INTRODUCTION

The Military Revolution and the First International System

EUROPEAN EXPANSION from the end of the fifteenth century to the end of the eighteenth transformed the world in creating the first genuinely global political and economic systems. It was initiated by near-simultaneous voyages West across the Atlantic to the Americas, and South and East around the coast of Africa, across the Indian Ocean to Asia by explorers like Christopher Columbus and Vasco da Gama. The subsequent growth of the European presence across the oceans is often said to be the result of superior military power: better weapons, and better organizations for using them. Known as the military revolution thesis, it argues that expansion was primarily the result of European militaries and states outcompeting opponents abroad, because Europeans were better adapted to the demands of war, having survived and learned from fierce competition at home. It is based on the assumption that competition produces more efficient organizations that are better adapted to their environment, thanks to a combination of rational learning and Darwinian selection.

In this book I question each element of this account, and suggest an alternative explanation. Europeans did not enjoy any significant military superiority vis-à-vis non-Western opponents in the early

modern era, even in Europe. Expansion was as much a story of European deference and subordination as one of dominance. Rather than state armies or navies, the vanguards of expansion were small bands of adventurers or chartered companies, who relied on the cultivation of local allies. Fundamental to the Europeans' success and survival was a maritime strategy that avoided challenging the land-based priorities of local polities, and in the Americas disease that brought about a demographic catastrophe. The greatest conquerors and empire-builders of the early modern era were in fact Asian empires, from the Ottomans in the Near East, to the Mughals in South Asia, and the Ming and Manchu Qing in China. Giving due attention to these great powers helps to correct the Eurocentrism that has so often biased earlier studies, and brings into question conventional cause-and-effect stories about war-making and state-making. A more cosmopolitan perspective reveals the diversity of the relationships between military and political development, in that there were many roads to different outcomes rather than one route to a common destination.

This alternative perspective contrasts with the traditional view of European expansion being a state-directed effort, premised on using the same tactics and technology as in warfare between Europeans. It brings into question the idea of tight cause-and-effect connections between new weapons, tactics, large standing armies, and the rise of the sovereign state. More broadly, the argument put forward here contradicts and supplants the model of military competition producing efficient, well-adapted fighting organizations through some combination of learning and elimination.

The significance of the process by which the first global international system was created is in many ways obvious. Vast, ancient, and previously isolated civilizations came into regular contact with the rest of the world. People, goods, diseases, and ideas circumnavigated the globe for the first time, transforming societies and ecologies in their wake. Yet for the purposes of this book, I concentrate on a few key implications for world politics, but also for the way we study it.

We have had a connected, global international system for around 500 years, a period often seen as synonymous with the era of Western dominance. The assumptions that have underpinned the study

of the international system and the theories developed to explain it both start from this premise of Western military and political hegemony. But in fact, for more than half the time there has been a global international system, it was not dominated by the West. On the contrary, European nations were puny in comparison with Asian great powers like the Mughal or Chinese Ming and Qing empires in terms of population, riches, and military might. The fact that this has often not been recognized illustrates how deeply warped our sense of the historical development of international politics is and has huge implications for our understandings of the past, present, and future. Biases of place and time have not only systematically overstated the importance of European powers while understating the importance of those from other regions, they have also fixed a single, deterministic path of military-institutional development as constituting the historical norm.

The history of warfare is crucial as the raw material for generating and testing many social science theories. Military force has been regarded as the ultimate decider in world politics. The military revolution thesis that recurring wars between the great power drove military innovation and state-building in Europe, which subsequently gave these states a competitive advantage they used to dominate non-European polities, is a bedrock of much historically oriented social science. It has informed our understandings of the rise of the sovereign state and the modern state system. Scholars are increasingly interested in the rise and fall of the international orders. The period from 1500 to the end of the eighteenth century gives us an example that is at once intimately connected to our own through myriad historical legacies, while being distinct enough to jolt us into an appreciation of how a pluralistic global order works, absent the domination of any one civilization. How much of what we think we know about the way international politics works is really a parochial, Eurocentric perspective on the way *Western* international politics works? The early modern period uniquely has a potential to answer this question.

From the conventional historical perspective of a "Columbian" or "Vasco da Gama" epoch of military-driven European dominance, the prospect of a global international system not dominated by the West, sparked by concerns about rising powers like Japan, or more

recently China and India, looks historically unprecedented—a leap
into the unknown. Putting early modern Asian great powers in their
proper context would make such a future world seem much less
remarkable or strange; perhaps it would be a return to the histori-
cal norm after a relatively brief period of imbalance. This is one way
that changing our views about the past can fundamentally change
our views of the present and the future.

In looking at the way history informs our theories of how inter-
national politics works across time, I offer some thoughts on the
relationship between the disciplines of history and social science.
A key conclusion is that historians and social scientists share more
similarities than either often likes to think. I also emphasize what
those in the social sciences, especially International Relations and
political science, can learn from recent revisionist historians' work
about relations between Europeans and other civilizations in Af-
rica, Asia, and the Americas to supplant the military revolution
thesis. Any effort to understand a topic as huge as the creation and
workings of the early modern global international order requires
the insights of different disciplines.

The Shape of the Argument

A recent book observes that "in all the debate, few scholars have
actually tested [the] claim that the military revolution underlay
European colonialism. To what extent did Europe's military inno-
vations between 1450 and 1700 actually provide Europeans an edge
in warfare?"[1] The evidence I present in Chapters 1–3 shows that
the military revolution thesis simply does not fit with the evidence
from either Spanish conquests in the New World, or Portuguese,
Dutch, and English engagements in Asia and Africa.

To begin with, the styles of warfare Europeans used abroad were
almost completely different from those that they used at home. With
rare exceptions, neither the tactics, nor the armies, nor the organi-
zations fit the templates of the military revolution thesis and great
power war in Europe. The volley fire by massed musketeers pro-
tected by pikemen that came to dominate warfare in Western and
Central Europe was almost never used elsewhere. Instead of the
massive armies states deployed in Europe, expansion in the wider

world was propelled by tiny expeditionary forces. Furthermore, in most cases these forces were essentially private, being ad hoc bands of adventurers or chartered "company sovereigns." Different circumstances in different locations called for different responses, undermining the idea that there was one, superior, European way of war.

More fundamentally, by and large, there was no general European military superiority over other civilizations in this period. The *conquistadors* achieved their most famous victories in the Americas thanks to a combination of disease, local allies, and cold steel,[2] while their less well known defeats belie the myth of their invincibility. Europeans maintained their toeholds in Africa under the sufferance of African rulers. On the rare occasions the Portuguese and others challenged African polities to war before 1800, they generally lost. Europeans adopted a general position of deference and subordination to the manifestly more powerful empires of Asia, from Persia, to the Mughals, to China and Japan. Once again, the Portuguese, Dutch, English, and Russians were all on the receiving end of sharp defeats in the exceptional instances they clashed with these empires. Finally, at home in Europe and the Mediterranean, Europeans struggled to hold out against the Ottomans, and experienced consistent disappointment in their military ventures in North Africa.

So far this is all rather negative; if not the military revolution, what, then, does explain the first few centuries of European expansion? It's important to spell out the main elements of my positive thesis. First, a reminder that expansion is not at all the same thing as domination or conquest.[3] In early modern Africa and Asia, the European presence was overwhelmingly maritime, focusing on militarized control of seaborne trade through key ports and sea lanes. In contrast, most powerful local polities were largely indifferent to the seas, being concerned with control of land and people. This coincidence of complementary maritime and terrestrial preferences allowed for a rough co-existence between the "lords of land" and "masters of water." Despite a general European posture of deference to more powerful local rulers, certainly it was not all peace and harmony. Expansion involved a great deal of violence. At a more tactical level, European coercion of weaker African and Asian

actors rested on the cultivation of local allies, and military, logistical, political, and cultural adaptations to varying local contexts. Finally, in the Americas, as noted, there was the additional factor of disease and demography that laid low the most powerful empires, and consistently sapped the strength of indigenous resistance thereafter.

Taking a less Eurocentric, more wide-ranging view of the interaction of war, politics, and society from the Western to the Eastern extremity of Asia further undermines key tenets of the conventional wisdom. The Chinese, who invented and developed gunpowder weapons from 900 to 1200, had already reached most of the key milestones of military and administrative modernity centuries before Europeans. The Ottomans and Mughals constructed polities that commanded far more people, money, and military power than any of their sixteenth- and seventeenth-century European counterparts. The Mughals overawed the essentially trivial European presence on the fringes of their domain until the unraveling of their empire at the beginning of the 1700s. The Ottomans steamrollered their opponents, first by destroying the last remnants of the Roman Empire, then conquering Arabia, North Africa, and Southeast Europe.

How does an understanding of these Asian polities change our perspective on developments in Europe? First, it disconfirms the idea of a single path to military effectiveness, of sequences of necessary and sufficient causes, either technological or tactical, by which war makes states. Second, it undermines stereotypes according to which relatively transient successes by small European polities are too often portrayed as epochal triumphs, whereas mighty, long-lived Asian empires are characterized as merely failures waiting to happen.

The discussion so far may seem to be avoiding the obvious retort: the Europeans won in the end. In response, the concluding chapter examines the lessons drawn from the early modern period in light of the subsequent experiences of the nineteenth-century "new imperialism," when European armies carried (almost) all before them. It then contrasts the "new imperialism" with the subsequent European contraction in the twentieth century characterized by decolonization, and Western defeats at the hands of various Communist and Islamist insurgencies. It makes the point that the

Europeans didn't win in the end: their empires fell, and their military capacity shriveled. Even the United States has experienced more defeats than victories against non-Western forces over the last half-century.

I argue that the broad contours of events from the end of the early modern period to the present tend to bear out the primacy of ideas, legitimacy, and culture over explanations based on rational efficiency and selection, and also cast doubt on the idea that technology and battlefield predominance are the mainstays of military effectiveness and geopolitical success. Nineteenth-century empires were often essentially prestige projects that did little to advance the military or economic power of the European nations in question. The struggle over decolonization saw technologically and administratively more advanced societies and militaries consistently lose to less advanced ones. European powers won most of the battles while losing most of the wars, a pattern that recurred in the U.S. counterinsurgency wars of the late twentieth and early twenty-first centuries. This brings into question the importance of technology, and the presumption that military adaptation leads to more homogeneous organizations, rather than more differentiated ones, as part of the now familiar idea of asymmetrical warfare.

I expand on each of these more general points and the relationship between history and the social sciences in the second half of this Introduction. But the priority now is to lay out what the military revolution is, and how it is said to explain European expansion.

What Is the Military Revolution?

Several of the key ideas that provide the foundation for the military revolution thesis, especially the decisive role of gunpowder weapons and military competition in Europe, have been in circulation for centuries. They are found in the writings of Montesquieu, Gibbon, Mill, Burke, Adam Smith, and Schumpeter, among others.[4] Yet in its contemporary form, this argument was first put forward by the military historian Michael Roberts in 1955. Roberts saw the military revolution as sharply dividing the medieval from the modern world, thanks to an interlinked process of rapid military and political change in Europe 1550–1650. (It is worth noting that for

International Relations scholars the Treaty of Westphalia that concluded the Thirty Years War in 1648 conventionally marks the beginning of the modern era.) There are four key elements to Roberts's argument: tactics, strategy, army size, and state development.

Tactical change came about from the 1590s when Dutch reformers adapted classical Roman linear battlefield formations, and began drilling musketeers in volley fire. A few decades later, the Swedish king Gustavus Adolphus combined this innovation with light field artillery and the re-introduction of the cavalry charge. Mastering these new tactics required more training, especially extensive drill, and more officers, in turn necessitating a permanent, salaried, and professional standing army. The coalition warfare of the Thirty Years War in Central Europe saw an expansion in strategic aims, as multiple armies were used to achieve military objectives. The third change was that armies became much bigger, "the result of a revolution in strategy, made possible by the revolution in tactics, and made necessary by the circumstances of the Thirty Years' War."[5] Both the total number of troops rulers maintained under arms expanded, as well as the number committed to individual battles.

Finally, and most importantly, larger, professional, permanent armies required much more money to pay for them. Rulers had to develop a centralized, hierarchical administrative apparatus, and reach deeper into society to extract the necessary resources. Here was the crucial link between changes in warfare and the development of the modern state.[6] In his brilliant essay "War Making and State Making as Organized Crime," Charles Tilly explains the process as follows: "After 1400 the European pursuit of larger, more permanent, and more costly varieties of military organization did, in fact, drive spectacular increases in princely budgets, taxes, and staffs. After 1500 or so, princes who managed to create the costly varieties of military organization were, indeed, able to conquer new chunks of territory."[7] Thus success was said to bring about a self-reinforcing positive feedback loop: greater resources generated greater military power, which then generated yet more resources.[8] Each of these elements was said to require the others in the same set causal sequence, rather than being changes that just happened to coincide with each other. The engine that drove this

whole process was said to be military competition: those that failed
to keep up were beaten, and perhaps eliminated altogether. This
idea of Darwinian military competition spurring military innova-
tion, learning, emulation, and elimination is a recurring theme in
both historical and social science scholarship, and is covered in de-
tail at the end of this Introduction.

The Military Revolution and the Rise of the West

Roberts's argument was influential, but was only indirectly related
to developments beyond Europe. The next step, taken by Geoffrey
Parker, was to link advances in European warfare to the rise of the
West more generally. As a result, the military revolution thesis is
now more significant for discussions of the rise of the West and
developments outside Europe than those inside Europe.[9] Parker
began by modifying Roberts's original thesis, emphasizing guns and
fortifications rather than tactics as the original source of change.
Specifically, in the 1400s new cannons were able to batter down
medieval castle walls. Suddenly vulnerable, rulers scrambled for
a solution entailing a new style of fortifications with low, thick,
artillery-resistant walls, coupled with angled bastions, which caught
attackers in intersecting fields of fire. The catch, however, was that
these new *trace italienne* (Italian design) fortresses were very ex-
pensive to build, and required a large and correspondingly costly
army to garrison or attack. Thus by a different route, Parker got to
the same point of intersection between war and state-building as
Roberts: more money and more troops required the development
of a centralized administrative apparatus. Once again, military com-
petition was the engine of change: rulers learned that to remain
competitive in war, they had to keep up with these new trends.
Those that did not risked being conquered and disappearing from
the scene. For both Roberts and Parker, the pressure to centralize
and extend the state apparatus was paralleled by the tendency
whereby smaller feudal lords and private wielders of violence fell
behind the demands of the military revolution, and so were pro-
gressively absorbed into the new, "fiscal-military" states.[10]

Undoubtedly the most important innovation of Parker's argu-
ment, however, was in the direct link between the changes in the

character of European war, and subsequent European expansion
in the Americas, Africa, and Asia. The pressures of military com-
petition within Europe were said to have produced organizations
with superior military effectiveness relative to those in the rest of
the world. Parker summarizes his thesis as follows: "the key to the
Westerners' success in creating the first truly global empires be-
tween 1500 and 1750 depended upon precisely those improvements
in the ability to wage war which have been termed 'the military
revolution.'"[11]

A crucial link between the European and global aspects of the
military revolution thesis is the accompanying advances in naval
warfare. New dedicated warships capitalized on more advanced
navigation and design techniques to venture further, while carry-
ing rows of cannon able to sink ships and bombard targets ashore.
Like new-style fortifications, these gun-armed ships were very ex-
pensive, reinforcing the pressures for more tax revenue and intru-
sive state intervention in society in order to stay competitive. The
feudal and private groups that had carried on medieval naval war-
fare were unequal to these demands, and hence were sidelined.[12]

The Western advantage in military technology and organization
relative to other civilizations was said to pay off quite early: "By
1650 the West had already achieved military mastery in four sepa-
rate areas: central and northeast America; Siberia; some coastal
areas of sub-Saharan Africa; and, in some parts of the Indonesian
and Philippine archipelagoes."[13] According to Parker, the combi-
nation of new weapons, like muskets and artillery, new tactics, new
warships that were able to cross oceans and dominate naval and
littoral areas once they arrived, and finally the financial, logistical,
and administrative wherewithal of the newly centralized modern
sovereign state, enabled Europeans to bring around a third of the
world's land area under their control by 1750.[14]

While some historians have queried the timing, duration, and
revolutionary character of the changes identified,[15] the thesis has
won broad acceptance as an explanation of European expansion,
in part because it builds on and complements a much older and
established tradition of thought. The idea continues to enjoy wide
currency that, from around 1500, Europe began to dominate other
civilizations due to superior military technology and techniques

developed thanks to especially intense security competition within
Europe.[16]

To be sure, there are important variations. Some believe that
Europeans' military edge was itself a product of an underlying in-
stitutional and economic advantage, which once again reflects the
uniquely competitive nature of the European international system.[17]
Others point to favorable geography or cultural attributes as pre-
ceding or producing European military superiority.[18] Others see
the particular type of military competition in Western Europe as
especially conducive to stimulating innovation. For example, as one
of the few areas of the world not threatened by horse nomads, West-
ern Europeans concentrated on improving early guns that were
useful in infantry battles, but not for countering cavalry armies.[19]

Those working in the field of International Relations have tended
to take on the same logic.[20] Following Thompson's "military su-
periority thesis,"[21] MacDonald summarizes the dominant state of
thinking in the discipline on why Europe conquered much of the
rest of the world by exactly replicating by the military revolution
argument:

> European warfare underwent a profound transformation beginning in
> the sixteenth century. On land, the spread of gunpowder-based weap-
> ons, as well as specialized fortifications designed to resist these arms,
> transformed the nature of combat.... European states were increas-
> ingly compelled to raise large standing armies, which were dominated
> by highly trained and well-drilled infantry.... Although driven by
> competition between European states, the unintended consequence of
> this "military revolution" was to widen the gap in military power be-
> tween Europe and the rest of the world.

Even social scientists who explain the eventual dominance of
Europe as being due to economics often still employ the military
revolution thesis as a vital part of their account. Thus the econo-
mist Douglass North asks:[22]

> What set off the expansion of Western Europe, which led to its ultimate
> hegemony in the world? A proximate part of the explanation, though
> certainly not a complete one, is the revolution in military technology
> that occurred in the late Middle Ages; the cross-bow, the long-bow, the

pike, and gunpowder had implications for the organization and capital
costs of warfare. The costs of warfare rose. So, accordingly, rose the costs
of survival of political units. Because kings were supposed to live on their
own, they were faced with devising ways to increase fiscal revenues.[23]

Those approaching the question from a Marxist perspective also
use the logic of military competition to argue the link between
deep economic causes and geopolitical outcomes:

> In late medieval and early modern Europe, there was little possibility
> for a single empire or state to subdue the entire continent.... This lent
> itself to a more unstable and fluid geopolitical environment in which
> military competition and war were a near-constant feature of Euro-
> pean life over many centuries.... The rapid growth in Europe's mili-
> tary sectors was perhaps a key reason, along with the development of
> stronger fiscal and organizational capacities, for Europe's later success
> in overseas conquests.[24]

For most scholars of International Relations, this narrative is
no less influential for being tacit, a presumed foundation of why
the world is the way it is and how it got that way. As the most con-
sequential sustained use of armed force and conquest ever in world
history, with huge consequences for contemporary international
politics, examining and explaining the history of European expan-
sion should be a top priority for social scientists. For a discipline
whose whole reason for being is world politics, it is surprising how
little International Relations research has been conducted on the
really big developments: the creation of the first global interna-
tional system, the relatively brief period of European dominance
over the rest of the world in the era of the "new imperialism," and
the collapse of these world-spanning empires in the twentieth cen-
tury. In part this might reflect the legacies of the attitude that the
proper concern of International Relations was restricted to rela-
tions between "civilized" states.[25]

Having laid out the main features of the military revolution,
and how it is said to explain Western global dominance, it is now
important to return to three more general topics raised earlier: how
we study Europe compared to the rest of the World, the differences

and similarities between historians' and social scientists' treatment of the military revolution, and the tendency to reason that learning and competition produce well-adapted, functionally efficient, and effective organizations. To anchor the discussion of this last matter, I use an example from African warfare concerning the use of magic in war that sharply illustrates the distinction between the conventional rational-functionalist logic, and a more cultural approach.

Eurocentrism

The military revolution thesis was initially about developments in Europe, before being extended to explain why Europeans won and everyone else lost. The common puzzle is what was special about Europe. Why, from unpropitious medieval beginnings, did this region later achieve world domination? Earlier scholars had an unabashed conviction that Europeans were inherently superior to other races.[26] Even though this attitude has been discredited, significant biases linger.

To begin with, there is just a lot more history and social science written about Europe, particularly Western Europe, than any other region of the world. Many claims about supposedly unique European achievements have turned out to reflect ignorance about the rest of the world. Any example looks unique if you ignore all the rest. Although this imbalance is far from rectified, new studies of other regions have increasingly debunked claims of European exceptionalism. As one historian puts it: "Any time someone argues that Europe had an advantage in a given area–say property rights, or per capita income, or labor productivity, or cannon manufacture– along comes an Asian historian pointing out that that claim is false. The case for European exceptionalism has unraveled like a ball of string."[27] Despite their ambitions to come up with general theories of politics unbound by particular time and place, International Relations scholars have often been just as bad in their myopic focus on Europe, and their corresponding indifference to the experiences of other parts of the world.[28] One of the main aims of this book is to do something to help rebalance the scales by giving other regions and civilizations equal weight.

More than just a matter of being politically incorrect, Eurocentrism has greatly restricted our ability to explain the past and the present. First, as the quote above illustrates, proving that there is something truly unique about Europe requires careful, detailed studies of other areas as well. For example, was military competition in Europe really so different from that elsewhere? Second, something of a contrast with seeing Europe as *sui generis* is the view of Europe as the universal model, defining the normal and natural pattern for others to follow, even if these others were backward in doing so at a later historical stage. Third, there is a tendency to see events that happened in a certain order in Europe as causing each other, and as necessarily having to happen in that specific sequence. The military revolution thesis provides some good examples here: it is not just that new technology and tactics spread, and then by coincidence shortly afterward armies became permanent and professionalized. Instead, the argument is that new technology (guns) and tactics *caused* the advent of standing professional armies, and that *only* permanent professional armies could use these new techniques. The same type of inevitable, invariant relationship is said to hold between the increase in army size and the development of the modern state. Again, however, it is hard to have confidence in these strong causal claims without comparing them to the way equivalent processes played out elsewhere.

A further subtle but extremely important bias is the way background assumptions set basic questions and starting points. For example, implicit in most of the writings on European intercontinental expansion is the idea that any civilization with the wherewithal to do the same would have, and in some sense should have, gone forth and conquered the rest of the world in the same manner. Aside from the point that this is factually wrong (the Chinese had the necessary naval technology and military capacity in the 1400s without seeking to build an overseas empire), there is the deeper, usually unasked question of why one would make this assumption in the first place. Even more important is the habit of starting at the "end" of the story, European dominance, and then working back through the historical record, which creates a tendency to look for the precursors of supposedly inevitable European

success, and the equally inexorable failure of everyone else.[29] The historical starting point of explanations tends to bias their conclusions: "By directing attention to a time period [after 1500] rather than to a region, Western scholars can place the West at the center of any discussion, and subordinate backward Asia to Western history, without explicitly condemning Asian cultures and polities or arguing for a narrowly Eurocentric view of the world."[30] In contrast, if the "end" of the story is any time after decolonization, or the recent resurgence of powers like China, the story is put in a very different light.[31]

Given the importance of deciding when to start and finish the historical coverage, why the heavy focus on the early modern period in this book? Certainly there is some merit to the charge that my starting point at the end of the fifteenth century is itself biased, as it reflects the beginning of the age of European expansion. Yet it would be a major mistake to see Westerners as the only, or even the most important, empire-builders of the early modern era, considering the achievements of various Islamic and Chinese conquerors. Conversely, if the book is about the military rise of the West, why does the story wind down from the end of the eighteenth century, instead of at some point in the twentieth century at the apogee of Western empires, or the beginning of decolonization?

Here historians and social scientists are generally in agreement that explaining European dominance after the onset of the Industrial Revolution is a different kind of problem from that in the previous three centuries.[32] The bounding of Parker's original thesis reflects this periodization. While almost no one questions the idea that the West was dominant in the nineteenth century, there are a growing number of critics who do question this idea as applied to the early modern period, a skepticism that I share. The crux of the argument is whether the West enjoyed military superiority in the period after the beginning of regular interactions with polities in the Americas, Africa, and Asia, but before what many agree to be a "great divergence" at the end of the eighteenth century.[33] Yet in the interest of fairness it is important to consider how my argument fares when assessed from subsequent eras, and thus the last chapter

looks at the "new imperialism" of the nineteenth century, and the process of decolonization and insurgency from 1945 to the present. How did Europeans win in the end–before they later lost?

History and Social Science

Historians and social scientists often don't think much of each other's work. As one (anonymous) commentator on an earlier version of my argument put it:

> The author perhaps underestimates or really understates (out of decency) the disdain with which historians regard political science theories, a stance bordering on revulsion and utter disregard. Military historians are slightly less contemptuous of political science than historians as a whole, but that is a very, very low threshold indeed.

Evincing something of the same sentiment, after a rare moment of contact, another eminent military historian is moved to remark, "I apologize for the brief venture into the generally unrewarding woods of International Relations theory" (a little more optimistically he continued with the slightly backhanded point that "Alas . . . it should be regarded as inescapable in any book on warfare in any period, past, present, or future").[34] Social scientists often return the favor, with equally unflattering stereotypes of historians.[35]

Despite these differences, historians and social scientists have taken very similar views on the nature and global consequences of the military revolution in European expansion. Those in International Relations and cognate fields have relied heavily, if often only implicitly, on the arguments put forward by Roberts and Parker.[36] Historians for their part have often adopted a very social scientific mode of explanation. Both have often tended to share the same unfortunate Eurocentrism. These commonalities and overlaps show up the falseness of stereotypes that portray those like political scientists, sociologists, and others in the social sciences as engaged in a fundamentally different kind of enterprise from historians. This caricature suggests that historians zoom in to focus on detail and specificity, thereby producing rich descriptions, but that they shy away from the cause-and-effect accounts, and big-picture, univer-

salist theorizing that define social science. When it comes to the military revolution and the rise of the West, nothing could be further from the truth. If anything, historians may be a little too enthusiastic in their simplified, rigid, and universalist causal stories. At least in this area, historians have been surprisingly keen on the idea that organizations in competitive environments are rapid and effective learners, in the ways that economists think of firms in competitive markets. The fact that scholars from a range of different disciplines are looking at the same sort of problems, and trying to explain them via an exchange of ideas across boundaries in the same sort of language, is, however, a notable positive. There is less need to argue about what the questions should be, and more time to look for answers.

So far, however, those specializing in the study of world politics have been surprising peripheral to debates about the rise of the West. One might think that the discipline of International Relations, fixated on matters of war and peace, especially the idea of military competition and insecurity, would play a starring role. In fact, with some exceptions, they have been conspicuous by their absence.[37] This is despite the fact that International Relations credits the military revolution, directly or indirectly, with the two most important developments of the last millennium in international politics: the (twin) dominance of the West and of the sovereign state. The mainstream of the discipline tends to unreflectively anchor foundational beliefs in historical accounts that are increasingly coming under challenge. This is a lost opportunity for all concerned.

What, then, do political scientists have to offer historians in explaining the historical developments, if anything? Perhaps strangely, a contribution I aim to make as a social scientist is to urge more skepticism concerning common social science assumptions, concepts, and methods of designing explanations, and to show something of the problems and pitfalls of these assumptions, and ways of reasoning. Specifically, instead of the all-too-easy assumption of efficient, rational learning, and competitive military environments creating better adapted actors, I argue for a perspective where cultural factors are at least as important. What, exactly, are the problems

with the conventional model, and how does the cultural alternative work? Below I lay out the problems, suggest how a cultural alternative might be superior, and illustrate the difference with an example about magic in warfare.

What Shapes Organizations?
Questioning Learning and Selection

As well as the big historical argument about what did and didn't drive European expansion, this book is concerned with explaining change in institutions like militaries and states. To this end I first challenge common assumptions about the operation and effects of learning, adaptation, and elimination. These often tacit assumptions underpin the logic of the military revolution, but it is important to realize that they also exercise a vital influence on general beliefs about history and institutions.[38] To bound the discussion, and in the spirit of synthesis, I work mainly from the complementary arguments put forward by two military historians, Jeremy Black and Wayne Lee, and two social scientists, Jon Elster and John Meyer. Working from very different starting points, the historians and social scientists nevertheless level complementary and powerful criticisms of the idea that competitive environments will produce effective and well-adapted organizations, whether it be in war or most other domains.

Learning involves actors identifying successful and unsuccessful strategies and institutions according to judgments of varying organizational performance, working either from a process of trial and error, or by copying successful peers and competitors (survival of the smartest, perhaps). Selection is based on the analogy of "survival of the fittest" in the natural world: unsuccessful or maladapted actors are eliminated from the system, leaving only better adapted actors. As environmental conditions and selection pressures change, so too does the population of successful survivors. Those writing about military history usually draw on both mechanisms. Those that lose battles and wars learn to emulate the features of those who win them, while those who can't or won't learn are eventually conquered. From here it becomes clear why repeated fighting is said to improve military efficiency: warfare gives military organi-

zations the opportunity to evaluate their performance and learn from others, while selecting out those who fail to respond to competitive pressures.

Learning

Black identifies what he refers to as the "paradigm-diffusion" approach as the most common model of change among military historians. This approach holds that particular actors (almost always Westerners) come up with a new technology or technique that is objectively superior, and that this innovation is then copied by others in order to stay competitive in an environment of pervasive insecurity. Thus Black speaks of "a somewhat crude belief that societies adapt in order to optimize their military capability and performance," and identifies historians' reliance on the idea of "some mechanistic, if not automatic, search for efficiency."[39] Lee strikes the same note in speaking of the assumption of a "challenge-and-response" dynamic in military history: "The implicit dynamic . . . is one of direct conscious response: historical actors determined the need for a new system or a new technology and therefore developed one."[40]

In contrast to this perspective, Elster has little faith in the ability of actors to reason and learn,[41] especially collective actors. Learning depends on overcoming the effects of uncertainty, which Elster believes are generally overwhelming in the social world.[42] At first glance, it may seem easy for actors to find out what works and what doesn't in improving organizational performance, and then to apply this knowledge successfully. In fact, many demanding conditions must hold for this to work. After all, if determining what causes what in the social world is so easy that rulers and generals can be routinely assumed to get it right, why do social scientists and historians have such a hard time, even with the huge advantage of hindsight?

A parallel might be with Clausewitz's notion of the "fog of war," according to which "war is the realm of uncertainty; three quarters of the factors on which action is based are wrapped in a fog of greater or lesser uncertainty." The idea of the fog of war is much more consistent with the persistence of scholarly uncertainty and

disagreement over first-order questions than the view that accurately diagnosing cause and effect is fairly straightforward. Putting lessons in to practice might be frustrated by another of Clausewitz's famous ideas: "friction," said to make even the simplest thing difficult, because "in war more than anywhere else things do not turn out as we expect"[43]

An example of the importance of learning in the military revolution literature is the prominent place Philip Hoffman gives it in his model in *Why Did Europe Conquer the World?* After reasoning that "professional soldiers have every incentive to adopt the most effective tactics, hardware, and organization," he continues: "Rulers fought wars and then used what worked against the enemy. The learning could take place during a war, or afterward, when losers could copy winners and both sides could revise what they did."[44] Yet this process of discerning "what worked" is by no means as easy as it sounds.[45] Victory and loss in war are a result of complex and varying combinations of factors, many of the most important of which, like leadership and morale, are intangible. A study of contemporary military effectiveness stresses indirect and hard to change factors like the international environment, political culture, and social structure.[46] For historians for example, the British defeat of the Qing Chinese forces in the First Opium War 1839–1842 is an unequivocal and paradigmatic demonstration of China's technological and institutional military backwardness compared with Western forces. Yet China's rulers diagnosed this defeat as the result of poor leadership and treachery, rather than indicating any systematic problem or a need for wide-ranging reforms.[47]

Selection

Putting aside the question of learning, what about the impersonal, structural effects of natural selection through war, with conquest the method of elimination? This concept removes the assumption that historical actors were able to diagnose complex causal relations and then re-engineer armies, states, and societies in line with these imperatives. Once again, although the focus here is military competition, the implications of this Darwinian style of reasoning go far wider. Thus social scientists observe: "For those who see history

as efficient, the primary postulated mechanism is competition for survival."[48]

Lee speaks of the same logic as being strongly apparent in military history: "Often presented hand in hand with the challenge-and-response dynamic is the idea that successful military innovation produces a new paradigm, quickly copied by nearby competitors in order to survive . . . failure to adopt paradigmatic armies or practices leads to societal extinction. War was an existential affair, and those military systems that failed to adapt dropped out."[49] From the perspective of an International Relations scholar explaining the spread of conscript armies, reasoning proceeds along the same lines: "As in any competitive system, successful practices will be imitated. Those who fail to imitate are unlikely to survive."[50] More generally Kenneth Waltz, the doyen of theory in the same field, holds that, thanks to the anarchical nature of the international system, maladapted units "fall by the wayside."[51] Adopting Waltz's logic to nineteenth-century military competition in Latin America, another scholar makes the same point: "Whether firms in the market or states in the system, units in competitive realms are continually pressed to ensure they are internally well organized and equipped to thrive and survive."[52]

The explanation here relies on differential survival rates rather than learning: obsolete or maladapted ideas and organizations give way, leaving more suitable ideas and organizations to diffuse, multiply, and dominate.[53] Firms that don't learn to keep up with the competition will tend to go out of business.[54] If selection is working to weed out inefficient organizations and promote efficient ones, the end result will be very similar to that in which organizations are adept learners. Often these two mechanisms are said to reinforce each other. The threat of elimination provides the incentive to learn. Because inefficient organizations are eliminated, economists assume that firms behave as if they have mastered complex profit-maximization calculations.

Yet, if anything, Elster sees even bigger problems with the idea that organizations' characteristics can be explained as functional adaptations to environmental pressures, in this case the pressures of military competition. Rather like learning, what at first seems to be a commonsense presumption on closer inspection turns out to

rely on quite demanding and restrictive conditions. In particular,
it is difficult to specify the feedback loop through which the benefi-
cial consequences of an organizational feature cause and maintain
that feature.[55] In general, Elster asserts that "Much of applied ra-
tional choice theory is a combination of just-so stories and func-
tionalist explanation."[56]

In order for selection mechanisms to create a population of ho-
mogenous effective organizations, several conditions have to apply.
The "death rate" amongst organizations has to be very high, the
differences in effectiveness have to be large and consistent, and the
environment has to stay fairly constant. Applying this to warfare
between states, for example, the conquest and destruction of states
would have to be commonplace, the differences between effective
and ineffective states would have to be large and consistently deci-
sive on the battlefield, and the particular features that gave some
states this edge over others would have to stay relatively stable.
Furthermore, each of these conditions must hold if the selection
mechanism is to work; two out of three is not enough to ensure a
convergence on the optimal organizational model via Darwinian
elimination. It doesn't take too much thought to see how these con-
ditions are difficult to meet in the context of military competition.

First, polities tend to be very durable and are rarely eliminated
by conquest.[57] Even powers that are seen by historians as classic
cases of military maladaption and ineffectiveness, like the Polish-
Lithuanian Commonwealth, or the later Ottoman or Qing Chi-
nese empires, often linger on for decades or centuries. Nor is this
surprising longevity limited to great powers. Tiny, essentially de-
fenseless polities routinely survive immense military conflagrations
unscathed, like the European microstates of Andorra, Liechtenstein,
and San Marino in World Wars I and II.[58] Second, as the chapters
to follow make clear, it is rare for a given technology or institu-
tional characteristic to be consistently decisive. Battles and wars are
instead decided by varying combinations of often contingent ma-
terial and intangible factors. Finally, organizational features that
might be highly advantageous at one time and place may not con-
fer any such advantage at a different time and place. One of the
main conclusions of this book is that the defining features of Euro-
pean armies in Europe were largely absent in the Americas, Asia,

and Africa, because they were impractical and ill-suited to local conditions and opponents. Rather than there being one, superior Western way of warfare, the determinants of military effectiveness were, and by all indications still are, highly diverse and variable.

A Cultural Alternative

It is one thing to show why one explanation doesn't work, but quite another to demonstrate a better alternative. Even if all the criticisms above hold true, what is the alternative? In keeping with much recent military history, I stress the importance of culture.[59] But "culture" is one of the most vague and slippery terms used by scholars. I try to make the cultural alternative both clear and persuasive in two steps. The first is to briefly present an argument in favor of a cultural view of military history. Next, I summarize the model put forward by John Meyer designed as a deliberate alternative to the efficiency-through-learning-and-elimination account criticized above. The most succinct statement of the differences is that:

> The first [view] is that . . . organizations are a functional response: Long-term competitive evolution and increasing socio-technical complexity demanded more and more rationalization and standardization. . . .

The second view is that organizations are products of their social and cultural environments, they owe little to efficiency and that the environment legitimizes some forms and stigmatizes others.[60] Finally, I compare these two contrasting models with practices of magic in warfare relating to bulletproofing.

For Black, the proper focal point of discussion in talking about culture is military effectiveness:

> Across the world, the notion of effectiveness was framed and applied in terms of dominant cultural and social patterns. The analysis latent in most military history assumes some mechanistic search for efficiency and a maximization of force driven by a form of Social Darwinism, does violence to the complex process by which interest in new methods interacted with powerful elements of continuity, as well as the manner in which efficiency was culturally constructed, and the

lack of clarity as to what defined effectiveness in force structure, operational method, or tactics.[61]

What does Black mean by a cultural approach? He speaks of the importance of perceptions and expectations in determining preferences and setting goals, interpreting costs and benefits, and creating understandings of victory and defeat.[62] Another prominent military historian, John Lynn, also defines culture as "values, beliefs, assumptions, expectations, preconceptions, and the like."[63] This cultural perspective extends to viewing the development, employment, and understanding of technology from a cultural perspective, rather than technology being some asocial, objective factor that acts to produce military and social change independent of context.[64] For his part, Lee defines culture as "a broadly shared set of ideas about how the world functions and how one can survive and succeed within it."[65] It provides "a repertoire of choices from which to select." He employs the sociological term "institutional isomorphism" in explaining why certain standard ways of doing things can spread and persist for reasons that have nothing to do with their functional effectiveness.

A pioneer of the idea of "institutional isomorphism" is John Meyer,[66] who has argued for a strongly cultural perspective on institutions. This work goes a long way to provide an alternative to mechanisms of learning and selection. It also provides a rich seam of material with which to follow up calls for a more cultural approach to military history. Meyer's starting point is once again suspicion of the presumption that rational organizations face a competitive environment that leads them to become better and better able to do their jobs (i.e., for armies, fighting effectively, and early modern polities, maximizing military effectiveness). According to this logic, organizations are the way they are and do things the way they do for a reason, and that reason is to efficiently and effectively achieve the tasks they were designed for.

Meyer and his colleagues are very much focused on the contemporary period, so there is a need to exercise caution when reading their insights back into previous centuries. Yet if organizations in an era of detailed performance metrics, huge data-processing and analytical capacities, and a whole industry of professional manag-

ers and consultants nevertheless can deviate so fundamentally from the rational ideal, there are good reasons to think that their early modern counterparts would have had an even harder time coming anywhere near this idealized mark. This is especially so as early modern actors in all regions tended to explain success and failure by divine providence and supernatural interventions.[67] Rather than distinguishing modern, professional, rational organizations from their backward, primitive equivalents in centuries past, however, Meyer believes that the former are just as likely to be in thrall to myth and ritual as the latter.[68]

For sociologists like Meyer, whether they be government departments, hospitals, universities or firms, organizations are said to be generally indifferent to matters of efficiency and effectiveness, even if they could work out how to achieve these goals, which they probably couldn't. Organizational life is perhaps closer to the theater of the absurd, or satirical send-ups of corporate life like Dilbert cartoons or the television series *The Office*, than it is to the economic theory of the firm or the tenets of management textbooks. Yet organizational life is nonetheless far from meaningless. Instead, the nature and activities of organizations are oriented outward to gain legitimacy, which outweighs all other priorities short of a direct and immediate threat to organizational survival. Organizations are products of their environment, but in a very different sense from the competitive diffusion accounts. They accrue legitimacy by conforming with the expectations of their environment as represented in current cultural models of good practice with regard to both their structure and operations. Thus organizational structure reflects meaning, not function or technical efficiency.

Yet because of the stickiness of internal routines, form and actual functioning often diverge, leading to pervasive window-dressing, ritual, or what is referred to as "de-coupling": the difference between what should happen in theory, and what happens in practice. For example, the ideal contemporary firm (or university) is "client-centric," closely engaged with "stakeholders," has a flat hierarchy with listening bosses and empowered employees, and is deeply concerned with environmental sustainability, gender equality, and corporate social responsibility. But above all, this ideal firm efficiently provides the best goods and services in class at the lowest cost to

its appreciative customers. Even when the corporate reality falls far short, this model of how things should be done is very powerful, for reasons that are only loosely connected with matters of profit and loss: "highly professionalized consultants who bring external blessings on an organization are often difficult to justify in terms of improved productivity, yet may be very important in maintaining internal and external legitimacy."[69] In governments likewise, "Administrators and politicians champion programs that are established but not implemented; managers gather information assiduously, but fail to analyze it; experts are hired not for advice but to signal legitimacy."[70] Legitimacy may even be more useful for success and survival than actually getting the job done. Meyer sees actors as performing the roles set for them by the cultural environment, not entities that rationally choose among alternative courses of action.

How does this very abstract contemporary theorizing possibly relate to the historical questions at hand? One brief example might be a discussion of the role and motivations of early modern military entrepreneurs in Europe, like those that did much of the fighting in the Thirty Years War. Even the mention of the term "entrepreneur" might immediately cue the reader to expect cool, dispassionate means-ends calculations about how to maximize profits while keeping costs to a minimum (not to mention preserving life and limb). In fact, however, these individuals often exhibited reckless abandon in both their finances and their personal conduct in battle.

> It was the socio-cultural dimension of military enterprise that encouraged colonels and more senior officers to overreach themselves financially, to make calculations about the maintenance of their regiments that were not economically rational, and to compete for esteem and recognition by high expenditure and heavy levels of personal commitment, both materially and in conspicuous examples of courage and leadership. War remained the primary theatre of social and cultural esteem, and military enterprise harnessed much of the enthusiasm of the actors to play large and impressive roles.[71]

Rather than these "irrational" individuals (and the organizations they led) being eliminated by going broke or being killed in battle,

in fact they multiplied under the extreme pressures of seventeenth-
century European warfare. Furthermore, "When the role of private
enterprise in warfare came under threat and finally disappeared in
the late eighteenth century, it was for reasons that owed nothing to
an assessment of its actual effectiveness."[72] Instead it was a shift in
the climate of opinion, as direct governmental provision and con-
trol of military forces became "a marker of sovereignty," and thus
states sought to maximize legitimacy by conforming to this expec-
tation.[73] Another leading historian of the era agrees that officers
"regarded battle as a theater to display their values of honor and
bravery, even chivalry," and that "the look of things mattered even
in the most practical concerns."[74] There is still a distinctly drama-
turgical aspect to contemporary militaries, for example the ten-
dency to buy hugely expensive prestige equipment that adds little
to actual fighting effectiveness.[75]

Can such intangible cultural commitments really survive the
bloody and brutal competition of war, with so much at stake? The
brief example below is an example of a massive, conspicuous, per-
sistent, and deadly failure of the idea that people and organizations
become better adapted to their environment under circumstances
of military competition. This is the belief that it is possible to be-
come bulletproof through drinking potions, applying ointments,
wearing amulets, or performing certain rituals. I use this jarring in-
stance of maladaptation, so directly at odds with our modern pre-
conceptions of how the world should work, as a concrete example
of serious weaknesses in the larger argument that we can safely as-
sume that military organizations get more or less the right answers,
given sufficient time and incentives. Even though the practices of
bulletproofing discussed here are mainly from the twentieth cen-
tury, similar beliefs about supernatural intervention on the battle-
field have a long history, definitely including in the West.[76] For ex-
ample, very similar beliefs were held by both locals and Europeans
in Southeast Asia in the early modern period:[77] "The Portuguese
described an invulnerable opponent in their first Southeast Asian
battle, the seizure of a Malay ship off Sumatra. No blood flowed
from the man's wounds . . . the chronicler reported, until the magic
amulet on his arm was removed."[78]

Magic and Military Effectiveness: Bulletproofing

This example is one where choices repeated over decades of war emphatically do not promote military effectiveness, despite the presence of repeated experience, short, unambiguous, feedback loops, low environmental change, strong incentives to learn, the ease of corrective action, and a strong likelihood of elimination. It illustrates how cultural models of best practice can overwhelm even the strongest functional incentives. Though no single example can be decisive, the failure of selection effects to operate even when the highly restrictive assumptions regarding learning and elimination hold in an environment of fierce military competition, strongly counts against the plausibility of this view in general.

According to the conventional perspective, what requirements must be in place for learning to occur in warfare in the way assumed by most historians and social scientists? First, opportunities to learn must be fairly frequent, with regular feedback on organizational performance. Second, the pace of environmental change must be slow enough to allow the accumulation of knowledge. Third, the causal relationships must be relatively straightforward between structures and strategies, on the one hand, and success or failure, on the other. Lastly, acting on lessons learned must be relatively easy, in terms of implementing knowledge acquired through observation. The case below shows that even under extremely favorable conditions for rational learning and Darwinian selection via elimination, culture can dominate.

In 1986 an uprising began in Northern Uganda against the newly installed Museveni government. The Holy Spirit Movement, as it was called, was sparked by Alice Auma, who claimed to be the medium for several spirits. The first, Lakwena, was the spirit of a former Italian military engineer, who through Auma became the leader of the movement. The guerilla army of demobilized soldiers that coalesced was divided into three divisions, each commanded by a separate spirit, who also spoke through Auma when she entered a trance. The battle tactics of the movement were as follows:

> [S]oldiers were forbidden to take cover when attacked.... They had to face the approaching enemy standing erect and with naked torso....

> Nor were they allowed to aim at their foe; it was the spirits who were to carry the bullets to the enemy and thus decide who among them deserved death … soldiers were anointed with shea butter oil and ochre to make them bulletproof.… Spirit soldiers took up positions and, as ordered by the spirit, began to sing pious songs for 10, 15, or 20 minutes. Then the time-keeper blew a whistle. On this sign, the troops began marching forward in a long line, shouting at the tops of their voices: "James Bond! James Bond! James Bond!"[79]

To say that these battle tactics were suboptimal would be a considerable understatement.

Similar practices have been observed across Africa over the last two centuries: in South Africa in 1819, 1853,[80] and 1991;[81] in the Congo in the 1880s, 1890s, 1960s,[82] and currently;[83] in Tanzania in 1905;[84] in Uganda in 1917,[85] the 1980s, and currently;[86] in Kenya in the 1950s;[87] 1967–1970 in Nigeria;[88] in Angola in the 1970s and 1980s;[89] in Guinea Bissau in the 1960s and 1970s;[90] in the 1970s, 1980s, and 1990s in Mozambique;[91] in Zimbabwe in the 1970s;[92] during the Liberian civil war in the 1990s;[93] and during the same period in Sierra Leone.[94] In his survey of modern African warfare Weigert refers to "the familiar example of guerillas who expected ointments and/or rituals to make them bulletproof."[95]

Tactics relying on magical bulletproofing were used against regular European forces in wars of colonial conquest, and in subsequent anti-colonial insurgencies, as well as in post-colonial Western interventions. This belief was prevalent among groups fighting against post-independence regular government forces, and in inter-ethnic conflict, and against mercenary outfits like Executive Outcomes. Though there were a few instances where cynical elites used such rituals to dupe credulous subordinates, there is strong evidence of genuine belief in the effectiveness of bulletproofing.[96] These unconventional tactics were used instrumentally to attain conventional ends. Thus as Ellis relates: "The abundant evidence that fighters and others who lived through the war believed that power might be obtained from spiritual sources … does not mean that the act of fighting was some sort of cultic behavior. The main purposes of fighting were to gain wealth and prestige or to take revenge."[97] Wlodarczyk refers to the magic used in warfare as "the

ability of an individual to command spiritual power to ends of their own choosing."[98] What is the relevance of bulletproofing to selection effects in military history, and how might it constitute a test of such arguments?

The basic problem of interest is how organizations are shaped by military competition. The force of a test based on this particular example comes from combination of the close fit between the features of the bulletproofing example and the scope conditions and drivers of the selection mechanism (the prerequisites of learning, and elimination), together with the radical difference between the end result predicted (rapid elimination of bulletproofing), and that observed (durability of bulletproofing over centuries in many different locations). The drivers of selection are present to an unusually clear degree, and yet the result equally conspicuously is the opposite of what the explanation says should happen.[99] This example is therefore very relevant to both mechanisms of learning and elimination.

For combatants in societies experiencing long-running civil wars like Uganda, Mozambique, and Liberia, the belief about bulletproofing lends itself to repeated testing. Both at the level of the individual and the group, there were numerous opportunities to judge the effectiveness of bulletproofing in actual combat. Insurgents were disproportionately drawn from former soldiers (like the Holy Spirit Movement),[100] and even those who had not had formal military training often became locked into military violence as a way of life. As such, combatants often had ample first-hand experience to draw upon. There has not been any environmental change that affects the (in)effectiveness of bulletproofing.

There is a very short, simple, unambiguous cause-and-effect relationship in action, that is, being hit by a bullet and being injured or killed by it. This relationship has not changed significantly over time, nor is it likely to, and firearms have been common in African warfare since the 1600s.[101] The cause-and-effect relationship is easily appreciable through personal experience, or through observation of third parties. For combatants there is a very strong incentive to learn the real effect of being shot, all the more so where there is no medical treatment for wounds that are not immediately fatal. Groups are not fighting for otherworldly aims or martyrdom, and

thus the incentive is to be pragmatic in adopting effective military tactics and discarding ineffective ones. Corrective action is relatively easy: for the individual, don't trust the bulletproofing procedure, take cover. For the armed groups, which actively inculcated the belief rather than just tolerating it among its members, the solution was to stop the rituals.

For all these reasons, if there is an inefficient belief that should be selected out through conflict-related learning among organizations fighting in an anarchical environment, it is this one. Yet this belief has been widespread and durable. In each case, the conditions favor improving organizational performance by learning and "selecting out" bulletproofing are present in the most obvious and direct fashion one can imagine. Usually organizations receive much less regular feedback, face much more complicated causal relationships, a much less stable environment, a much less direct incentive to learn, and much greater implementation difficulties.

Seemingly unambiguous results were assimilated within the prevailing cultural scripts about cause and effect. Aside from the initial ritual "washing" or charms, remaining bulletproof depends on certain prohibitions being observed. These commonly include not bathing, avoiding eating certain foods, or not having sex. The conditional nature of bulletproofing, only remaining effective as long as these prohibitions were observed, thus gave a frame for interpreting failure at either the individual or group level. African fighters faced the same difficulty as any other soldier, policy-maker, or social scientist: inferring a causal relationship. As one participant put it: "You call them medicine men, but you have your armor in Western armies and sometimes it does not work, which is the same with us. Sometimes we get hurt and sometimes we get killed."[102] Defeat was interpreted as a failure to observe the prohibitions, rather than a disconfirmation of bulletproofing as such.[103] A related explanation, often used to explain the defeat of African forces at the hands of Western colonial armies, was that the latter simply had more powerful magic on their side.[104] In the early 1990s RENAMO in Mozambique came up with a magic "vaccine" to counteract their opponents bulletproofing,[105] while at the same time in Sierra Leone other forces responded to bulletproofing by hacking their enemies to death with machetes.[106]

The predicted workings of the elimination path with respect to bulletproofing should be even more direct and uncontroversial. Individuals who go into combat believing they are immune to bullets are disproportionately likely to be killed or wounded, and groups in which this belief is widespread are disproportionately likely to be defeated. The lack of an elimination effect cannot be attributed to all parties operating with the same beliefs, as there were a variety of armed groups engaged that did not believe in bulletproofing. These ranged from European colonial armies to Communist forces disdainful of "reactionary" and "bourgeois" traditional beliefs, post-independence Western interventions, mercenary forces, and conventionally trained African armies. Sometimes these conventional forces massacred opponents who believed in bulletproofing, but at other times they lost. The balance of losses to wins for magically inspired forces was not sufficient to eradicate or even diminish this practice.

How does the alternative, cultural perspective fare in explaining bulletproofing? The cultural environment creates "the lenses through which actors view the world and the very categories of structure, action and thought."[107] Learning is difficult thanks to pervasive uncertainty, but in any case organizations are largely unreflective, being bound by routine. Organizations put a premium on myths and ceremony.[108] There is a strong sense of actors playing a part, rather than exercising genuine agency.[109] Rational bureaucratic structures may be radically disconnected or decoupled from actual organizational routines.

According to each of these criteria, this cultural explanation produces a reasonably good fit, certainly much better than one based on selection by rational learning and/or elimination. There is a striking homogeneity in the practice of bulletproofing, a practice that is not likely to have arisen by rational action. The cultural environment strongly conditions actors' views, causing them to risk their physical survival as individuals and organizations in line with erroneous beliefs about a cause-and-effect relationship between rituals and bulletproofing. Routine practices persist across decades, even centuries, independent of functional ineffectiveness, and organizations place a pronounced emphasis on myths and ceremonies.

Lest it be thought that this example is some sort of caricature of the dark, irrational African "Other," it is again worth stressing that

the underlying theory was developed to be applied to organizations in the United States. There are similar examples of consistent and self-defeating organizational dysfunction in contemporary Western societies, even if the consequences are not as life-threatening. For example, $23 trillion is placed in actively managed investment funds charging high fees for their supposed ability to beat the market in delivering superior returns. This is despite the fact that research consistently shows that the ability to consistently beat the market in this way is illusory.[110] Actively managed funds, like bulletproofing, are highly costly, demonstrably ineffective, and durably popular.

The Road Ahead

Having introduced the military revolution debate, and the models that support or critique the logic underlying this thesis, it is now time to bring forth more detailed evidence to back up the claims made so far. The next chapter surveys the expeditionary warfare of the Spanish *conquistadors* in the Americas and Portuguese relations with polities in Africa and the Indian Ocean littoral from around 1500. Chapter 2 begins a century later, and focuses on the fortunes of the Dutch and English East India Companies in South, Southeast, and East Asia. Returning to Europe, I argue in Chapter 3 that even on their home ground and in the Mediterranean Europeans did not enjoy any significant military advantage over their Islamic opponents, most notably the Ottoman Empire, until the 1700s. The last section of this chapter examines how a Eurocentric bias of place has distorted understandings of the relationship between technological, military, and political change, while an anachronistic bias of time based on reading back from "inevitable" Western triumph exaggerates European successes, while obscuring the power of Asian empires. Finally, the Conclusion re-evaluates my argument about the early modern era from two later vantage points: first the victory of the Europeans in the age of the "new imperialism" toward the end of the nineteenth century, and then the period from 1945 to the present. I finish the book by briefly returning to the questions about organizational change, effectiveness, and culture.