much of its history it never had to confront a truly existential threat. Unlike contemporary European powers, its survival did not rest on continued innovation and adaptation. For nearly a century—from the conclusion of Akbar's campaigns of expansion and consolidation to the rise of Aurangzeb and the outbreak of the Deccan wars—most citizens of the Empire enjoyed nearly uninterrupted peace and security. Minor wars went on constantly, but those were largely confined to the frontiers and had little impact on civilian life in the interior. There were no Indian equivalents of the Italian

Wars or the Thirty Years War. Rebellions were not uncommon, but they were small and localized. The most serious internal conflicts were the succession battles following the death of an Emperor. These were violent but brief—nothing like the prolonged, mortal struggles of the English Civil War or the French Wars of Religion. The conflicts revolved around personalities and not ideologies, and they did not leave permanent factions in their wake. Most supporters of the losing side eventually accepted the verdict and moved on. The Akbari Constitution remained in force.

The Mughals were especially secure because of their commanding geographical position. The traditional narrative of Indian history is one of invasions. This leads to the false impression that India is particularly vulnerable to conquest from without. Nothing could be further from the truth. India is a fortress, protected by truly formidable natural ramparts. It is surrounded by wide seas on three sides. Trackless jungle and malarial swamps guard its narrow eastern frontiers. The first force to attempt a full-scale invasion of India from that direction was the Imperial Japanese Army during World War II. The results were less than rewarding. The western approaches are blocked by some of the most forbidding deserts in the world. That route has only been successfully completed twice—at great cost and with substantial naval support—by the Arab invaders of Sind in the 8th century and by Alexander the Great, on his way out of India. The “traditional” northern routes through the Himalayas are also fraught with peril. They require long supply lines through the hostile—and resource poor—terrain of Central Asia and Afghanistan, where important mountain passes may only be open for half of the year. Staging forces of any size in these areas is extremely difficult, even without interference from their exceedingly warlike inhabitants. The setbacks endured by both the Mughal and

British Empires when attempting invasions across this region from the opposite direction only emphasize these difficulties. A potential invader's problems are complicated further if the defending power has established a defense in depth by holding bases in the area. While the heartland of India is very easy to hold and consolidate, its natural borders are equally easy to defend.

Any invasion of India must in effect be run on a shoestring—the physical and logistical barriers make the introduction of a truly overwhelming force almost impossible. The only real chances for success occur if the country is divided up into many smaller states that can be defeated in detail—or if the dominant power is left indisposed by rebellion, natural disasters or other misfortune. Babur took advantage of just such an opportunity by attacking the Afghan rulers of Northern India while they were distracted by internal conflict. The Persian and Afghan invasions of India during the 18th century succeeded only because the Mughal Empire was already in the final stages of decline. While the Mughals were at the height of their powers, there was no state in the region that could challenge them. There were only a few nations on Earth that could match their military might, and all of those were far away. Conquest from the sea was not a credible threat within the limits of 16th and 17th century naval technology. The combined logistical and sealift capacity of all the great European powers combined would be insufficient to support a successful invasion of India. When the Empire finally fell, doom came not from the sea but from within. The Mughals were crippled by their own mistakes, not the schemes of foreign governments.

This security and absence of competition eventually led to a culture of conservatism. New inventions were no longer embraced eagerly. Even items as useful as

the flintlock and the socket bayonet—or civilian innovations like the printing press—were not widely adopted. The Mughals continued to retain foreign technical and military experts, but they acted more as mechanics and hired hands than true advisors. By the turn of the 18th century the military state of the art in the Mughal Empire had declined from a condition of parity with the West to a clear deficit. Existing and obsolete systems and practices were kept in place as long as they were sufficient for the task at hand. Pursuit of the best was replaced by acceptance of the good enough. It is a common adage in the business world that companies that pioneer a new product or industry tend to gradually fall behind the curve, resting on their initial success and becoming less competitive over time. The Mughals came to embody this cliché. Ironically they regressed during their Golden Age while Western powers improved themselves by stumbling from crisis to crisis. Most European states of the era existed in a constant state of emergency. In many instances the choice was between innovation and extinction. By contrast the Mughals at their apex enjoyed nearly uninterrupted safety and prosperity—but there could be no continued advancement without constant insecurity and challenge.

After such a *belle époque* the disasters of the late 17th century would prove to be especially traumatic. South Asia, like Europe and much of the rest of the world, was to suffer through a period of upheavals both natural and manmade. The onset of this so-called “General Crisis” of the 17th century was delayed in India by a few decades, but the causes and outcomes were similar. Climate change triggered by the “Little Ice Age” led to an increase in storms, floods and droughts and disrupted agricultural production. Periodic scarcity only aggravated the ongoing inflation caused by population growth and the influx of precious metals from the New World. These damaging trends, along with

the rationalization and consolidation of agricultural production, led to growing disparities in wealth and lowered standards of living for the working classes and the poor. Many peasants and small landowners found themselves impoverished and dispossessed. Societies became more stratified and social mobility decreased. The continuing centralization and rationalization of the Imperial government also had unintended, negative consequences. The open and meritocratic system of the early Empire became more rigid and restrictive as differences in status, caste and tribe were formally codified. The growing power of the state also led to the same sort of struggles between “Court and Country” that afflicted much of Europe. Local leaders and members of traditional elites, concerned that they were becoming obsolete under the new system, began to resist the central authority more vigorously. Over time that resistance became increasingly violent. There was another even more ominous development, one that had already caused untold suffering in Europe. Religious discord, both between Muslims and non-Muslims and between sects within Islam, began to spread throughout the Empire. Most of those troubles were the fault of a single individual—the Emperor Aurangzeb. His insistence on Muslim orthodoxy as the law of the land, his desire to root out all forms of corruption and immorality and his grandiose plans to save India from itself led to the emergence of permanent factions and decades of nearly uninterrupted warfare and civil disorder. Most tellingly, Aurangzeb squandered the political capital built up by his predecessors and undermined the principles of the Akbari Constitution.¹²

The Imperial system began to unravel during this period of upheaval. There is considerable debate over why the Empire was not strong enough to endure the crisis, and that discussion is inextricably linked to arguments over the very nature of the Mughal

state. Was the Empire inherently benign or innately predatory? Did it live up to the high-minded terms of Akbar's constitution? Were the disasters of the late 17th century purely contingent or were they in large part structural? Did the demands of the Mughal state impoverish the provinces, promote corruption, impoverish subjects and force rebellion in the interest of self preservation? Did the Empire decline because of such inherent flaws in the system—insurmountable physical, economic and cultural limitations—or did it fail simply due to the mismanagement of Aurangzeb and other leaders? ¹³

A number of scholars have argued that, for the lower classes at least, the Imperial bargain was a poor one. They describe a parasitic relationship between urban elites and the rural masses in which the government and elites essentially extorted money and goods from the peasants, offering little in return. With its limited industrial capacity, the Empire could not provide manufactured goods—or jobs—for most of its citizens. If peasants left their land for any reason, there was no place for them in the cities. The Mughal Empire's increasingly complex economy led to growing tension between peasants and elites. The replacement of barter by a cash economy severely stressed traditional sharecropping arrangements. Instead of passing on a percentage of his crop, the peasant now had to pay a set amount in cash. Fluctuations in currency values, commodity markets and success of harvests caused great hardship for peasants. In times of scarcity a *jagirdar* passed the burden on to the subordinate *zamindar* who in turn imposed upon his tenant. The expense of the Deccan wars and the growing demands of the administration aggravated this situation. Those peasants who could not meet their obligations were forced off their land. A growing landless population led to disorder, as ambitious local leaders exploited their discontent. The agrarian crisis had become a

political crisis. Entire provinces were threatened by rebellion, unchecked by an Emperor focused obsessively on his crusade in the South. This explanation, however, is undermined by a few essential facts. India in this era was actually highly urbanized, and it was one of the world's centers of manufacturing activity before the onset of the Industrial Revolution in Europe. Moreover the most intractable centers of rebellion in the late Empire were not the most impoverished provinces but the wealthiest ones.¹⁴

Others claim that the Mughals' worst flaws were not political and administrative, but financial and argue that the Empire, unable to afford its campaigns in the South, was crippled by a credit crisis. Land revenues were insufficient and the Mughals were forced to turn to the "great firms." These were trade syndicates—usually founded by members of Hindu merchant castes—that ran most of the country's banks. The flow of credit dried up when the bankers lost faith in the Mughals and took their business to foreign powers—especially the great European trading companies. They were concerned that the Mughals, plagued by military failures, could no longer provide security for their assets or commerce. Without their loans, the Empire could no longer adequately support its officers. Loss of pay and benefits led to dissension in the ranks, disloyalty, opportunism and a slow descent towards anarchy.¹⁵

Competing theories favor contingency, asserting that a healthy system was ruined by bad choices. Poor leadership in the Deccan wars drained the Empire's political and psychological capital. A series of military disasters tarnished the Mughals' aura of invincibility and ultimately led to dissension and disorder. Failure on the battlefield caused a widespread loss of confidence in the Emperor by his officer corps and civil administration. This lack of faith led to a surge in insubordination and corruption. A

number of high officials began to carve out independent fiefdoms. Aurangzeb's inconsistency aggravated these problems, as he alternated between extreme belligerence and imprudent leniency. During his conflict with the Marathas, for example, he reneged on a peace treaty but then failed to eliminate Shivaji after alienating him, lengthening the war by many years.¹⁶

Others argue that the Mughals were undermined not by failure in the Deccan but by their initial successes there. A new period of rapid expansion caused the state to essentially outgrow its resources. Proponents of this theory note that, outside of short-lived emergencies, the Empire was not reliant on credit and that it had enough wealth to be self sufficient several times over, maintaining a positive balance of trade and a large budget surplus almost until the final collapse. The seizure of vast new territories demanded a rapid expansion of the administration, but the Mughals failed to properly allocate necessary resources. New conquests provided more than enough potential *jagir* grants for a larger corps of officers, but too much of the best real estate was reserved for the Crown. New *mansabdars* had to compete for the remainder. Many were unable to raise enough funds to support their assigned troops and fulfill their other obligations. Disillusioned officers often resorted to corruption, theft or cooperation with the enemy. The system was eventually compromised by a loss of confidence, but in this case failure happens in the boardroom, not on the battlefield.¹⁷

Success led to other difficulties. Away from the battles on the frontiers, the Empire was extremely effective in providing safety and prosperity to its core provinces. Leaders and communities in these areas were able to amass tremendous wealth. Once the central government became entangled in the Deccan wars—and began to offset its expenses

there by imposing higher and higher taxes back home—they were able to convert that wealth into military power and assert their independence. Many of the most troublesome centers of rebellion—such as Punjab and Awadh—were actually among the most prosperous regions in India. In some ways both their grievances and the solutions they pursued were similar to the later experiences of the British colonies in North America, which were also some of the wealthiest territories in their Empire. In the Indian case—after decades of peace and without an existential threat comparable to France or the powerful Native American confederations—these provinces were even less willing to endure additional sacrifices imposed by the Crown. Their rebellions were not uprisings born out of desperation but calculated efforts by leaders acting from positions of strength, who believed that they had outgrown the Empire. ¹⁸

In the end it was most likely a complex of causes that halted Mughal expansion. The Empire's system of revenue collection placed unwelcome burdens on its subjects. The impermanency of mansabdari grants often led to poor stewardship, alienation and a lack of long-term planning. The administrative system did not always scale well. Yet, despite the impositions placed upon them, unruly local leaders were prosperous enough to mobilize formidable resources. Flaws in the system were not enough to prevent the Indian economy from becoming perhaps the wealthiest in the world. While Aurangzeb was notorious for his religious orthodoxy, he was also inflexible in other, more damaging ways. Unlike Akbar, he was unable to adapt his policies to meet the demands of expansion. The events of his reign—when a system that had ensured success and prosperity for over a century became suddenly impotent—suggest that human error may have been the single most significant cause of Mughal decline. ¹⁹

There was worse yet to come. Aurangzeb was succeeded by a series of short-lived, ineffectual Emperors whose reigns were punctuated by civil wars, insurgencies and increasing civil disorder and criminal violence. Provincial governors and other regional leaders asserted growing authority, turning their territories into de facto independent states. A weakened and fragmented Empire was vulnerable to enemies both internal and external. For the first time in generations, the threat of invasion loomed—a threat turned into reality by the Marathas, Persians, Afghans and others. The Mughal Empire had dedicated its first two centuries of existence to suppressing all rivals. It had actually achieved what contemporary European dynasties like the Habsburgs, Tudors or Valois could only fantasize about—total domination of its region. When that system finally failed there was little left to replace it. India had been hollowed out. The decline of a European power like Spain was a local disaster. The fall of the Mughals was near apocalyptic—disaster on a continental scale. Jared Diamond, writing about another vast Asian empire, explains these differing outcomes. “Europe’s barriers were sufficient to prevent political unification, but insufficient to halt the spread of technology and ideas. There has never been one despot who could turn off the tap for all of Europe, as of China... The real problem in understanding China’s loss of political and technological pre-eminence to Europe is to understand China’s chronic unity and Europe’s chronic disunity.”²⁰

In Europe the military revolution was not brought to its conclusion by a single state. It proceeded more like a relay race. As Spain and Portugal declined, the movement’s momentum passed on to the Netherlands and the Baltic and then continued into England and France. States often advanced themselves by improving on the

innovations of their enemies. After the fall of the Mughals there was no obvious successor to carry on the Indian military revolution. The political landscape of the subcontinent instead resembled that of 5th century Europe after the fall of Rome, with a number of lesser powers competing for the scraps of empire. The Mughals' former vassals and rivals—Afghans, Marathas, Sikhs, and Deccanis—continually fought amongst themselves. A number of these states did begin to adopt Western military technology and tactics. They would eventually prove to be formidable foes for the British—much more dangerous than the hapless remnants of the Mughals. Yet one particularly unfortunate development would set their accomplishments back by decades. The Afghan chieftain Ahmad Shah Durrani launched a series of invasions into India, inflicting severe defeats on the Sikhs, Marathas and other regional powers. On one particularly horrific occasion, the third battle of Panipat in 1761, the Afghans nearly annihilated the main Maratha field army, inflicting casualties worse than the British losses on the first day of the Somme.²¹ Ahmad Shah, however, did not build on his victories and take his place as the logical successor to Babur and Akbar. Instead he withdrew to Afghanistan, leaving much of northern India a wasteland in his wake. It was into this vacuum that the British East India Company expanded.

If European intervention had been postponed for a while, the native states might have recovered from this catastrophe and resumed India's military revolution. Through constant competition and conflict they might have driven each other to excel and expand—militarily, politically and economically. That was not to be. India had run out of time. It might be argued that India's loss and Europe's gain was simply a matter of timing—of contingency. Imagine Western Europe's fate if the Vikings, Saracens or

Mongols had arrived just a few decades after Rome's fall. During India's greatest moment of uncertainty and crisis there *were* external aggressors poised and ready to strike. There was no one left to wield the power of the Mughals—or to continue Babur and Akbar's legacy of excellence and innovation. The Indian military revolution would remain unfinished.

Notes for Chapter 7

1. See John F. Guilmartin, "The Military Revolution: Origins and First Tests Abroad," in *The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe*, ed. Clifford J. Rogers (Boulder: Westview 1995), 299 – 333.
2. Peter Hopkirk in *The Great Game: The Struggle for Empire in Central Asia* (New York: Kodansha, 1992) describes how even late 19th and early 20th century British field artillery struggled to breach the massively thick walls of Indian-style forts.
3. Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West 1500-1800* (New York: Cambridge University, 1996), 153
4. This discussion is described in Monserrate, *The Commentary of Father Monserrate S.J. on His Journey to the Court of Akbar*, trans. J.S. Hoyland (New Delhi: Asian Educational Services, 2003) p. 154-155.
5. Andre Wink has outlined his theory on the decline of nomads and its consequences in a series of lectures entitled "Early Modern South Asia and the Closing of the Nomadic Frontier."
6. Napier quote from a letter collected in Mirza Kalichbeg's *A History of Sind*, Volume 2, Chapter 44.
7. Pradeep Barua, *The State at War in South Asia* (Lincoln: University of Nebraska, 2005), 74
8. John F. Guilmartin, *Gunpowder & Galleys: Changing Technology & Mediterranean Warfare at Sea In the 16th Century* (Annapolis: Naval Institute Press, 2003), 280
9. Abraham Eraly, *The Mughal Throne: The Saga of India's Great Emperors* (London: Phoenix, 2004), 526. Eraly frequently describes the Mughal Empire as a "tainted paradise," most notably in the title of his other book on the subject, *The Mughal World: India's Tainted Paradise* (London: Phoenix, 2008).
10. These numbers are based on estimates of population circa 1600. India's population at this time is conservatively estimated at 100 million and could have exceeded 150 million—compared to 5-6 million for England, 10-12 million for Spain and about 20 million for France.
11. The concept of travel narrative as political commentary is discussed at length in Joan-Pau Rubies' *Travel and Ethnology in the Renaissance: South India Through European Eyes, 1250 – 1625* (New York: Cambridge University, 2000).

Examples from the Mughal Empire, such as the account of Francois Bernier, are described in the tenth and final chapter.

12. The “General Crisis” along with the concept of “Court vs. Country” were first described by Hugh Trevor-Roper in "The General Crisis of the Seventeenth Century" in *Past and Present* 16 (1959). This theory has been greatly expanded and refined by Geoffrey Parker and others, most notably in *The General Crisis of the Seventeenth Century* (New York: Routledge, 1997).
13. The philosophical and theoretical basis of Mughal law and government, including the Akbari Constitution, are discussed in Chapter Six of Douglas Streusand’s *The Formation of the Mughal Empire* (New Delhi: Oxford University, 1989).
14. M. Athar Ali describes the agrarian crisis in “The Passing of Empire: The Mughal Case,” *Modern Asian Studies* 9, no. 3 (1975): 385-396 as well as the later chapters of *The Mughal Nobility Under Aurangzeb* (New Delhi: Aligarh University, 1968). Irfan Habib makes similar arguments in “Potentialities of Capitalistic Development in the Economy of Mughal India,” *The Journal of Economic History* 29, no. 1 (March 1969): 32-78 and his longer work, *The Agrarian System of Mughal India, 1556 – 1707* (New York: Oxford University, 1999).
15. For a description of this economic theory of Mughal decline, see Karen Leonard’s “The Great Firm Theory of the Decline of the Mughal Empire,” *Comparative Studies in Society and History* 21, no. 2 (April 1979): 151-167.
16. M.N. Pearson explains this process in “Shivaji and the Decline of the Mughal Empire,” *The Journal of Asian Studies* 35, no. 2 (Feb. 1976): 221-235.
17. John F. Richards discusses the Southern troubles in “The Imperial Crisis in the Deccan,” *The Journal of Asian Studies* 35, no. 2. (Feb. 1976): 237-256 and the later chapters of *The Mughal Empire* (New York: Cambridge University, 1995). He provides an even more detailed assessment, focused on the case study of one captured province, in *Mughal Administration in Golconda* (London: Clarendon, 1975).
18. Muzaffar Alam explains how rebellion can be caused by prosperity instead of scarcity in *The Crisis of Empire in Mughal North India: Awadh and the Punjab, 1707 – 1748* (New York: Oxford University Press, 1986).
19. Ali suggests that Muslim orthodoxy stunted the intellectual growth of the later Empire. He identifies this close-mindedness as a common trend among failing Islamic states of that era. As Europe began its Age of Enlightenment, the Islamic world was entering an Age of Ignorance. This is debatable, since the Empire was never a theocracy—despite Aurangzeb’s efforts—and most of its population was non-Muslim. Richards argues that racial prejudice aggravated factionalism in the

wake of the Deccan Wars, as the Empire was unable to smoothly assimilate local elites composed of dark-skinned Southerners. Again this may be difficult to reconcile with an administration that was diverse enough to include members as exotic as white Europeans and black Africans.

20. Jared Diamond, *Guns, Germs and Steel: A Short History of Everybody for the Last 13,000 Years* (London: Vintage, 1998), 412

21. See Barua, 59 – 66 for a chilling description of this disaster.

Conclusion

After a thorough examination, the picture that emerges of the Mughal military system—and of the general state of the military art in early modern South Asia—is much different than the image presented by conventional wisdom. For both the growing Empire and its rivals, this period was one of profound, revolutionary change in the way their states and societies waged war. In the space of a few brief decades the Mughals and their enemies mastered new technology and developed complex doctrine and tactics for its use in battle. Gunpowder weapons played an important role in the creation of the new system, but they were part of a larger whole. The method of warfare that became the standard in India was based on a sophisticated combined arms approach and the close coordination of infantry, cavalry and artillery. In support of these combat operations the Mughals also created complex procedures for the mobilization and preparation of manpower and material goods. The final outcome of all of this organization and innovation was one of the world's most formidable military machines, a force that could match any of the emerging Western armies in quality and exceed all of them in quantity. There was nothing regressive or inferior about the Mughal army or the methods of warfare practiced in South Asia during this period. They were in fact the product of an evolution not dissimilar to the ongoing "Military Revolution" in Europe. Yet not all of their inventions and solutions were identical to those implemented in the West. While the Mughals and

other Indian states adopted technology and processes from abroad, they were informed consumers, not passive imitators. They adapted and refined their new instruments to meet the unique demands and challenges of their setting.

The military system originally introduced by Babur and the first Mughals incorporated elements not just from Europe but from all over the world. Gunpowder weapons—and novel tactics for their use in battle—with origins in Central Europe and the Ottoman Empire were combined with the existing practices of Central Asian cavalry warfare and India's tradition of yeomen militias and infantry combat to form a whole that exceeded the sum of its parts. By utilizing both the flexibility of cavalry and skirmishers and the rigidity of field fortifications the Mughals were able to dictate the time, place and pace of battle and pursue the strategic and operational offensive while maintaining the tactical defensive. Using this system they won battle after battle and war after war, expanding from Babur's ragtag band into a true great power within the space of a few decades. Even the defeats and setbacks they suffered along the way were not caused by a resurgence of the old military order but by the ability of their Indian rivals to successfully adopt and refine their inventions. By Akbar's reign the new technology and tactics had become standard practice throughout the region, and the conduct and experience of warfare in South Asia was changed profoundly and irrevocably.

The new devices were so effective because the Mughals were able to internalize the changes in technology. Contrary to the concept of the "Gunpowder Empire" in which Islamic states supposedly used artillery and muskets as blunt instruments without truly understanding their full implications, the Mughals devoted a great deal of thought and attention to the optimal implementation and refinement of firearms. Guns were not

simply tools used by hired hands. They were an obsession for the elite. The emergence of a Mughal gun culture wherein important people of all sorts, up to and including the Emperor, devoted much of their time to collecting, testing and tinkering with a wide variety of firearms reveals the depth of the intellectual engagement with technology in the Empire. The adoption and clever use of these new weapons—not just muskets and conventional cannon of all sizes but developments in light artillery unique to the region like camel guns and rockets—had a profound impact on the battlefield. The stereotypical idea of Muslim armies tethered to trains of massive siege guns and unable to use artillery effectively in the open field had little to do with the reality of Indian combat during this era. The Mughals and their enemies actually employed a wide variety of agile and lethal field artillery. Along with larger cannon, muskets and great numbers of trained archers they produced a battlefield saturated by fire. This uniquely dangerous environment would ensure that tactics in South Asian armies would evolve much differently than those in the contemporary armed forces of Europe.

The tactics adopted by the Mughal army were shaped not just by the weapons and equipment used but by the personnel available. Horse archers, with their ability to maneuver and attack at range simultaneously, played a vital part, but despite their iconic role in the heroic narrative of Imperial expansion they did not win battles by themselves. The mounted bowmen were complemented by heavy shock cavalry and a variety of infantry units, including musketeers, foot archers and “gladiator” troops specializing in hand to hand combat. Balancing and coordinating these various elements and their supporting artillery and bringing them to action in the proper sequence required a deep understanding of tactics and command. Fortunately, the Mughal leaders were up to this

task. They were grounded in a sophisticated Central Asian military culture that promoted prudence, discipline, skill and initiative. They combined the existing, highly complex tactical system of Central Asia with new developments in technology and organization from Europe and the Middle East. The resulting method of warfare would appear alien to Western observers. Instead of large linear formations and close order drill it was based on field fortifications and entrenchments combined with skirmishers, maneuver elements and small unit tactics. Many outsiders viewed this system as inferior and a symptom of the underlying indiscipline and backwardness of Mughal and Indian culture, but it was in reality a logical response to an extremely hazardous battlefield environment dominated by fire. It actually demanded a higher degree of discipline and initiative from the individual soldier and small unit commander and in many ways anticipated much later developments in Europe after the introduction of rifle muskets, breechloaders and even more lethal field artillery.

Such a demanding setting meant that great care had to be taken in the recruitment, organization and training of soldiers. The Mughals devised a complex system for recruiting both officers and enlisted men and for ranking and grading them after their induction. There was no lack of quality manpower available. Aside from the warlike chiefs and tribesmen of their ancestral Central Asian homeland and adventurers from Europe, Africa and the Middle East, the Mughals were able to call upon troops raised within India's highly developed native military culture. In the decades of disorder between the decline of the Delhi Sultanate and the founding of the Empire South Asia had become an armed society. Almost all new recruits in this setting could be expected to already have at least basic weapon skills and military training. Once enrolled, these

soldiers and their units continued to participate in organized maneuvers and practice sessions. Formal military drill was supplemented by less official but still essential activities. Men—and a few women—of all social classes took part in games and sports intended to prepare them physically and mentally for the rigors of military service. These contests included hunting, horse racing, target shooting, fencing, wrestling and a wide variety of other martial arts. The more educated also studied military manuals and played games of skill like chess and cards to further sharpen their wits and tactical acumen. All of these activities provided a shared experience that promoted the development of a unifying martial culture in a very diverse Empire.

The Mughals' highly trained fighting men were supported in the field by many skilled and well-paid civilian professionals—pioneers, porters, animal handlers, craftsmen, cooks, clerks, physicians, engineers—who were vital to their success. They kept the troops fed, sheltered, healthy and equipped in the field and cleared the way for their progress, building roads, bridging rivers and often literally reshaping the landscape in front of them. The Mughals also had to manage a number of other critical tasks outside of combat. These jobs included the manufacturing, procurement and stockpiling of weapons, equipment and other supplies, management of prisoners, maintaining a police force and gathering intelligence. Their large logistical establishment and the relatively high status of support personnel in this system were more reminiscent of a modern military than a medieval one. Critics of the Mughal military system frequently describe it as cumbersome and inefficient, emphasizing the deliberate pace of its operations and the large numbers support personnel it required. While the Imperial war machine was often

slow to move, it moved with a purpose. Caution and attention to detail, not a lack of capability, dictated the pace of its actions.

Despite all of these accomplishments, the Mughal military system and the Empire it supported did eventually fail. This failure might easily be used as a justification for the continued neglect of Mughal military history. The upheavals in India that accompanied the collapse of the Empire were so severe that in many ways they wiped the slate clean. Unlike the revolutionary military establishments of Europe, the Mughal army did not have a profound impact on armed forces all over the world long after the demise of the regime it served. Yet it would be foolish to assume that the Imperial system had no influence on later developments. At least two significant military technologies that would play a significant role in the following centuries—rocketry and camouflage—made important advances in South Asia during this era. Beyond the obvious material remnants there were also less tangible results. While the region's later colonial masters superimposed a European political and military order, most of their soldiers were still Indian. These men were products of a martial ethos and a body of military knowledge that had their roots in the Mughal era. Much of the ongoing colonial narrative involved efforts by the British to negotiate with, utilize and eventually subvert this warrior culture. It is not possible to fully appreciate military and political developments in colonial and modern India without understanding what came before.

On a much larger scale, an exploration of the Mughal military system can be a starting point for further assessment and reassessment of not just the Empire as a whole but of how political, social and intellectual establishments functioned in early modern South Asia. It should be readily apparent that India was in fact fully engaged with the

early modern world and not left behind in an extended medieval era. Both the Mughals and their rivals in the region showed by their conduct of warfare the ability to manage complex systems, to learn, rationalize and integrate new technology and doctrine from diverse sources and to reshape these inventions to meet their own specific challenges and objectives. The organizations that emerged from this process were not without flaws. The Mughal Empire—like its contemporaries in Europe—was not a truly modern state, but it was moving towards modernity, towards the future and away from the past. It was eventually undone by misfortune and by the misdeeds of its leaders, but the political, economic and intellectual links that it had forged with the rest of the world remained. India was not backwards or isolated. It did not enter the global community at the onset of the colonial era—it had been there all along.

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