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MILITARY INNOVATION IN THE RISE AND FALL OF GREAT POWERS: LESSONS FOR AMERICA

by

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A military's ability to adapt its organization, doctrine, and technology strategy to meet the threats of its time influences the state's capacity to maintain great power status. This thesis uses a historical overview of military innovation among great powers throughout history to draw lessons for the U.S. military today. In this heuristic analysis, it is determined that great powers that integrated between and among their various elements of national power were able to maintain their positions better than those that did not. The study transitions from a descriptive to a prescriptive mode, concluding with the caution that, if the U.S. military does not begin to transform itself from a Cold War organization to an adaptable, resilient force for the future, it could hasten America's loss of global power. Measures that the U.S. military should take to innovate organizationally, doctrinally and in terms of technology strategy are prescribed. Finally, and most importantly, this study finds it essential to foster a climate and institutional culture receptive to innovation.

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MILITARY INNOVATION IN THE RISE AND FALL OF GREAT POWERS: LESSONS FOR AMERICA

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A military's ability to adapt its organization, doctrine, and technology strategy to meet the threats of its time influences the state's capacity to maintain great power status. This thesis uses a historical overview of military innovation among great powers throughout history to draw lessons for the U.S. military today. In this heuristic analysis, it is determined that great powers that integrated between and among their various elements of national power were able to maintain their positions better than those that did not. The study transitions from a descriptive to a prescriptive mode, concluding with the caution that, if the U.S. military does not begin to transform itself from a Cold War organization to an adaptable, resilient force for the future, it could hasten America's loss of global power. Measures that the U.S. military should take to innovate organizationally, doctrinally and in terms of technology strategy are prescribed. Finally, and most importantly, this study finds it essential to foster a climate and institutional culture receptive to innovation.

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EXECUTIVE SUMMARY

This project began with the research question: how does military innovation affect the ability of a country to gain or maintain great power status? This question was predicated on the belief that America's status as the global superpower was, and will continue to be, challenged by the forces of globalization and the rising of power challengers; and that the U.S. military will play a key role in this power transition. In order to analyze this research question, a heuristic overview of military innovation by great powers was conducted. This analysis produced the following conclusions. Vertical and horizontal integration of the elements of national power are necessary for power maintenance. The term *vertical integration* reflects the hierarchical nature of the national security structure and proposes that military strategy must support national strategy to be truly effective, just as military tactics and operations support military strategy. Horizontal integration encompasses the ideas of jointness, interagency, and *whole-of-society*—referring to the collaborative power created by distinct organizations combining their specialties towards a common goal. Great powers that were able to maintain power for the longest periods were those that possessed the soft power component and social innovation to establish an innovation feedback cycle between the society and the military. Vertical integration of this innovation occurred when states were able to establish a coherent national strategy that guided this innovation cycle towards a common goal and then used the resultant power for the purpose of diplomatic influence. Horizontal integration occurred when states achieved appropriate civil-military integration and balancing—favoring civilian control and checking militarism—while also establishing the military-social feedback cycle. Horizontal integration also occurred at the military service level, with those militaries that were able to incorporate ground, sea, and air capabilities having the most success in maintaining their countries' power.

Applying these lessons to America today, the paper proposes to increase vertical and horizontal integration of U.S. power. The United States needs a national strategy in order to direct military and social innovation toward a specific aim, but a strategy alone is not sufficient. The government must institute forcing mechanisms to integrate the elements of national power toward this stated goal. Several of the forcing mechanisms proposed are: transforming the geographical combatant commands to civilian-led regional interest directorates; aligning these interagency organizations with an interagency Pentagon that is no longer the home of the Department of Defense, but the home of an American diplomatic, defense, and development interagency process; and pooling funding for diplomacy, defense, and development to force integration. In addition to these proposals, this paper posits that the active duty personnel strength of the U.S. military should be cut in half. This personnel cut would acknowledge the resource-constrained environment, while maintaining a resilient security posture through innovative doctrine, technology, and organizations. Finally, the organization of the U.S. military itself must make structural changes that will allow innovative leaders to rise and an innovative organization to flourish. In order to accomplish this, the military must match its personnel cuts with organizational changes that flatten the hierarchy and adapt the personnel and promotion system to allow innovative leaders to consistently adapt the organization to meet future threats. The U.S. military must embrace the opportunities of the information age and the realities of constrained resources. The good news is that this can be accomplished while maintaining superior capability relative to known competitors and the flexibility to adapt to the unknowable threats of the future.

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First, I would like to thank Professor John Arquilla for pushing me to learn, explore, and create a project of which I am proud. When others told me that my topic was too broad or my scope too wide, Professor Arquilla embraced my idea, infused me with the motivation to tackle it, and expanded my ideas to be broader and wider. Professor Doowan Lee provided the perfect balance to this and for that, I am extremely grateful, as well. Professor Lee was my sounding board, with whom I could always work out my thoughts, but who also provided me the methodology and academic rigor to make my wild ideas coherent and cogent. Many thanks to all the other professors from the Defense Analysis Department, who each in their own way, shaped my thinking about my thesis, our military, and our world.

In an informal talk at NPS in January 2011, I met U.S. Navy Captain Wayne Porter and told him about my thesis topic. CAPT Porter immediately took an interest in my ideas and gave me food for thought and book recommendations that shaped the course of my research. He also connected me to a network of innovative thinkers inside the beltway that included senior leaders at DARPA, and CAPT Jerry Hendrix from the Secretary of Defense's Office of Net Assessment. All of these innovative thinkers gave me time in their extremely busy schedules to help shape and guide my research—for which I am extremely grateful. More importantly, they renewed this young major's faith with the knowledge that in the broader military bureaucracy, there are those that both see the need for change, and are in positions to affect it.

Finally, and most importantly, I appreciate that when I spent long hours in the library on the weekends or up working late at night, my wife, Kelly, always supported my endeavor. She never made me feel guilty about trying to balance (poorly sometimes) the time I spent working versus the time at home playing with her and Austin. As always, she supported me, while being a full time mom and a part-time nurse, so that everyone else was able to do what they wanted.

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I. INTRODUCTION

In 2025, the United States believes that it is still the global hegemon in world politics. After continuing failure of the Arab-Israeli peace process, and numerous incursions into Lebanon by Israel to stem Hezbollah attacks, Israel faces an existential threat from the combined efforts of Hezbollah, Hamas, and Iran. Hostilities have escalated to the point of brinkmanship crisis between nuclear-armed Israel and nuclear-armed Iran. The United States enters negotiations between the two as a self-perceived power broker, but is unable to sway Israel and is completely ineffective against an isolated Iran. Russia and China do possess some influence over Iran, but India refrains from input based on already-strained relations with other Muslim nations over Kashmir. There is a vote in the United Nations Security Council in which Russia and China veto Washington's move to support Israel against Iran, and does not provide the mandate for collective action. This watershed event indicates the fall of America from global hegemonic status in the realm of diplomacy. There is a mismatch between how the United States perceives itself and how the world views U.S. power. With a conventionally-focused military and a still-superior nuclear force, Washington is limited in its military options, between the unthinkable—commitment to nuclear retaliation in support of Israel against Iran—and the unwieldy—a conventional attack against the territory of Iran. The U.S. military's failure to innovatively change its security structure and military to meet the reality of the evolving international system has left the country less able to influence global affairs.

The U.S. Department of Defense is an enormous bureaucracy that fosters a climate resistant to change. In its history, only when it is faced with a great threat does the organization foster the innovation necessary to meet the challenges of the present—much less the future. Recent efforts at

transformation have met more resistance than acceptance,[1] but even those goals have tended only to attempt to shape the department for the current environment. With a Navy fixated on carrier battle groups, an Air Force wed to the idea of aerial bombardment, and an Army that will not accept the dissolution of its corps and divisions, despite their mounting costs and debatable effectiveness, unabated institutional inertia and risk aversion may reduce the U.S. military to an outmoded organization. As currently configured, the Department of Defense will adapt slower to the environment than necessary. With the rising power of China, the emerging markets of India and Brazil, the unknown future of Russia, and other emerging regional powers and global networks, the Department of Defense must begin now to shape itself for a future in which the United States' dominant military position is likely to be challenged.

This thesis seeks to answer the question: how does military innovation affect the ability of a country to gain or maintain great power status? This project will analyze great empires and nations throughout history as they gained, maintained or lost great power status. I will then determine the effectiveness, timing, and frequency of military innovation in each of these ascending, maintaining, or failing great powers to determine a causal relationship between military innovation and the great power status. In certain cases, I expect to find that military innovation directly led to the great power status of a country (e.g., Sweden's rise in 1630). While in other circumstances, it will be system structure that prompted military innovation. In many instances, other factors, such as economic, diplomatic, and/or informational innovation, may prove more causally significant to great power status than military innovation. This last phenomenon may also yield a trend regarding the overall importance of military might, with respect to other factors over time. This trend will provide insight into two key variables of great power status: the level of civil-military integration and the presence or absence of a social-military innovation feedback loop. This heuristic

[1] John Arquilla, *Worst Enemy: The Reluctant Transformation of the American Military* (Chicago: Ivan R. Dee, 2008), *passim.*

analysis of military innovation will focus on the first two cases—where military innovation, or lack thereof, directly caused the ascendency, maintenance, or loss of great power status, and where the great power structure forced military innovation. Both of these causal relationships are significant for the prescriptive portion at the end of the thesis. The study will be limited to the 'threshold of great power status,' which is only the countries that enter, maintain, or leave that select group of powers considered 'great.' In the modern era, this select group is codified by historians and political scientists; in the ancient and medieval era, I have selected powers that are commonly considered 'great' by most historians. In an attempt to be as objective as possible in this selection, while limiting the scope of study to a useful length, I have erred on the side of selecting powers that maintained power over a longer period of time. This focus on maintenance of power directly relates to the lessons I tried to draw for maintaining U.S. global power.

Military innovation is defined as changing the organization, doctrine, and/or technology of the military. I will discuss the translation of ideas into action that include both imitative and inventive ideas, and how they are implemented. Effective innovation is defined as that type of change that is tested and proven in battle to be positive change. This will help differentiate effective innovation from ineffective innovation (such as the Maginot Line). Throughout history, there are also several cases of military revolutions and military transformations. Both of these concepts are considered parts of the overall trend of military innovation—revolutions denoting specific periods when innovation occurred and diffused rapidly, and transformations taking place when militaries adapted their organizations to maximize innovations in technology, doctrine, or both.

This thesis will use a heuristic approach to analyze military innovation's relationship to great power status throughout history. The framework will be built on the realist school of international relations, but will also rely on power transition theory and long cycle theory. Instead of specific case-study analysis, the intended approach will show military innovations throughout history, and how

they affected, or failed to affect, a country's great power status. In the second part of the thesis, there is a shift from a descriptive to prescriptive format. Using an interdisciplinary approach founded on organizational theory (structure, technology, and doctrine), and the lessons derived from Part I, it will propose what actions DoD might take today to meet the challenges of the future, and maintain the United States' great power status.

The prescriptive portion of this paper is based on the belief that this is truly a period in history like no other. However, it is also based in the belief that history is replete with periods 'like no other,' when the social, economic and political forces of change created periods of chaos for which there was no historical precedent. The lessons of past periods of chaos may hold some kernels of knowledge for the current 'sand pile,'[2] while they should always be judged with the understanding that their application will not be direct or a panacea—they must be placed in the current context and adapted to realities of the present to be truly innovative.

[2] Joshua Ramo, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What We Can Do About It* (New York: Little, Brown and Co., 2009), *passim*.

II. MILITARY INNOVATION IN THE RISE AND FALL OF GREAT POWERS

> A well-equipped and organized armed force, making contact with a society not equally well organized for war, acts in much the same way as the germs of a disease-experienced society do. The weaker community, in such an encounter, may suffer heavy loss of life in combat. More often it suffers its principal losses from exposure to economic and epidemiological invasions that are made possible by the military superiority of the stronger people. But whatever the exact combination of factors, a society unable to protect itself by force from foreign molestation loses its autonomy and may lose its corporate identity as well.[3]

A. ANCIENT TIMES: DID MIGHT MAKE RIGHT?

Thinking about the earliest military innovation may well lead to drawing the most prescient lessons for modern military innovators. Although relatively little is truly known about the ancient period in human history, warfare and battle are known to have played an important role in the development of civilizations and in their interactions with one another. This period was unique in history—as civilizations grew and came into contact with other previously unknown civilizations, the first concepts of power and warfare came into being. As each civilization adapted its use of force either to gain power or to survive, history witnessed the first innovation in doctrine—from warring mobs to military organizations based on mass. In the organizational realm, the first moves were made in ancient times toward establishing a standing force for protection of the society—an innovation that continued professionalization of militaries throughout history. Finally, technological innovations played a significant role in this era, as the chariot was invented, imitated, and employed to varying degrees of success along with bronze and iron weaponry. The case of the chariot provides an excellent example of a trend in technological innovation that persists throughout history. Of the three types of innovations, technological ones are both the

[3] William H. McNeill, *The Pursuit of Power* (Chicago: University of Chicago Press, 1982), viii.

hardest to define as innovations and the easiest to imitate. New technologies are inventions, and only become military innovations when they are incorporated with innovative doctrines and organizational designs that maximize their use. As inventions, they are also the easiest for an enemy to imitate. Throughout history, numerous examples of technological imitation occur, but only when the technology is adapted into doctrinal and organizational innovations is it truly decisive. The Mycenaean use of the chariot as contrasted with the Egyptians in ancient times, and the German use of the tank as contrasted to the French in World War II are only two among countless examples.

1. Ancient Egypt (3100 BC–1069 BC)

Ancient Egypt attributed much of its power to the art, writing, and construction that made it a civilization like no other.[4] Geographical barriers to the east and west provided it a level of protection from invaders, and a predictably flooding river valley provided for fertile agricultural areas. As the earliest coherent civilization, Egypt first fought internal wars for establishment and consolidation of power, which were more ceremonial in nature than later external wars.[5] When external threats did present themselves, first from the south then later from the 'sea peoples' of the Mediterranean, the organization and administration provided by an innovative society allowed Egyptian militaries to defeat their attackers and preserve their territory and civilization.

The technological innovation of chariots and the organizational innovation of a standing military force helped maintain Egyptian power for over two thousand years. Partially due to the gold acquired from Nubia, coupled with the superior level of development of Egyptian society relative to its contemporaries, Egyptian leaders were able to hire skilled artisans who crafted chariots, and then employed them properly in battle. The skills required to drive the chariots and

4 This cultural power based on the ability of a civilization to influence another, will be called 'soft power' throughout this paper. It is contrasted with the 'hard power' of military capability used to influence. See Joseph Nye, *Soft Power: The Means to Success in World Politics*.

5 John Keegan, *A History of Warfare* (New York: Alfred A. Knopf, 1994), 132.

fire a bow from a moving platform required extensive training. This human capital investment in training and technology forced a certain professionalization of the military. This professionalization resulted from the fact that charioteers had to maintain training in order to be effective and chariots were, for their time, expensive technology. Therefore, skilled charioteers moved into fortified areas, and out of the general society from which they came. This professionalization also gave them a distinct advantage over barbarian forces—standing, trained forces were able to respond to threats quicker than barbarian attackers who had to raise and mobilize forces before conducting military actions.[6] The same organizational advantage would help maintain the power of the Roman Empire more than a millennium later. In this way, the Egyptians were able to adopt a technological innovation and adapt their military organization and doctrine to maximize its effectiveness. The doctrinal and organizational innovation is what separated the Egyptian military from the militaries of its contemporaries. As an example of this superiority, the Mycenaeans of the same period used chariots only to ride into battle. They failed to incorporate the advantage of its mobility with the firepower of the bow in order to capitalize on both its maneuver and psychological advantage.[7] As contrasted with the Mycenaeans, who adopted the technology, but never adapted tactics to maximize its use, the Egyptians fused the technology with appropriate doctrine and organization.

For a brief period in ancient military history, the emergence of iron weaponry led to a democratization of fighting and an overthrow of the ruling elites, as the common farmer was able to find iron and make his own weapons. [8] However, rulers soon regained the upper hand in the use of force and society as the value of an organized, professionalized military force over armed mobs

6 William H. McNeill, *The Rise of the West: A History of the Human Community* (Chicago: University of Chicago Press, 1963), 119.

7 McNeill, *Pursuit of Power*, 10.

8 In the time of bronze weaponry, the expense and artistic capability required to form these metals into weapons and armor kept fighting securely in the realm of kings. With the advent of iron weapons—a substance more readily found in nature and more easily formed into weaponry, a certain democratization of fighting took place. McNeill, *Pursuit of Power*, 12.

became evident. A re-consolidation of power took place as rulers alone retained enough wealth to establish and maintain the administration to support these forces.[9] The trend of democratization and reconsolidation of force continues throughout the historical study military innovation.

In Ancient Egypt, the technological innovations of chariots and iron weaponry changed the face of warfare. However, ultimate power lay in the hands of the Egyptian rulers who were able to maximize the use of the chariots through doctrinal and organizational innovation and establish the administration to support a professional military organization. Therefore, the combination of technological, doctrinal and organizational innovation proved most decisive in maintaining the first great power in history. This military innovation supported, and resulted from, the flourishing of societal innovation in art, writing, and construction, as the military adapted and professionalized to protect its civilization from external threats. Analysis of this first great power suggests a trend that will develop throughout history—military innovation as a part of a larger feedback loop with societal, political and economic innovation.

2. The Akkadian Empire (2334 BC–2154 BC)

Although the history of warfare does not begin with the Akkadian Empire, this period does mark the "intensification of combat to the point where we can begin to speak of it as 'battle'".[10] The Akkadian Empire established itself on the foundation of the Sumerian civilization, as far as historians can tell. The geography in which the Sumerian, and later Akkadian, people lived is as responsible for their rapid and frequent military innovation as the geography of Egypt was responsible for the Egyptians relatively little need to innovate. The Sumerian civilization began to take form in Mesopotamia—an area devoid of the natural geographic boundaries which protected the Egyptians. Consequently,

9 McNeill, *Pursuit of Power*, 13.

10 Keegan, *History of Warfare*, 133.

the Sumerians fought frequently both within their own society and to protect it from outsiders. This consistent threat created an environment that necessitated military innovation.

Some historians believe that the Sumerians, rather than the Greeks, created the phalanx battle formation.[11] This idea derives from the discovery of a limestone monument called the "Stele of Vultures," which dates to the Sumerian time and depicts soldiers moving in a phalanx formation.[12] However, the doctrinal and organizational innovation of the phalanx was lost in military history because it met with a technological innovation that defeated it in battle and broke its historical lineage. This technological innovation was the Akkadian use of the bow. Sargon, who became ruler of the Akkadian Empire, employed the bow in battle to defeat the Sumerian phalanx.[13] With the defeat of the Sumerians, and the establishment of a Semite-led military under Sargon, the phalanx was lost as an organizational and doctrinal innovation until the Greeks reinvented it 2,000 years later.

The Akkadian Empire is interesting in contrast to Egyptian civilization. By virtue of geography, the Sumerian peoples faced constant threats from all directions, and developed an organizational innovation resembling the phalanx to meet these threats. Their organizational innovation may provide the first historical example of recognizable battle, as opposed to individual or group warfare. The societal innovations in agriculture and art were able to flourish under the protection of this first battle formation. However, organization innovation by itself proved insufficient. When faced with a technologically superior force, employing the bow, the Sumerian people met defeat at the hands of an organizationally inferior force under Sargon. As is often the case in history, Sargon, subsumed the societal advances made by the Sumerians and combined

11 Robert O'Connell, *Of Arms and Men* (New York: Oxford University Press, 1989), 36.

12 That the organizational innovation of the phalanx is often credited to the Greeks, instead of the Sumerians, is an example of how innovation is non-linear, and how one innovation may erase another, arguably superior innovation.

13 O'Connell, *Arms and Men*, 39.

them with a strong military force. With the benefit of the advances of the Sumerian civilization, Sargon then turned his conquering armies outward to establish the Akkadian Empire—the first known empire in history.

3. The Assyrians (934 BC–605 BC)

"The history of Assyria is the history of war."[14] The Assyrian Empire was martial, focused more for the sake of gaining power than the protection of the civilized society. Regardless of the purposes to which military innovation was put, one has to give credit to both the success and the persistence of those innovations. The Assyrian militarily innovated in all three realms—organization, doctrine, and technology—to sustain an empire for over seven centuries, despite being mistrusted by its neighbors and under constant attack.

Assyrian rulers first established a parallel administrative system that facilitated taxation of their subjects to support the military. Although this is not a directly military innovation, the fact that the Assyrians translated this administrative organization into real military power shows the interconnectedness of administration and military might, even in ancient times. They also notably invented the concept of military rank. The first organized military formations formed in units of ten and, for the first time in history, clearly delineated who should lead and who should follow.[15] Later this organizational innovation allowed the Assyrians to adapt the bow to a new doctrinal innovation for fighting: massed volley fire. Up until this time, bowmen were skirmishers or fought as separate groups. The Assyrians realized the doctrinal advantage of massed bow fires and grouped their bowman behind foot soldiers with shields and spears to protect them. In this way, the Assyrians pioneered the first doctrine of combined arms fighting.[16] As proof of its doctrinal innovativeness, Gustavus Adolphus of Sweden would revive this technique in the seventeenth century by integrating

14 O'Connell, *Arms and Men*, 39.

15 McNeill, *Pursuit of Power*, 13.

16 O'Connell, *Arms and Men*, 40.

massed volley fire with protective ranks of combined arms. Also in the realm of doctrine, the Assyrians realized that chariots provided a psychological advantage in battle, but were of little use it actual fighting. Therefore, the Assyrians first combined man and horse with a bow as a fighting mechanism. The inventive and martial nature of the Assyrian Empire allowed its people to develop, relatively quickly, the first concept of armored cavalry and the ancient armored division. This doctrinal military concept spawned numerous technological innovations to support it and to further its usefulness.

In order to allow the establishment of armored cavalry as a main organizing principle for the Assyrian military, two non-military, technological innovations took place. First, the Assyrians had to breed horses large enough to support an armored rider. In addition, the Assyrians began growing alfalfa to feed the horses, so that, for the first time, crops were grown specifically for the efficient feeding of horses and did not compete with the crops grown for human consumption.[17] These societal innovations allowed military doctrinal innovations such as armored cavalry and further technological innovations, such as the siege train. Armored cavalry was similar in many ways to the innovation of the chariot. It changed the social dynamic of the military because, like the chariot, it required both resources to acquire and skill to conduct. In this way, it brought power to those who could exploit its use.[18] This shift also had ramifications for the society from which the military came. The larger horses and expense of the specialized rider were costs translated to society in the form of taxes under the Assyrian administrative system. In fortified cities, where agricultural area was scarce, societies did not employ armored cavalry; whereas, the frontier lands saw their value grow into a full-fledged feudal system. In this way, the development of armored cavalry was uneven across the Assyrian Empire, with a feudal system

17 McNeill, *Pursuit of Power*, 13.

18 McNeill, *Pursuit of Power*, 20.

developing in the frontier areas, completely separate from the social structure of the cities. This social divergence due to military innovation highlights some of its unintended negative consequences.

The Assyrian Empire fell surprisingly quickly to an alliance between the Scythians, the Medes, and the Babylonians, which joined to defeat the former at Nineveh in 605 BCE.[19] The power of the Assyrian Empire passed first to the Babylonians, in due time defeated by the Persians. It is interesting to note that the Persians seem to show little military innovation, but rather assumed the innovations of the conquered Assyrians. The Persian King Xerxes, over a century later, applied the Assyrian model of taxation to a new logistical method that may have sustained the empire in the short term. Xerxes used a food taxation system to create stores of food for both men and horses along his army's line of march.[20] This had the effect of both speeding the movement of the army, because they did not have to stop and plunder, and may have maintained some level of popular support for the military campaigns. For the first time, populations in the path of advancing militaries were not the subject of plundering by the army. Although this logistical innovation is admirable, the Persians only enhanced their ability to get to the field of battle more quickly with obsolete technology and doctrine. The innovations of the Greeks in organization and doctrine would prove fatal to the Persian charioteers and armored cavalry. As with the Akkadians, the Persian example proves that innovation must occur across the realms of organization, doctrine and technology to prove truly effective in power maintenance. One type of innovation, or the assumption of another civilization's innovation with no continuance of the cycle, will not sustain an empire's power.

The Assyrian Empire provides excellent examples of military innovations, but also highlights the limitations and potential downfalls of some of those innovations. Often portrayed in history as barbaric, tyrannical people, the

19 Keegan, *History of Warfare*, 178.

20 McNeill, *Pursuit of Power*, 4.

Assyrians, nonetheless, fostered an innovative spirit in their society and military. Assyrians created two efficient systems—an administrative one and a military one—which supported and protected each other. The administrative system provided a revenue stream through taxation to support the military. The military innovated and adapted its doctrine and organization to protect and expand its territory. The use of combined arms in the form of massed bowmen protected by shields and spears, and the evolution of chariots into armored cavalry allowed the Assyrians to maintain and expand an empire larger than any before. The paradox in the Assyrian case is that while this great power first consciously merged social and military innovation in a symbiotic cycle, it was unable to create the soft power capability to sustain its civilization. Technological innovations in society, such as larger horse breeding, alfalfa cultivation, and taxation directly supported the military power of the empire, but did not translate to creating a society that others wanted to emulate.

Hegemonic power based almost exclusively on military might tends to be self-defeating.[21] Despite the Assyrian's ability to innovate technologically, organizationally, and doctrinally, the absence of a 'greater' society and civilization to protect proved ultimately fatal for the empire. Because the empire's enemies were able to imitate the inventions of the Assyrian's, and employ these innovations to defeat their innovator, the Assyrian Empire fell to its own initial innovativeness and inability to main that process. The diffusion of technological and doctrinal innovation—in the form of armored cavalry tactics to peoples more accustomed to riding horses and the feudal system that resulted from frontier employment of armored cavalry—are examples of the unintended consequences and potential downfalls of innovation. In addition, there exists a lesson that an empire that exists solely to support its military is doomed to failure. Military innovation, copied by enemies and turned against the innovator, can prove fatal through the phenomenon of diffusion. This lesson has two implications for great powers—that innovation is a continual cycle and that military innovation is always

21 O'Connell, *Arms and Men*, 44.

relative to the innovation of your enemies. The Persians did not appreciate these lessons to the detriment of their empire. For a great power to maintain that status, it must compel not only further innovation in society and the military, but also outpace the military innovations of its enemies.

4. The Greeks (776 BC–323 BC)

Early Greece is a microcosm of the ancient period as a whole. The city-states of Athens and Sparta present a contrast much as the one described above between Egypt and Assyria. Athens represents the beginning of western civilization, with the flourishing of art, literature, and democracy. The Athenian military's *raison d'être* was to protect the civilization and expand its soft power influence, much as the Egyptian military had done. By contrast, the Spartans were a martial people much like the Assyrians; military power was an end to itself in Sparta, as it was in Assyria. The primary purpose of military power in Sparta was to protect from internal, rather than external threats—the military system was designed to keep the helots under control. The Peloponnesian Wars between these two city-states resulted in Sparta briefly taking power, but the soft power of Athenian ideas persisted through the time of Alexander and beyond. Two military innovations of the time, the phalanx on land and the triremes at sea, reflect their divergent political structures and level of military preeminence in that structure.

The phalanx, created and then lost by the Sumerians, would become both the symbol of and a catalyst for social change in, the Greek city-state. The well-armed and well-drilled phalanxes were able to overrun armored cavalry and disorganized infantry on the field of battle, and directly represented the power of the city-state. As with the creation of iron weaponry, the heavy infantry of the phalanx represented a democratization of fighting and a reorganization of the social strata in ancient Greece. No longer were aristocrats able to monopolize the use of violence due to the wealth required to support armies. With the advent of the phalanx, and the hoplite soldier who comprised it, men were more valued

for their strength and power than for their wealth and intellect.[22] Power on the battlefield translated to power in society, as farmer-hoplites were able to take a direct role in the election of magistrates and the governance of the city-states. As the farmer-hoplites consolidated this power, and threatened to form an aristocracy of their own based on land-ownership, another technological military innovation again changed the structure of society and the history of Greece.

The greatest technological innovation of this period was the application of warships to the doctrine of seapower by the city-states of Athens, Sparta and Corinth.[23] As seafaring civilizations, it was a natural course that the Greek peoples would extend this essence of their civilization into the field of warfare. With the Persians to the east, as a great power with significant naval capability, the motivation for innovation in this technology was high. Although the precise time and location of the trireme invention is unknown, Athens and Sparta were among the first Greek powers to build significant seafaring military capability. The trireme ships transformed phalanx doctrine into sea fighting tactics by using these warships to either ram other ships or transport phalanx formations. The smaller and more manageable Greek ships were able to outmaneuver the Persian ships—who had innovated towards largeness. In the same way that drilled hoplites formed a successful phalanx, rowers acting in unison were the engine of a trireme. The social effect of this technological and doctrinal innovation is the first creation of a respected social class for non-land owners. As hoplite-farmers threatened to consolidate power into the hands of landowners, the invention of triremes, and the subsequent establishment of an equal social class for their rowers, maintained the path towards democracy in these city-

[22] McNeill, *Rise of the West*, 198.

[23] George Modelski and William Thompson, *Seapower in Global Politics*, 1494-1993 (Seattle: University of Washington Press, 1988), 5. Modelski and Thompson conduct a statistical analysis of naval power as it relates to world power. This analysis is placed in the context of long-cycle theory, which posits that changes in the world power positions of countries occur on a cycle rotation while the entire system grows in complexity. They concludes that seapower is a necessary, but not sufficient, component of becoming a world power.

states.[24] The contrast between the Athenian and Spartan understandings of this democracy places the military innovations of the phalanx and the trireme in their social context.

Athenians and Spartans understood the phalanx, and later the trireme, to be symbolic of their power. However, the Athenians believed these two military tools to be a means to its ultimate power, while the Spartans believed them to be the power itself. The divergent paths the two city-states take upon adoption of the innovations reflected these beliefs. Spartans formed a militaristic society that suppressed the enslaved helots, through an otherwise egalitarian outlook. Every able-bodied person took part in the defense of the city-states, with males trained in fighting and military tactics from early childhood. The Spartan hoplite-farmers maintained an agricultural base that precluded the need for trade and industry, thereby maintaining a limited democracy centered on the military establishment. Athens, by contrast, continued its trade and industrial production, which led to the rise of a merchant and artisan class alongside the military one. These rising social classes in Athens caused significant political turmoil, but ultimately, produced a more stable form of democracy. These examples highlight not only the social effects of military innovation, but also how similar innovations can lead to drastically different social effects when placed in context of the political character of the state.

Even though Thebes is rarely considered a great power, in the persistent power term, it produced one of the most doctrinally innovation military leaders of the ancient period, Epaminondas. This Theban leader was a pioneer in maneuver warfare—continuing the evolution from armed mobs through the mass of the phalanx to the power of maneuvering against an enemy to give a marked advantage. Epaminondas first explored this technique by reinforcing his left wing

24 "If the phalanx was the basic school of the Greek polis, the fleet was the finishing school for its democratic version; and if the family farm was the economic basis for limited democracy of the hoplite franchise, the merchant fleet with its necessary complement of workshops, warehouses, and markets provided the economic sinews for radical democracy." McNeill, *Rise of the West*, 203.

with his best men at the battle of Leuctra. In this seemingly simple adjustment of the classic phalanx, Epaminondas was able to crush the enemy phalanx on its weak flank, and the flank on which its leader stood.[25] In this way, he not only maneuvered, but also did so against the Spartan's 'center of gravity.' This tactic was made famous by Frederick II of Prussia as the 'oblique order' centuries later, but was first pioneered by Epaminondas. However, the battle of Leuctra was not Epaminondas' only military innovation. He also successfully employed deception against the Spartans at the tactical and strategic level. On attacking Spartan territory—itself a first in the history of the city-state—Epaminondas made surprise night maneuvers to keep the Spartans off balance, which culminated in the battle of Mantinea. In this battle, Epaminondas had a front rank of infantry appear to be laying down arms to make camp for the night, causing the Spartans to do the same—only to surprise the latter with a full attack.[26] In the strategic and grand strategic realms, Epaminondas was no less of an innovator. He used a Fabian strategy, of the sort later employed by George Washington in the American Revolution, to allow his forces enough time to build strength. He also employed a grand strategy of exploiting dissension within the Spartan ranks to cause defections of their enslaved helots. In this way, Epaminondas was integral in the downfall of Sparta. It is only due to the rise of prominence of Alexander the Great, twenty years after the death of Epaminondas in battle, that the latter is not more revered in common history.

Any chapter of Greek military innovation would not be complete without a discussion of Alexander. What is notable in the numerous histories of this great military leader is that Alexander created little technological or doctrinal innovation. Instead, he assumed the innovations of the Athenians and Spartans, and combined it with charismatic leadership. Similar to the Persian adoption of

25 B.H. Liddell Hart, *Strategy* (New York: Praeger, 1954), 34.

26 Liddell Hart, *Strategy*, 36.

Assyrian innovation, the Macedonians adopted many of the Greek innovations. [27] Alexander's father, King Philip of Macedonia, fashioned his military on the Greek phalanx concept, but armed his hoplites with a longer spear in order to give them longer reach. Philip combined the phalanx concept with a traditional cavalry force. In this way, King Philip both borrowed and improved upon Greek military doctrine, technology, and organization.[28] Philip, using their own innovations adapted and turned against them, conquered the Athenians and Spartans. "As a tactician, Alexander's greatest asset was the army he inherited from his father."[29] Upon inheritance of an able military force and a consolidated Greek mainland from his father, Alexander was able to expand this empire to the largest power the world had known.

Alexander's greatest innovations were in the organizational and political realms. Using the inherited innovations of the Greeks, Alexander pushed south into Persia and east, into the heart of Asia, adapting and reorganizing his force as he went. He expanded the concept of combined arms by coupling the light and heavy foot soldiers with varied missile soldiers—bowmen, javelins and slingers. He also integrated the populations that he conquered to create mixed ethnicity fighting units.[30] As he rapidly expanded his empire, his ethnically diversified units allowed Alexander to maintain huge fighting forces with little fear of a particular ethnicity pursuing a coup. A student of Aristotle's, Alexander combined his learned political acumen with a military instinct for quick and proper decisions, an ability to inspire his troops to victory, and the ruthlessness to pursue his enemies to their destruction. In the political realm, Alexander understood, better than any of his contemporaries, and possibly better than most 'great captains' of history that military power was only one component of the

27 The Persians also adopted some Greek innovations, namely using the empire's extreme wealth to hire Greek mercenaries. See McNeill, *Rise of the West*, 273.

28 Frank E. Adcock, *The Greek and Macedonian Art of War* (Berkeley: University of California Press, 1962), passim.

29 J. F. C. Fuller, *The Generalship of Alexander the Great* (New Brunswick, NJ: Rutgers University Press, 1960), 292.

30 O'Connell, *Arms and Men*, 62.

state. His aim in battle was conquest of the territory, not revenge upon the people or spoliation of their land.[31] This understanding guided military actions that always sought to co-opt the people of a conquered territory and prevent its destruction. This subjugation of military power to political aim allowed Alexander to create the largest empire in history, and holds particular lessons for modern American military leaders. Rather than a great military innovator in history, Alexander presents a case of a skillful and charismatic leader who inherits a dominant military to expand his empire's power to hitherto unbelievable distances.

5. Carthage (650 BC–146 BC)

Although little is known about the establishment of Carthage, it is clear that by the sixth century BC their empire extended across North Africa from the Atlantic Ocean to the Middle East. Carthage was a loose confederation of cities and tribal areas controlled by a senate similar to the Roman government system, but distinct in some very important ways. The Carthaginian system was built on tributes paid by conquered areas rather than assumption of these areas into the empire, as the Roman system did. Because of the wealth that these tributes created, Carthage was able to pay mercenary armies rather than use armies raised from its territorial holdings.[32] At its heart, Carthage was a maritime power, with its territory stretching across the Mediterranean and its advanced ship building resources evident by the First Punic War. This maritime focus also explains its early civilizations on the island of Sicily.[33]

As a maritime power, historians believe that Carthage made the first technical innovations in warship development. The Roman triremes discussed

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31 Fuller, *Alexander the Great*, 285.

32 J. F. Lazenby, *The First Punic War: A Military History* (Stanford: Stanford University Press, 1996), 26.

33 In an interesting note on the permanence of geographical considerations in history, Sicily will remain integral to the Mediterranean. The Carthaginians understood dominance of this geography in 650 BC as did the Americans in 1943, when they invaded the island to open the Mediterranean to shipping and logistics. Despite a history of military innovations, geography will always play a role in the conduct of warfare.

below were modeled on a captured Carthaginian warship.[34] Carthaginian naval doctrine primarily relied on ramming techniques to attack other warships—a doctrine which caused the Romans to innovate the corvus. This technological 'innovation race' continued throughout the Punic Wars. The Carthaginians, in the Third Punic War, used smaller escort boats to attack the oars and the hulls of the Roman triremes, which by that time had become more numerous and better manned than the original Carthaginian innovators'.

On land, more is known about Carthaginian military innovation. In the realm of technological innovation, the Carthaginians used elephants in battle. The huge beasts primarily provided a psychological advantage to the Carthaginians, but also proved advantageous in breaking the lines of the massed army formations used at the time. Outside of this technical innovation, little is known of Carthaginian weapons development, other than the assumption that it was inferior to that of the Romans'. This assumption is based on the account that Hannibal used battlefield recovery of Roman weapons after the battle of Lake Trasimene. The Carthaginians also employed mercenaries according to their own strength, such as the Numidians, a tribal people accustomed to horseback riding, were formed into light cavalry—an integral part of Hannibal's army. [35]

The greatest innovation attributed to the Carthaginians is doctrinal. The brothers Hannibal and Hasdrubal possessed, "powers of leadership and tactical innovation [that] transcended the limitation which the mercenary character of their soldiers imposed on their capacity to operate at long range from base."[36] At Cannae, the Roman commander Varro deployed his infantry in the center with cavalry on each flank—the traditional battle formation at the time. Hannibal left his center weak to bow when the Romans attacked, but massed infantry on each flank that quickly encircled the Romans. The maneuver proved to be a massacre

34 Lazenby, *First Punic War*, 27–28.

35 Lazenby, *First Punic War*, 27.

36 Keegan, *History of Warfare*, 271.

for the Roman legions on the field.[37] In an interesting twist on the diffusion of innovation—especially fluid in doctrinal innovation—the Roman commander Scipio, would use Hannibal's new tactic to defeat a Carthaginian force in Spain in the same war.

Imperial overstretch accounts for the destruction of Carthage, like so many empires in history. Hannibal's conquest to the gates of Rome forever poisoned the relationship between these two powers, and embittered Roman leaders such as Cato, to forever seek the destruction of Carthage. Following the Battle of Zama, the Roman Empire extended somewhat lenient peace terms to Carthage, but many in the Roman Senate looked enviably upon the commercial revitalization of Carthage.[38] After the expiration of the peace treaty, Rome, in need of resources and vengeance, finally repaid its perceived debt to Carthage. In the Third Punic War the now-dominant Roman Empire destroyed the city of Carthage and the Carthaginian Empire.

6. The Roman Empire (290 BC–476 AD)

The Roman Empire, like all great powers in history, was the culmination of a complex story that caused a state to rise above the power of its neighbors, and occasionally the ecumene, and then dissolved as other powers rose. An adequate starting point for the story of the Roman Empire is 390 BC. In that year, the Gauls from the north sacked the city of Rome and forever influenced the psyche of Romans. For the next century, the Romans would transform their legions into the most feared fighting force in the world.[39] The Roman Empire emerged from the first two Punic Wars in the form of a consolidated Italian peninsula. The political consolidation of the peninsula was relatively easy due to a lack of the city-state-like ties that existed in Greece. The Italians had many more cross-cutting ties based on family, religion, and military affiliation, which

37 Keegan, *History of Warfare*, 271.

38 Leonard Cottrell, *Hannibal: Enemy of Rome* (New York: Holt, Rinehart and Winston, 1960), 241-243.

39 O'Connell, *Arms and Men*, 71.

allowed easy assimilation into a unified Rome. They were also a hardy peasant stock that, when formed, became the greatest military asset of the empire.[40] The Roman Empire's military strength was built on the foundation of a system that placed preeminence on bravery in battle and transformed hardy peasant stock into battlefield heroes. The military system accomplished this through a triad of ferocity, skill and logistics that ensured battlefield bravery was present at the right time to defeat its opponents.[41] Its military leaders built upon this solid foundation with methodological tactics, which avoided surprise and fortified their line of march, rather than risk losing control of a quickly advancing force.[42]

The military of the Roman Empire innovated in the technological, organizational and doctrinal realms to maximize the effectiveness of its most precious resource—its legionnaires. In the technological realm, Roman naval leaders developed the corvus. This droppable bridge allowed Roman ships to fasten their enemy's ship to their own, in order to board with legionnaires that could defeat the enemy in close combat. With this technology, the Romans were able to negate the naval superiority of the Carthaginians, by utilizing their greatest strength in an unconventional method. In the organizational realm of innovation, the Romans made more significant and long-lasting impacts. The establishment of the legions and the Marian reforms that shaped them, led to a professionalization of the military force that persisted through history.[43] The first step in professionalization was the dropping of the requirement for property ownership as a qualification for military service. This established the first 'all-volunteer force' as every citizen was eligible for service. The second Marian reform presented each legion with an *aquila*. This early 'guidon' gave each legion its own symbol of unity and led to a sense of *espirt de corps*.[44] In the

40 McNeill, *Rise of the West*, 314.

41 O'Connell, *Arms and Men*, 70.

42 Edward Luttwak, *The Grand Strategy of the Roman Empire* (London: The Johns Hopkins University Press, 1976), 2.

43 G.R. Watson, *The Roman Soldier* (Bristol, GB: Thames and Hudson, 1969), 21.

44 Watson, *Roman Soldier*, 22.

siege of the Etruscan city of Veii, a Roman leader institutes, for the first time, regular pay for soldiers. Leaders from the time of ancient Egypt had realized the value of standing, trained militaries, and the Assyrians had pioneered the establishment of an administration to support military activities. Before the Romans, however, no army in history had established a system of regular pay that would truly professionalize the service of arms. This concept would transform the idea of protection of the state from citizen-militias to a force that is paid by the state.[45] It also had dramatic social implications, as the professionalized military system allowed the development of garrisons, armories and regular pay based on rank. This coupling of pay with a rank structure created a parallel social structure to the society it protected. Roman officers were able to have families, live on property and own slaves because of this system. Serving in the military became a profession rather than a complete life commitment or a part-time citizen duty.[46] These organizational innovations—the establishment of a professionalized legion and their subdivision in maniples, facilitated the doctrinal innovation of maneuver warfare.

After suffering defeat at Cannae, at the hands of Hannibal, the Romans learned the doctrinal innovation of maneuver and employed it to defeat their one-time conqueror. In Spain, Scipio first employed the same doctrinal innovation Hannibal used at Cannae against the Carthaginians. The 'weak middle' formation developed by Hannibal defeated the Carthaginian army and, coupled with Roman seapower, allowed Scipio to move into Africa.[47] This new threat caused Carthage to call Hannibal home and set the stage for the Battle of Zama. At the battle of Zama in 202 BC, the Roman leader Scipio further advanced the concept of maneuver warfare to progress the innovation begun by Epaminondas two hundred years earlier. Employing his maniples one behind the other, rather

45 O'Connell, *Arms and Men*, 71.

46 Phillippe Contamine, *War in the Middle Ages*, trans. Michael Jones (Oxford: Basil Blackwell, 1984), 6.

47 Keegan, *History of Warfare*, 272.

than the checkerboard formation that they traditionally deployed in, and then masking this formation with skirmishers, Scipio was able to absorb the initial onslaught of Hannibal's elephants as they passed straight through his lines.[48] Scipio's ability to assume the innovations of Hannibal from Cannae for success in Spain, but then continue to innovate his doctrine to maximize his strength and minimize the impact of Hannibal's elephants at Zama, mark him as a great doctrinal innovator in history.

Possibly the greatest achievement of the Roman military was not the organization of the legions or the technology of its professionalized force, but the use of military power for psychological persuasion. Long before Clausewitz, the Romans understood that military power supports political purposes, and often the best use of military power was in the threat of force.[49] Much as the Chinese civilian leadership used demonstrated military capability to affect coercive diplomacy, so did the Romans employ this concept. The difference in the Roman case is that there is evidence that this understanding pervaded the military from the strategic to the tactical level.[50] One of the best examples of the Roman use of psychological operations was the siege of Masada. Instead of starving out the isolated Jewish fighters, or attacking them directly, the Roman legion took three years to build a ramp to the top of the plateau in order to defeat the holdouts. This engineering feat served as a symbol to the people of the Levant, and the ecumene, that the Roman Empire would pursue revolutionaries to the top of any mountain to wipe them out.[51]

There were three distinct phases in the Roman Empire's strategy. [52] The first phase was expansion of the empire to satisfy those who held power in Rome. The second phase was a softening of the core's views towards the client

48 Cottrell, *Hannibal*, 234.

49 Luttwak, *Strategy of the Roman Empire*, 2–5.

50 This is not to say that Chinese leaders at all levels did not understand this power, only that evidence to this effect does not exist in the Chinese case.

51 Luttwak, *Strategy of the Roman Empire*, 4.

52 Luttwak, *Strategy of Roman Empire*, 194.

states in the empire and a Romanization of the conquered peoples. The military in this phase moved from the center to the outlying areas to protect the empire along its borders. The third phase marked the beginning of decline: when the military moved from the empire's borders towards the center to establish a defense in depth. This last phase engendered unintended consequences—the client states of the empire, without the physical protection of the legions, began to question whether the taxes required by the empire were worth the protection being afforded. "The great economy of force that made the unitary empire a most efficient provider of security is lost."[53] The outputs by the empire were equal to the inputs by the client states. When this occurred, an enemy who offered a better equation could win over the client state. Although the civilian and military leadership of the early Roman Empire understood and employed psychological operations and coercive diplomacy effectively, later leaders seemed to forget this lesson. The breakdown of political-military integration—in this case, the demonstrated military capacity in client states in order to justify the political costs of taxation—led to the downfall of the empire.[54]

The Roman Empire offers some of the most prescient lessons for modern great powers, and the United States in particular. The Roman legions' ability to build infrastructure as it expanded its territory, and later to offer citizenship to those it conquered, successfully coupled soft and hard power to sustain the empire for centuries. Skillful politicians also used the reputation of the awe-inspiring legions to conduct diplomacy and coerce favorable political relationships for the empire. The military employed this psychological effect, as well. The construction of a ramp to the top of Masada shows that the Roman legionnaires

53 Luttwak, *Strategy of Roman Empire*, 194.

54 Historians vary widely on the reasons for the collapse of the Roman Empire, many even arguing that there was no collapse, only a fading of the political structure. Notable among these perspectives are, Arther Ferrill, in *The Fall of the Roman Empire*, who argues that the Roman army had grown so large and integral to the state that when the military was defeated the state collapsed with it. Also, Adrian Goldsworthy, in *How Rome Fell*, contends that the military and bureaucratic structures of Rome had grown so large and resistant to change that they forgot the purpose for which they were created, and instead adopted their bureaucratic survival as their guiding purpose. Both of these arguments show frightening similarities to the current U.S. system and hold important lessons for political and military innovation in support of power maintenance.

understood the physical, as well as the psychological space of military operations. However, when the conquered peoples felt that the cost that they had to pay to the empire was more than the benefit they received from its protection, the empire began to dissolve. However, there are inherent dangers in the military becoming the major foreign policy arm of a government and in government bureaucracies becoming so large and entrenched that they lose sight of their own purpose. These dangers can lead to a deterioration of power not from an outside enemy, but rather from interior decay. "For the Romans, as for [the United States today], the elusive goal of strategic statecraft was to provide security for the civilization without prejudicing the vitality of its economic base and without compromising the stability of an evolving political order."[55]

7. Lessons of Ancient Military Innovation

Thucydides' Melian Dialogue is illustrative of some of the lessons of military innovation in ancient times. In the dialogue, the Athenians argue that military might justifies their actions, while the Melians argue that alliance formation can lead to greater security. In the short-term, the Athenians are correct—they are able to crush and enslave any peoples who do not submit to their will. In the long-term however, the Melians prove more correct, as the Athenian political culture—in which no one took responsibility for decisions, and disunity and selfishness reigned supreme—eventually leads to its downfall.[56] The great powers of ancient history reflect this paradox. Some of the most militarily innovative civilizations established the most powerful empires, like the Assyrians and the Spartans. However, the record of history is written by civilizations that possessed the social influence and strategic coherence to persist through time. The ancient powers that successfully coupled military innovations with the administrative mechanisms to support them were successful

55 Luttwak, *Strategy of Roman Empire*, 1.

56 Barry Strauss and Josiah Ober, *The Anatomy of Error: Ancient Military Disasters and Their Lessons for Modern Strategists* (New York: St. Martin's Press, 1990), 70–72.

in extending their power. Egypt, as the first 'great power,' was able to couple soft power with hard power innovations—the chariot and the doctrinal and organizational innovations that maximized it use—to maintain power preeminence. By contrast, the Mycenaeans, imitated the technological invention but failed in the organizational innovation to effectively employ it. Egypt and Athens present cases where military innovation occurred to protect a vibrant society and allow its growth. Assyria and Sparta viewed military power as an end to itself. That Egypt and Athens are in the historical record as two of the cradles of modern civilization is a testimony to which approach proved persistent.

Military innovation in ancient times did not occur in a vacuum; it shaped and was shaped by the society in which it occurred. Ancient Egypt is a case where military innovation took place to protect an already vibrant civilization. The Akkadians, Assyrians, and Persians begin to understand the value of an administrative system to support a professionalizing military force. This concept expands in Greece as the city-states of Athens and Sparta apply the same technological innovations to different ends. The Athenians place the military in the context of a larger political structure, while the Spartans view military might as power in itself. In ancient Greece, the military adoption of the phalanx and the trireme directly contributed to the formation of democracy as a political organizing principle and had lasting impressions on world history.

The history of military innovation in ancient times holds the seeds of trends that have continued throughout time. The great powers that were able to create a cycle of innovation between the military, political, social and economic spheres were able to maintain power longer than those who failed to create this feedback. Conversely, a military that innovates to a certain point and stops, will likely fail to protect its society when its enemies turn those diffused innovations against it—as occurred with the Ottomans in the nineteenth century. In order for a military to maintain its state's power, it must innovate regularly, correctly, and in time to meet the innovation of its enemy. States that are able to accomplish this only do so through a social, political, economic and military innovation loop that

furthers the state's power in both hard and soft realms. The above themes persist throughout this study, even as the complexity and interconnectedness among great powers continues to grow. "Yet the customs of this most base people have so prevailed that they are adopted in all the world, and the conquered have given their laws to the conquerors, (*victi victoribus leges dederunt*)."[57]

B. MEDIEVAL TIMES – TECHNOLOGY, WARFARE, AND SOCIAL CHANGE

> As our understanding of the history of technology increases, it becomes clear that a new device merely opens a door; it does not compel one to enter. The acceptance or rejection of an invention, or the extent to which its implications are realized if it is accepted, depends quite as much upon the condition of a society, and upon the imagination of its leaders, as upon the nature of the technological item itself.[58]

Military history transitions from ancient to medieval times with the battle of Adrianople (A.D. 378).[59] In this battle, many believe that the Germanic horse decisively defeated the Roman legionaries, but it is more likely that the Gothic horsemen defeated the Romans using a surprise attack that capitalized on Roman lack of discipline.[60] The employment of technological inventions with doctrinal and organizational innovation in this battle suggested that the trends from ancient times would persist, but also suggested a new military innovation emerging—the planned psychological utility of militaries. This period lasts until the breakup of the Mongol Empire and the fall of the Byzantine Empire in the fourteenth and fifteenth centuries, respectively. Although the Medieval Age is the last pre-modern era, its lessons are still valuable for modern great powers today.

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57 Augustine, *Seneca's De Superstitione*, "De Civitate Dei," vi. 10. Accessed at: http://www.jewishencyclopedia.com/view.jsp?artid=472&letter=S#ixzz1LKmlcHdv.

58 Lynn White, *Medieval Technology and Social Change* (London: Oxford University Press, 1962), 28.

59 White, *Medieval Technology*, 6.

60 White, *Medieval Technology*, 7.

1. China—Han Dynasty (206 BC) to the Ming Dynasty (AD 1600s)

Just as little in history overall fits into neat categories, so is it true of the military history of the Chinese empires. Although the military innovations of Chinese civilization trace back to the ancient period, the medieval era is the point at which it enters western politics and historical records. Although the sources vary widely, two technological innovations are commonly attributed to the Chinese—the invention of the stirrup and gunpowder. Interestingly, neither of these inventions developed their full military potential in Chinese or Mongol militaries, but were adapted to more potent use by militaries of the west—the stirrup reaching its zenith with the Franks (although they were renowned infantry fighters), and the adaption of gunpowder continuing through the present time. These were only a few of the technological innovations of the Chinese, whose empires and civilizations have shown some of the greatest permanence in history.

Stirrups originated in the Jin Dynasty in the fourth century AD.[61] The invention diffused across southern Asia and Europe taking on different designs as it went. The Indian peoples, who rode without shoes, used a small loop that encompassed the big toe only while others used various cloth and metal loops and hooks either as a mounting platform or for some stability while riding. However, it was the Franks and Charles Martel who maximized the use of the stirrup. Martel coupled the stirrup with a lance that sat at rest under the rider's arm, as opposed to previous uses of lances by horsemen—either the single-handed or two-handed spear which only bore the force of the rider's shoulder and arm. The stirrup allowed the rider to transfer the momentum of the horse and rider into a lance blow. This dramatically changed the course of mounted combat and marked a historical shift in military history from the armored knight to the advent of mounted shock combat.[62] From the Franks, the innovation of

61 Albert Dien, "The Stirrup And Its Effect On Chinese Military History," from The Silk Road Foundation, Accessed at: http://www.silk-road.com/artl/stirrup.shtml, on April 8, 2011.

62 White, *Medieval Technology*, 28.

matching stirrup with lance to form a mounted shock force diffused throughout Europe. The Normans defeated the Anglo-Saxons at Hastings because the latter were fighting with military technology two centuries old and lacked the doctrinal advantage of mounted shock. Where the mounted shock doctrine spread, feudalism spread with it. The stirrup is an example of a technological invention that not only shaped the militaries of the world at that time, but also forever affected the societies in which these militaries existed.[63] That the inventor of this history-changing technology did not realize its military potential is also evident in the advent of gunpowder, discussed later.

The early Chinese empires developed three military technologies that did contribute to the persistence of their power. The Great Wall, a dramatic engineering feat for any point in history but especially for its era, protected the Chinese empires for centuries. The Great Wall provided both a physical barrier against attack, but also had a psychological effect by reflecting the advanced abilities of the civilization it protected. In a more technical vein, the early Chinese also developed the crossbow. The crossbow shot an arrow with such force that it could knock an armored rider off a horse at 100 meters. This invention, and its relative lack of diffusion throughout Asia and Europe, may illuminate why the Chinese did not pursue the military innovation of the stirrup that led later Europeans to centuries of fighting with armored cavalry—the Chinese had already invented the technology that negated the stirrup's effectiveness.[64]

There is no record of China using the multi-oared triremes of the Mediterranean, but they developed multi-sailed ships earlier than their European counterparts did.[65] By the fifth and sixth centuries, the Chinese developed paddlewheels for powering boats and by the eighth century, they had adapted

63 White, *Medieval Technology*, 38.

64 McNeill, *Pursuit of Power*, 21.

65 Joseph Needham, *The Grand Titration: Science and Society in East and West* (London: George Allen & Unwin, 1969), 111.

the paddlewheel to naval use and armored naval vessels.[66] Early innovation of the paddlewheel boat showed both its promise and its limitations for sea power. Chinese technological innovators realized the advantages of self-propulsion and placed multiple paddlewheels on naval vessels. In the twelfth century the Chinese navy fielded a boat with twenty-three separate paddlewheels and maintained the naval paddlewheel technology even after the Europeans had discarded it (only to use it again later).[67] This technological innovation proved decisive in the Battle of Caishi in 1161. Social and economic innovation diffused to and facilitated military innovation as the early Chinese began developing naval power. This innovative cycle and resultant naval power, in the Ninth through Twelfth Centuries, would allow China to become the most productive trade zone in the world.[68] As with many successful military innovations, this naval power, and the trade it protected, facilitated further innovation in both military and civilian sectors. The Chinese leadership appreciated the prosperity provided by the naval power and this prosperity resourced further naval innovation. From this feedback loop, the Chinese were able to develop a "sea-going navy [that] was assuredly the greatest in the world between 1100 and 1450."[69]

Gunpowder, much as the stirrup, originated in China, but found decisive military applications elsewhere. Historians differ on interpretation, but common understanding is that the Chinese first developed the mixture of carbon, sulfur and saltpeter. Early historical works seem to suggest that the Chinese only utilized this mixture in festivities, as fireworks.[70] Regardless, whether the Chinese were inventors or merely advancers of the technology of gunpowder, they contributed to the dramatic military effect that it had on history. The Mongols were among the first to employ gunpowder in battle during the late

66 McNeill, *Pursuit of Power*, 42.

67 Needham, *Grand Titration*, 112.

68 Modelski, *Seapower*, 6.

69 Needham, *Grand Titration*, 109.

70 White, *Medieval Technology*, 96.

thirteenth century.[71] Therefore, the Chinese either invented or significantly advanced the use of gunpowder; the single powdery mix that continues to shape warfare to this day.

Although Chinese technological innovations were numerous and had profound impact, they did not solely account for the persistence of their civilization or the longevity of their empires. Certainly, geography had much to do with both, but advances in tactics, strategies and military-political applications of force also contributed. The Chinese, in addition to building the Great Wall, pioneered a scorched earth tactic against invaders. For protection of their populations, the Chinese built huge fortifications and moved all livelihood and methods of sustainment into the fortification. They would then burn everything outside of the fortification so an invading army had no resources to sustain a siege.[72] The Chinese also pioneered the first concept of civilian control of the military due to this scorched earth tactic. After establishing a fortified defense, the Chinese realized the value of having a standing army ready to deploy and meet invaders. The early Chinese military forces began a parallel version of professionalization, in this regard. The militaries stayed in garrisons to protect the civilian population against invading hordes and the civilian population provided provisions to them. The civilian population, and its leaders, ultimately held the power in this relationship as they maintained control of the resources. The civilian leadership, therefore, determined when to deploy the military in order to protect its citizens and its agricultural resources.[73]

Civilian control of the military proved as successful at maintaining great power status for the Chinese as it had for the early Romans, and later would for the Byzantines. As occurred in the Byzantine Empire, this civilian control of the military provided the political power of diplomacy and alliance formation. For any power in the international system to employ coercive diplomacy or psychological

71 Contamine, *War in the Middle Ages*, 139.

72 McNeill, *Pursuit of Power*, 34.

73 McNeill, *Pursuit of Power*, 42.

operations, it must demonstrate an ability to use physical force effectively.[74] Early Chinese rulers demonstrated an understanding of this principle, by not only continually innovating their militaries, but also by maximizing the effectiveness of this innovation through skillful coercive diplomacy. The diplomatic leverage provided by such innovations as the Great Wall, scorched earth tactics, and civilian control of the military, proved successful in defending the Jin and Han dynasties against the Xiongnu to their north. Through demonstrated capability and skilled alliance formation, Chinese leaders subjugated and then fractured the tenuous Xiongnu confederation in order to reduce their threat. In this way, Chinese leaders using deterrent power and psychological warfare had truly reached the acme of Sun Tzu's prescriptions—they won a war with the Xiongnu without having to fight it.

Although technological, organizational and doctrinal examples of innovation are evident and were supportive of the Chinese empires' longevity, social-political factors affecting the military may have been as pertinent. The various emperors in Chinese history praised innovation and invention. Often, the emperor himself rewarded the inventor of a new technology. This emphasis on innovation served to spawn even more innovation.[75] One may argue that it was not only the innovations themselves, but also the climate that fostered innovation, which helped protect the most consistently homogenous civilization and the most frequent great power in history. Even compared to the innovative Mongols—who used Islamic engineers to develop superior trebuchets and eventually adopted siege techniques superior to any contemporary—did the Chinese culture persist. It was the allure of the Chinese civilization and permanence of their homogeneity that proved decisive. When the Mongols conquered China, they had to maintain a separation between their culture and that of the Chinese, for

74 Alvin H. Bernstein, "Political Strategies for Coercive Diplomacy and Limited War" in *Political Warfare and Psychological Operations: Rethinking the US Approach* ed. by Frank Barnett and Carnes Lord (Washington, DC: National Defense University Press, 1988), 145–153, *passim*.

75 McNeill, *Pursuit of Power*, 39.

fear of the pull of the latter. In order to maintain this separation, Mongol conquerors maintained separate Chinese administrations under the Mongol rulers. These administrations were ready-made revolutionaries to throw out the conquerors and ensure the persistence of the Chinese civilization. This phenomenon explains the establishment of the Ming Dynasty at the end of the medieval period.[76]

The longevity of power maintenance in early Chinese empires is a testimony to their innovation and soft power. Civilian leaders created a social and political climate that rewarded invention and spawned innovation. They also subjugated military leadership to civilian control without stifling innovation in the former. In this way, early Chinese leaders not only facilitated the feedback loop between political, social, economic and military innovation, but also maximized the capacity of the resultant military innovation. That this extraordinary level of innovation takes place in a relatively isolated civilization—absent of the constant threat that sometimes drives innovation—makes it even more remarkable. Chinese leaders utilized demonstrated capability to employ coercive diplomacy and psychological operations against their enemies, such as the Xiongnu. However, political-military integration only accounts for part of Chinese power longevity. Soft power, in the form of an alluring and influential civilization fed by the same innovative loop described above, also played a major role in power maintenance. China through the ancient and medieval period may provide the best example of power maintenance through resilience. A culture and civilization that appealed to others to such a degree that enemies maintained separate administrations just to prevent being 'tainted' by it, was the product of, and allowed innovation in political, social, economic and military areas. This innovation, especially in the military, provided the hard power to defend the civilization. When hard power failed, as with the Mongols, the soft power persisted and the resilience of the population regained its great power status.

76 McNeill, *Rise of the West*, 489.

2. The Byzantine Empire (330–1453)

The dissolution of the Roman Empire was survived by the Byzantines for a thousand years. Byzantine society viewed itself as the true inheritor of the greatness of Rome and as the Christian bulwark against barbarian invaders from the south. As such, the empire also inherited many of the military traditions and administrative structures of the earlier Roman Empire.[77] The Christian ethic that defined Byzantine society tended towards a pacifistic ideal, but the political will to protect the empire allowed for a competent military that was able to maintain the empire's power for over 1100 years.

The success in power maintenance and longevity of the Byzantine Empire result from the continued Roman traditions of order, discipline and coherence in battle maneuvers. The Byzantines continued the technological innovation of the stirrup with the use of knights. The Byzantines applied this concept in the form of armored cavalry tactics conducted by knights. These knights had limited reach and power, however, and trained for close-in fighting.[78] The Roman use of the knight was a footnote in the western empire's organization, but in the Byzantine Empire armored knights proved especially effective in protecting frontier lands against steppe invaders. However, not until the Franks coupled the knight with the stirrup did the concept of mounted shock combat become fully effective. What was truly innovative in the Byzantine military, however, was the concept of written doctrine. Both military and civilian scholars began to capture not only stories of military success, but also tactics and lessons from the successes. This written military tradition codified doctrine and provided the basis for further training and military discipline.[79] The Muslims had this same tradition—of writing military histories and lessons—but the Byzantines succeeded by coupling this doctrine with a central administrative system that determined the allocation of

77 John Haldon, *Warfare, State and Society in the Byzantine World,* 565–1204 (London: University of London Press, 1999), 275.

78 McNeill, *Pursuit of Power*, 19.

79 Haldon, *Warfare, State and Society*, 276.

resources (both military expenditures and the commitment to force) for the betterment of the empire. This doctrinal innovation provided a unified, standardized force that translated to coherent diplomatic relations. Deterrence also became a key aspect of Byzantine strategy. Punitive expeditions by Constantine V in Bulgaria and raiding by commanders on the eastern frontier were two examples of Byzantine rulers using military force to deter an opponent and thereby, prevent the need for the use of force in the future.[80] Belisarius was a major doctrinal innovator in the Byzantine Army. This innovative commander took risks in maneuvers that his contemporaries considered excessive in order to avoid confronting an enemy directly. Belisarius considered flanking and rear-attack maneuvers to be force multipliers and often won battles with smaller forces because of it. In a classic example of his doctrinal innovativeness, Belisarius captured the fortified city of Naples without attacking its stout walls. Instead, he sent a force of four hundred men through the aqueduct system in the middle of the night to begin the attack from within the walls. This maneuver was an operational risk as the four hundred men represented a large percentage of his force, and could easily have been killed in the narrow confines of the aqueduct tunnel.[81]

Not until the advent of stealth technology, would the secret of a technological innovation be guarded again as carefully as that of Greek Fire. Greek Fire is the still-unknown mixture of chemicals that was shot through a piston to create a burning mass—akin to today's napalm. Byzantine rulers, such as Constantine VII, protected this innovation from diffusion by threatening anyone in his government or military who was caught selling its secret.[82] Although Greek fire proved to be a potent weapon in protecting Byzantine fortified cities against attacking forces, enemies of the Byzantines quickly

80 Haldon, *Warfare, State and Society*, 279.

81 Edward Luttwak, *The Grand Strategy of the Byzantine Empire* (Cambridge, MA: The Belknap Press, 2009), 80.

82 Luttwak, *Grand Strategy of the Byzantine Empire*, 323.

developed countermeasures against it and the Byzantine military did not develop doctrine to maximize its effectiveness in an offensive manner on land.[83] At sea, however, Greek Fire was decisive as both an offensive weapon and a psychological one. It continued the innovative cycle begun by the Carthaginians in the Punic Wars, when the latter used small boats to try to set fire to the hulls of the Roman ships. The value of Greek Fire was its ability to burn on top of the water, as well as stick to wet wooden ships. However, the siphons required to fire it at another ship required close range and calm waters, which did limit its utility on the high seas. Despite it being a close-guarded secret, the Arabs did eventually acquire the ability to make Greek Fire, and used it in their conquest of Crete in 824.[84] Not only its requirement for close range and calm seas, but also the advent of gunpowder contributed to Greek Fire's short life span. The Mongols and others realized the power of gunpowder to project missiles and rockets—a power that Greek Fire did not produce—and adopted the former rather than the latter. In the organizational arena, the Byzantines were even more successfully innovative. They created an early warning and raiding network of light infantry soldiers in the Taurus-Anti-Taurus Mountains. This network was able to warn larger Byzantine military formations of the approach of enemy militaries. This would allow the Byzantine forces to stay in reserve, move to the area most advantageous for battle, and meet the unsuspecting enemy at the time most opportune for the Byzantines. This organizational innovation maximized the value of the Taurus-Anti-Taurus Mountains as a natural barrier to invasion.[85]

The fall of the Byzantine Empire is, like most stories in geopolitical history, not the result of one factor, but of the confluence of numerous factors at a point in time. The international system, especially to the north of Byzantium, changed with the emergence of powerful new rivals. In addition, the loss of the natural

83 White, *Medieval Technology*, 96.

84 Luttwak, *Grand Strategy of the Byzantine Empire*, 326.

85 Luttwak, *Grand Strategy of the Byzantine Empire*, 309.

barrier to the southeast, the Taurus-Anti-Taurus mountain range, to the Turks made the empire vulnerable. Finally, the very factor that had protected Byzantium for so long—its centralized administration system, which allocated resources for the protection of the empire—began to crumble from within. A politically astute class of citizens began to question the effectiveness and efficiency of the centrally controlled system. This new "middle-class" then began to withhold the resources that they were supposed to pay to the central government, because of their lack of confidence in it. The loss of these resources from the provinces caused a weakening of the military that relied upon them. The weakened military caused a loss of the deterrent effect that it had established and the diplomatic coherence, which had resulted from it. Eventually, this cascade led to the dissolution of the entire empire.[86]

The durability of the Byzantine Empire throughout the medieval period holds many lessons for today's great powers. New research suggests that Byzantium was not as homogenously pacifist as previously thought.[87] As with most things, the story is more complex. The Christian ethic did imbue the society with a belief that warfare was inherently evil. However, the historical record proves that Byzantines understood military power and warfare to be unavoidable in the protection of the empire. This reluctance to fight, coupled with a doctrinally based military system, supported by a centrally controlled administrative entity, allowed for a diplomatic strategy such as had never been seen before. A doctrine-based military supported diplomatic initiatives and provided Byzantine diplomats the proven capability to dissuade challengers and rising powers. Paradoxically, in this way the strong military supported the pacifist ethic by preventing conflict through deterrence. However, the same system that supported the empire for almost 700 years was one of the factors in its downfall. When the cost of the inefficient central government and its military began to outweigh the value of the protection in the minds of those paying the costs, the

86 Haldon, *Warfare, State and Society*, 279.

87 Haldon, *Warfare, State and Society*, 279.

empire began to dissolve. The lessons for the U.S. military are apparent: "Complex institutional arrangements, particularly [military and political], evolve certain well-worn methods for achieving certain ends, and it is usually only in times of major crisis and organizational upheaval that such methods can be substantially altered."[88]

3. The Islamic Empire (632–1250)

Muslim militaries showed little innovation in the realms of doctrine, organization, or technology. Although sometimes cited as the motivation for the Frankish adoption of cavalry tactics, even this supposition is questionable.[89] Some of the literature on Muslim military innovation is scant because the Islamic tradition adopted by early rulers forbade artistic recreations of men and animals. These very sculptures and paintings from other civilizations, allow historians to trace the development and diffusion of technology through history.[90] The absence of these artifacts from the early centuries of Islamic civilization may lead historians to undervalue the innovation of the Muslims. However, one innovation provides both early military successes in the Muslim world and the permanence of Islamic culture—a charismatic leader with a compelling story.

Mohammed was the sole innovator that allowed the establishment of both a Muslim Empire and a permanent world religion and culture. "Never before or since has a prophet won such success so quickly; nor has the work of a single man so rapidly and radically transformed the course of world history."[91] The affect of Islam upon the expansion of the empire is hard to overstate. The military successes of the original Muslim armies suggested to other Arabs that Allah was truly on the side of the Muslims. This belief created more converts to Islam and consequently larger Muslim armies. Mohammed's story and the larger

88 Haldon, *Warfare, State and Society*, 277.

89 White, *Medieval Technology*, 12.

90 White, *Medieval Technology*, 17.

91 McNeill, *Rise of the West*, 421.

movement of Islamic expansion overpowered the internal rivalries among tribes and civilizations, such as the Iraqis and the Syrians.[92] However, there were two key flaws inherent in the innovations of story and charisma, and the basis of an empire on them. One was that when the charismatic leader died, as Mohammed did in 632, the movement must reevaluate its very character. If the story that the leader used to rally his followers is not sufficient to carry on the cause, then the cause will fragment. The death of Mohammed showed signs of this stress in the Islamic Empire. The story of Islam was sufficient to incite the tribes to join, fight, and expand their empire, but was not enough to provide a stable system of governance to support this fight. Mohammed was the link that held the story together. With his death, his followers translated that story into political reality and everyday life—each according to his own interpretation.

The Islamic Empires were not completely without innovation. Fortunately, for the persistence of the religion and culture, a second great leader, Omar, was able to revive the empire and continue its expansion only two years after Mohammed's death. He did this by adopting some the techniques of other powers at the time—such as instituting regular pay for soldiers and garrisoning them in fortresses under the control of the central government. Even in the later Abbasid Empire, during the tenth and eleventh centuries, the Muslims controlled much of the Mediterranean through sea power.[93] In fighting, the Muslims proved successful at what would later be termed swarming techniques, but these tactics were not really an innovation as there is little evidence of their intentional codification into doctrine as a marked improvement over other fighting formations of the time. No real evidence exists of a single technological, doctrinal, or organizational innovation by the militaries of the Islamic, Ummayad or Abbasid

92 McNeill, *Rise of the West*, 431.

93 Ibn Khaldun, *The Muqaddimah* (1967, 36-37), quoted in Modelski, *Seapower*, 6.

Empires. That they were able to maintain power for so long is a testimony to both charismatic leadership and the persistence of a compelling soft power story, such as religion.

In Islam's translation from religious fervor able to incite men to fight into political reality and everyday life, fissures occur between its adherents. The tribal rivalries suppressed by the success of the expanding empire resurfaced when the expansion culminates. When the militaries of the empire are defeated in Europe by the Franks and in Constantinople by the Byzantines, this expansion stops. The transition from the Islamic Empire, to the Ummayad Empire, based in Damascus, and finally the Abbasid Empire, based in Baghdad is indicative of this constant undercurrent of tribal rivalry. The tribal rivalries never disappeared and, when combined with other social fissures such as the discrepancy between Arab Muslims and other converts, they undermined the power of the empire.[94] These fissures effectively led to the downfall of the empire in a bloodless revolution to the Malmuk Turks.[95] The Abbasid Empire, in order to help maintain order, created the Malmuk military as a provincial army. The final signal of empire dissolution was the invasion of the Mongols and the overthrow of Baghdad that brought the Abbasid Empire to its official end. Although the Islamic religion and culture would survive the breakup of the empire, the application of that religion to the governance of the empire would prove to be the point of contention that hastened its downfall. The Islamic Empire is an example of the power and limitations of charismatic leadership and a compelling story. The soft power component can persist through history, but must have a hard power complement to maintain an empire. The inability of the Muslim militaries to innovate technologically, doctrinally, and organizationally led to the downfall of the empire. However, the compelling soft power persisted through time, even in the absence of an empire champion.

94 McNeill, *Rise of the West*, 440.

95 University of Calgary, "Islam until 1600," http://www.ucalgary.ca/tutor/islam.

4. The Mongol Empire (1206–1368)

Emerging from the Central Asian steppes under the brilliant leadership of Genghis Khan, the Mongolian Empire spread faster than any empire in history and, at its peak, represented the largest contiguous empire in history. The Mongols banded together as a tribal people that had threatened the Chinese empires for centuries—the latter building the Great Wall to defend against the former. The leader that banded them together, Genghis Khan, would become, "the greatest conqueror in history."[96] The expansion of the Mongol Empire was similar in some ways to the Islamic Empire. Both expansions were predicated on a single charismatic leader and employed the inherent strengths of their fighters to conduct swarming tactics. Also similar to the Islamic Empire, the Mongol Empire required expansion to maintain unity—when successive charismatic leaders (Genghis, his son Ogedei, and his grandson Kublai) died and expansion of the empire ceased, it dissolved into separate groups that fought over power and control. However, the Mongol Empire differed sharply from the Islamic Empire in its level of innovativeness.

In an early instance of civil-military integration, Genghis Khan instituted the Yasak—a code of laws to govern daily life.[97] These laws, for the first time among independent, nomadic peoples, dictated a rigorous code for both civilians and military alike. In the realm of military innovation, the Yasak mandated that any booty gained through conquest would be divided between the soldiers who took part in battle. This served to engender neighboring tribes to join forces with Genghis Khan, as his laws were not only inclusive of all levels of social status, but also fairly and strictly enforced. This set of laws, along with Genghis' inclusiveness of religions and support for trade made many neighboring civilizations choose to join the Mongol Empire rather than be conquered by it.

96 Michael Prawdin, *The Mongol Empire: Its Rise and Legacy* (London: Bradford and Dickens, 1940), 23.

97 Prawdin, *Mongol Empire*, 58.

However, not all peoples were willing to join; the Mongols specifically clashed with the Jin Dynasty in the south and the Persians in the West.

Genghis and his successors understood the value of information to warfare. Not only did Genghis organizationally innovate his armies into units of multiples of ten (10, 100, 1000, and 10,000-man units) and establish imperial guards headed by his most loyal followers (as opposed to his family members), but also he established a General Staff and a spy network. He had formal spies in the territory of each of the three enemies to the Mongol Empire: the Kins, the Hsi-Hsia, and the Kara-Khitai.[98] In addition, Genghis entertained traders coming from any bordering state in his personal residence, in order to gain as much information about his neighbors as possible. He used the information from his spies and the traders he entertained to learn the strength and disposition of the Chinese militaries to his south and to prepare his forces for the eventuality of war with them. This ability to employ information to support a well-organized and trained force, allowed for the rapid expansion of the Mongol Empire, which by the end of the thirteenth century stretched from China to Eastern Europe. In the connection of these civilizations, the Mongols were able to further innovate with the imitation of technology from both ends of the empire and the innovation in military and political realms that allowed the *Pax Mongolica*. An example of this imitation of invention into innovation is the Mongol use of gunpowder. As discussed above, gunpowder is believed to have been invented for non-military means in China. However, the Mongolian conquerors of China are among the first to use this invention at the Battle of Sajo in 1241 and on a large scale in the attempted invasions of Japan in 1274 and 1281.[99] They also adapted the concept of siege warfare to their operations, which was unique for a military based on nomadic warriors. From the West, the Mongols adopted the *trebuchets* for use in sieges and innovated the use of combat engineers and rockets in sieges. They used the skills of the artisans in conquered lands and often built

98 Prawdin, *Mongol Empire*, 102.

99 Contamine, *War in the Middle Ages*, 139.

siege trains from the resources available in the area they were besieging. As gunpowder and *trebuchets* attest, the vastness of the Mongol Empire was a resource itself—the innovativeness of Mongol military leaders allowed them to subsume inventions from all parts of their empire in order to maintain its military strength and power.

The Mongol Empire rose and expanded under the innovative and charismatic leadership of Genghis Khan and his successors. These leaders were able to translate their fighters' innate ability to ride and fight from horses into swarming doctrine that overwhelmed and destroyed their enemies. Known as the Crow Swarm, or Falling Stars attack, this type of maneuver was controlled by drums or fire signals. The Mongols would literally attack simultaneously from all directions, bloody their enemy and depart as quickly as they came. This attack method had a completely disorienting effect on their enemies—the latter as confused by the onslaught as by the immediate silence that followed.[100] Later they matched these skills with organizational innovations for fighting units and technological innovations in the use of gunpowder to further expand and maintain a vast empire. They coupled this military prowess with a civil set of laws and administration of infrastructure that led neighboring civilizations to join rather than be conquered by the Mongols. This power was undergirded by information in two ways—the Mongol rulers used spies and 'open-source' trader information to learn about their enemies and they employed the psychological warfare of ruthless battlefield tactics and smoke screening to defeat and dissuade future attackers. The Mongols were 'ahead of their time' in many ways; from understanding the interconnectedness of economic and political power to accepting freedom of religion and open sharing of ideas. In its decline, the Mongol Empire was also ahead of its time. Predating the overstretch of the European powers by more than 500 years, the Mongols were unable to maintain a unified empire. Partially, as a result of the 'openness' that made the empire so

100 Jack Weatherford, *Genghis Khan and the Making of the Modern World* (Westminster, MD: Crown Publishing, 2004), 94.

successful, the later successors of Genghis Khan were each drawn in the direction of the conquered lands—some adopting Islam as their personal religion, others becoming immersed in the Chinese culture. When the succession of Khans fell apart and the heirs to the throne began fighting one another, the vastness of the empire proved susceptible to attack from without and dissolution from within.

5. Lessons From the Period of Social Change

In ancient times, civilizations and their militaries were mostly isolated, and often innovation took place in a vacuum. The trend during the ancient period was for a military to develop a technological innovation that surprised and overwhelmed its enemy. However, these innovations did not provide permanent power, as an enemy was able to copy this technology and turn it on its inventor. Therefore, success was defined by the powers who could adapt organizationally and doctrinally to employ this technology better than its opponent could. In the medieval era, the ecumene was expanding as civilizations came in contact with one another. As interconnectedness grew, so did the complexity to which militaries innovated. The medieval era saw the development of military subordination to civilian leadership and the power of psychological warfare. Civilian leaders were able to employ coercive diplomacy based on real military strength and military leaders were able to conduct operations with psychological effects—confident that word of their prowess will spread in an interconnected world and have its intended effect. The Mongol Empire was one of the best examples of this use of psychological warfare in both battlefield tactics and in expansion of the empire. This military capability required frequent innovation of technology, organization, and doctrine, best served by an innovative society.

The soft power of culture and civilization undergirds the hard power of military might. The civilization in this era that most aptly combines all the above elements is the Chinese. A Chinese political structure that fostered an innovative spirit in its society and its military, while subordinating the capabilities of the latter

to the aims of the former, provides the best example of a resilient civilization that maintains great power, with only brief interruptions, from ancient times to the modern era. The lessons for the United States are clear. Soft power alone will not maintain great power status, as the Islamic Empire was unable to translate a compelling story and charismatic leadership into empire power maintenance. For true power persistence, great powers must couple soft power components with hard power capabilities. Innovation is a factor in both of these. An innovative society creates a civilization and culture that others want to emulate. It also spawns military innovation that protects this civilization and culture. Through the combination of these two factors, a great power is resilient and able to maintain its power status in the face of uncertainty. The next period of historical analysis, the First Period of Globalization, contains the first example of a true military revolution. The roots of this revolution are in the medieval period. As medieval innovation in technology, doctrine and organization built upon the lessons of ancient times, so will the modern era adapt the innovation of an earlier period.

C. THE FIRST PERIOD OF GLOBALIZATION, 1492–1800:[101] THE AGE OF SEAPOWER AND EUROPEAN EXPANSION

The Medieval Era produced Europeans that were instilled with a warlike nature, naval mastery, and a resistance to disease.[102] This combination would make the first period of globalization a period of European expansion. This period is characterized by commercialization, an elevated status for the military, and power projection. Countries that embodied these characteristics in military doctrine were able to expand and exert geopolitical influence. Yet, this period also continues to underscore the importance of military adaptation and political integration of military and commercial interests. That is, bureaucratic resistance

[101] Thomas Friedman, "It's a Flat World After All," *New York Times Magazine*, April 3, 2005. This paper uses Freidman's periods of globalization to describe the modern era because they provide a system framework for analysis. Using the less complex historical typology of ancient, medieval and modern would be easier for categorizing events from historical writings. However, the periods of globalization are used to tie these historical events to the international system structure in which they occurred.

[102] McNeill, *Rise of the West*, 574. See also, Diamond, *Guns, Germs and Steel*.

to innovation was often attributable to the decline of great powers. The First Period of Globalization marks the historical transition in which great powers truly become global powers. This period began in the late fifteenth century with a military reflective of society. Officers were members of the societal nobility and the militaries were, "…not forces 'outside' society, but rather reflections of patterns of social control and influence and the beliefs that gave cohesion to these patterns."[103] By the end of this period, militaries had truly undergone a revolution and were able to shape the social and political strata of the countries in which they served, rather than merely reflect it.[104] In the period of three hundred years, a new type of revolutionary patriot replaced the *ancien regime* throughout most of the great powers in the ecumene.

A second trend in military innovation during this period is the commercialization of the military. This term applies both to the realization by great powers of the period that a strong military was necessary to maintain the commercial interest of the power, and to the fact that powers began to hire mercenaries from other countries to protect their interests.[105] This commercialization of the military establishment facilitated the first global empires. As powers acquired wealth, they developed military capabilities to protect and further this wealth. Global reach was first made possible by navies who could project power to all corners of the ecumene.[106] In addition, European military leaders realized the value of drilled forces and the doctrinal innovation of training

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[103] Jeremy Black, *A Military Revolution?: Military Change and European Society, 1550-1800* (London: MacMillan Press, 1991), 96.

[104] The degree to which the military revolution shaped political and social structures is much debated. Michael Roberts began the debate with a lecture in 1955 entitled, "The Military Revolution 1560-1660." Later, Geoffrey Parker furthered the debate in his book, *The Military Revolution: Military Innovation and the Rise of the West, 1500–1800*. Most recently, Jeremy Black debates both Roberts and Parkers views in *A Military Revolution?: Military Change and European Society 1550–1800*. All of these views are considered in this paper, however, Parker's will be utilized most heavily. Parker's analysis seeks to answer the question: how did Europe, with limited geography and natural resources create the first global powers and dominate the world. His answer is that Europe compensated with superior military and naval power. Whether the term revolution should really be applied is not critical to this discussion. Instead, I focus on the question of how some countries applied the results of this revolution to pursue global power.

[105] McNeill, *Pursuit of Power*, 117.

[106] Modelski, *Seapower*, xi.

and drill professionalized militaries that could defeat powers possessing greater technological innovation.[107] It is possible that Europe's rise to prominence during this age is as much a factor of geography—an arms race and innovation race that ensued due to the close proximity of multiple powers—as it was to the degree of innovative capacity over other regions of the world. In the sixteenth and seventeenth centuries, Europe was at war. The people of the continent were undergoing the Reformation, which often placed the ongoing state struggles for power supremacy in a religious context.[108] First, the widely dispersed and heterogeneous Hapsburg Empire made a bid for continental supremacy—only to be balanced against by French and Dutch land power and, above all, British seapower that blocked its attempts to expand. Then it was France's turn to attempt dominance of Europe. The pluralistic power of the continental countries allied to balance this threat as well. Only when Britain developed a complementary continental and sea power strategy that did not attempt domination of the lands of Europe, did a European great power realize global power status.

The early modern period presents the first example of a military revolution.[109] This military revolution saw armored cavalry replaced by infantry as the primary weapon in battle, aided by the English longbow and the pike. Later, the pike and shot combination, made possible by gunpowder, led to artillery and siege warfare. Also the expansion to large armies was possible due to less relative skill needed to be an infantryman as compared to an armored

107 McNeill, *Pursuit of Power*, 118.

108 Paul Kennedy, *The Rise and Fall of the Great Powers* (New York: Vintage Books, 1987), 32.

109 The term, frequency and depth of military revolutions is a much debated topic among historians. For the purpose of this paper, a military revolution refers to a relatively short period of dramatic technological, doctrinal and organizational change among the militaries of various countries. Military innovation, by contrast is the continual process of change in these three areas—which may occur rapidly during a revolution, or constantly during 'non-revolutionary' times.

cavalryman.[110] This period of continual conflict climaxed, and was epitomized, by the Thirty Years War (1618–1648), which included the doctrinal innovation of Gustavus Adolphus II of Sweden. He pioneered the concept of massed artillery fire, blended with muskets and pikemen in combined arms integration, to help check the expansionist ambitions of the Hapsburgs. The test lab provided by ongoing warfare in Europe in the early modern era allowed the prototyping of technological, doctrinal, and organizational innovations that proved beneficial to those powers able to capture and capitalize on its the lessons.[111] This 'innovation under fire'[112] during the first half of this period of globalization may be the linchpin that allowed Europe to dominate the second half. While Europe's test bed allowed innovation to take place rapidly and effectively, the far and near east were able to prosper and innovate due to their geography and relative security.

1. The Ottoman Empire (1453–1918)

The Ottoman Empire was established as a great power in 1453 when Mehmet II took Constantinople from the Byzantines. The empire experienced a period of significant growth for the two centuries, reaching its apogee in 1683 when it threatened to conquer Vienna, stagnating and slowly declining over the next 235 years, until its fall in 1918. The Ottoman Turk slave soldiers early on embraced innovations of the west and present a stark contrast to the Mamluk army. In 1517, the Ottomans overthrew the Mamluk army, the successors of the

110 Andrew Ayton and J.L. Price, "The Military Revolution for a Medieval Perspective," in *The Medieval Military Revolution: State, Society and Military Change in Medieval and Early Modern Europe* at http://www.deremilitari.org, last accessed April 15, 2011.

111 Current literature on innovation (see www.ideo.org) often speaks of the necessity of prototyping in development of innovative thought. This paper argues that four centuries before current innovators and designers realized the value of prototyping, military leaders in Europe's early modern warfare understood its benefit. The constancy of war allowed military leaders to test various technologies, doctrines and organizations in battle—adopting those prototypes that proved successful and discarding those that did not.

112 For a modern discussion of this same phenomenon, see Robert Masaitis, "Advancing Under Fire: Wartime Change and the U.S. Military," Master's Thesis, Naval Postgraduate School, December, 2008.

Muslim Abbasid Empire. The Mamluk knights used firearms in sieges, but refused to use them in battle. The Ottomans, on the other hand, did not have a moral prohibition against the use of firearms, adapted this technology quickly and overthrew their Mamluk opponent.[113] The Ottoman Empire rose out of an advanced civilization that was farther ahead of Europe in mathematics and science, including cartography and medicine. The toleration of other ethnicities allowed Ottoman rulers to bring Greek, Jewish, and European scholars and technicians to work for the benefit of the empire. The unified central governance system of the Ottomans, based on an official faith, culture and language allowed it to rule over an area larger than the Roman Empire. As with the Byzantine Empire, this centrality of governance was essential for the Ottomans' rise to great power. Great rulers, like Mehmet and Suleiman, were able to translate vast lands full of riches and people into power, while maximizing the centrality of their geographical location to control trade between Europe and Asia. They created naval ships that expanded and protected the empire and massive armies that, at one time, threatened to conquer Europe. They also used the inclusiveness of Islam to recruit Christian youth from the Balkans who formed dedicated, uniformed janissary units.[114]

The Ottomans were quick to adapt and use the Europeans technological innovations of handguns, field guns, and siege guns, most of all. However, the Ottomans were, "expert imitators, but poor innovators."[115] This inadequacy is evident in three areas: the decision to build and use only large cannons; the failure to adapt doctrine and organization to technological innovations; and the inferiority of their metallurgy. The Ottomans adopted the use of firearms from the Europeans without the moral constraints of the Mamluks. This adoption, and the resultant doctrine based on large cannons, was validated by the destruction of Constantinople in 1453. However, while Europeans innovated cannonry to make

113 Parker, *Military Revolution*, 126.

114 Kennedy, *Rise and Fall*, 11.

115 Parker, *Military Revolution*, 127.

it smaller and more maneuverable, Ottoman armies continued to view the value of only large cannons, and their ability to deal a decisive blow. Whether this doctrine was based on a cultural bias towards large cannons or the inability of the Ottomans to mass-produce smaller cannons, is of debate.[116] What is apparent from the historical record is that the Ottomans could imitate technology, but their military leaders failed to adapt this technology into adequate doctrine. The early Ottoman militaries possessed a siege-train mechanism superior to any found in Europe. However, by the siege of Vienna in 1683, the massive Ottoman armies failed to adopt the doctrinal lessons of European sieges—that an army in siege must also protect itself from armies coming to the aid of the besieged city. This doctrinal failure resulted in a dramatic loss for the Ottomans, and indicated that their period of expansion had ended. The failure to adapt doctrine and continue to innovate also resulted in the once-superior Ottoman navy being routed at Lepanto in 1571.[117]

How did a superior military and navy power, with an advanced societal base and an enormous empire, lose power in such quick succession? As with the Byzantine Empire, the strength of a centrally controlled system that allocated resources to expand the empire also became its greatest weakness. A centrally controlled empire works well with competent, adaptable leaders at its helm. Unfortunately, for the Ottomans, they experienced a string of thirteen incompetent sultans beginning in 1566.[118] These leaders caused such a rapid decline of the empire precisely because of its rigid bureaucratic structure. That this succession of poor leaders coincided with an internal split in the empire only hastened its demise. The Shi'ite adherents of Islam began to feud with the Sunni majority in the Ottoman Empire. The central leadership responded to this dissent by restricting free expression of thought and free institutions. The military became a bastion of this controlling conservatism and pursued the government's

116 Parker, *Military Revolution*, 126.

117 Roger Crowley, "Arsenal of Venice: World's First Weapons Factory," *Military History*; Mar 2011; 27, 6, 62.

118 Kennedy, *Rise and Fall*, 11.

desire to check innovation. As a conservative culture pervaded not only the central government but also the military, innovation stopped. Without this military innovation, and with armies spread over an enormous landmass, the Ottoman Empire began to feel the strain of imperial overreach. The decline of the empire, therefore, began with an internal crumbling of the system, later accelerated by the attacks of some European powers, which had continued to innovate in the pursuit of global power, and alternately viewed the Ottoman Empire as a threat.

2. The Hapsburg Empire (1648–1918)

The Ottomans' direct neighbor to the north, and its greatest enemy, was the Hapsburg Empire. At its height, the Hapsburg family ruled, by conquest and by marriage, over the area of Eastern and Northern Europe, Northern Italy, Germany and Spain. Although the Hapsburg monarchy technically ruled into the twentieth century, the empire devolved into the major powers of Spain, the United Provinces of the Netherlands, and Austria-Hungary during its 500-year history. The story of the rise and establishment of this vast empire is a unique one, having to do as much with inherited land through marital relationships as with military conquests. Nonetheless, the empire was supplied by vast fertile lands and a large population that were able to sustain its power, despite its inability to express a unifying grand strategy. When Charles V assumed the throne of Holy Roman Emperor in 1519, he inherited the territory that bounded France on both sides. This geographical factor would pit France against the Hapsburg Empire for the next two centuries. Juxtaposed on this state conflict was the European social upheaval caused by the Reformation. Where religious differences were involved, as between the Catholic Hapsburgs and the Protestant Germans, rulers were more likely to fight than to seek a compromise.[119] The stage in Europe was set for a long period of warfare, which culminated in the Thirty Years War.

119 Kennedy, *Rise and Fall*, 33.

It is debated whether the Hapsburg rulers sought European domination, or just defense of the empire.[120] At its zenith, the Hapsburg Empire encompassed one quarter of the population of Europe; more importantly, it contained the largest ports in Europe. Due to the large territory that the empire encompassed, if it had only been able to defend its borders against French expansion and Ottoman incursions, it would have *de facto* dominated Europe. However, the French and Ottomans actually combined forces to balance against the Hapsburgs, and the French consistently supported German princes against their enemy.[121] By 1556, Charles V abdicated his throne as Holy Roman Emperor to his brother and his position as king of Spain to his son. With this split, it became clear that "like the double-headed black eagle in the imperial coat of arms, the Hapsburgs had two heads at Vienna and at Madrid, looking east and west."[122] That three major powers spawned out of the Hapsburg Empire—Spain, the Netherlands, and Austria-Hungary—gives one an appreciation for its size and wealth. However, this size would prove a weakness to the empire, as well, as the real costs of warfare dramatically increased during this age of paid professional forces and mercenary units. As the balancing forces of European powers that feared domination of one power—or religion—and the constant threat of the Ottomans to the south put constant pressure on the empire, the costs of its defenses outgrew the revenues of its resources. Prior to the Hapsburg Empire becoming a great power, the Dutch revolt had already started to separate the Empire's disparate parts.

120 Kennedy, *Rise and Fall*, 35 notes this debate, but believes that defense was the primary motivation behind the Hapsburg grand strategy. Robert Kann, *A History of the Hapsburg Empire: 1526–1918*, views the Hapsburg grand strategy as directed precisely at the domination of Europe over their French rivals.

121 Kennedy, *Rise and Fall*, 37.

122 Kennedy, *Rise and Fall*, 37 quoting V. S. Mamatey, *Rise of the Habsburg Empire 1526–1815* (Huntington, NY: 1978), 9.

The Spanish Netherlands, as with the Italy, were unattached appendages to the Hapsburg Empire.[123] In the throes of the Reformation, the provinces of the Netherlands began to fight one another and their Spanish rulers in the mid-sixteenth century. Protestants provinces fought against Catholic ones, and against their Catholic monarch in Spain, constituting the Eighty Years War. Occasionally aided by Protestant England in their pursuit of independence, Philip IV of Spain recognized the United Provinces of Netherlands as independent at the end of the Thirty Years War in 1648. The last fifteen years of the Thirty Years War, the United Provinces were only indirectly involved in the conflict. This relatively slight involvement, and preoccupation of the other major powers on the continent in total war, allowed the Dutch to look outward. They developed a maritime and trade empire in North America and Africa before even receiving their independence. After independence, this empire extended around the world, with colonies as far away as Indonesia and South America. The confederate of provinces also created the first capitalist economic system, with a stock market and boom and bust market cycles. This system spawned the Dutch East and West India companies—the acumen of an era of commercialization of national strategy and an expansionist capitalist government. Militarily, Dutch sea power was ensured by merchant marines, with no dedicated or standing naval forces. Even in a later arms race with England, discussed below, the Dutch built dual-purpose ships that would arm the merchants on board for their own protection, but did not build warships or professionalize sailors to support a grand strategy to protect the empire. Consequently, the Netherlands never built adequate defenses to protect its borders or its sovereignty. With the rise of Napoleon Bonaparte, the Netherlands would quickly become a province of the new French Empire, and never reach true great power status—despite its global reach. The Dutch example is one that teaches the limits of capitalism and commercialization. The privatization of empire expansion is adequate to spread a country's interests

123 Robert A. Kann, *A History of the Habsburg Empire, 1526–1918* (Berkeley: University of California Press, 1974), 10.

to the corners of the globe. However, if the profits from this empire are not reinvested in adequate defenses, which protect its interests, the country will never have truly great power—only great wealth.

The story of Hapsburg Spain embodies much of the military revolution and provides a harbinger for other great powers. Like its Dutch counterpart, the Spanish geographical location lent itself to maritime expansion. In accordance with the common practice at the time, Charles V used dual-purpose galleons and galleys to spread his merchant empire and protect themselves. His son, Philip II, was not able to maintain this practice in the late 1500s. Due to the threat of Barbary Pirates in the Mediterranean and the English Royal Navy in the Atlantic, Philip II had the state build galleys to protect continued exploration.[124] In the short term, this political integration of commercialization and the military was sustainable, the wealth from the Americas and other colonies paid for the Spanish military operations. However, combined with the factors listed below, the expense of supplying ships to further the state's interest proved unbearable. The empire's Spanish component, and its Portuguese neighbors, made the first expeditions across the Atlantic and around the world. However, the Spanish and Portuguese explorations were insufficient to make their respective countries secure global powers. Instead, they were directly threatened by English privateers and Barbary Corsairs, and indirectly undermined by the inability of their governments to translate this superior seafaring capability into real power.

The social structure of Castile made soldiering a popular and fashionable occupation for gentry and commoners alike. Gonzolo de Córdoba combined this rich social foundation with innovative military organizations and doctrine to make a Spanish infantry second to none. From the early sixteenth century until midway through the Thirty Years War, "the Spanish *tercio* was the most effective unit on the battlefields of Europe."[125] Castilian soldiers combined pikeman, swordsmen and arquebusiers in infantry regiments to sweep the armies of other

124 Kennedy, *Rise and Fall*, 46.

125 Kennedy, *Rise and Fall*, 44.

countries before them.[126] This superior Castillian infantry not only dominated French cavalry and Swiss pike phalanxes, but removed the former from the Italian city-states of Naples and Milan and allowed the technological innovation of the *trace italienne*. The technological innovation of *trace italienne* checked the gunpowder revolution in Europe, which had, up until this time, determined success or failure in battle. These fortifications were built in Northern Italy by the Hapsburg Spanish and altered the offensive balance that was afforded by improved cannonry. The lack of dead space created by these innovative fortresses, and their ability to withstand the cannonry of the day, had far-reaching implications for warfare in Europe. Not only was there a resurgence in favor of defensive strategy, but also armies were built to sizes that had never been imagined previously—because siege warfare was extremely manpower intensive.[127]

As with previous innovations in history, the *trace italienne*, created by the Spanish Hapsburgs, may also have led to the downfall of its creator. As the innovation spread throughout Europe in the late sixteenth century, the sizes of armies required to maintain power grew exponentially. While the Spanish infantry were once considered the premier fighting force on the continent, their numbers were not great enough to keep pace with this size explosion. Consequently, by the mid seventeenth century, Hapsburg Spanish rulers began hiring mercenaries from Germany, Italy and Ireland.[128] These mercenaries were not only inferior to the Spanish *tercios* they were also more expensive. Because Spain, like the Netherlands, was a market-based economy, the king had to borrow money to support the military from lenders. Unlike in autocratic governments, the Spanish king was responsible to repay the debts to finance war. This is not to suggest that Charles V, and later Philip II, were irresponsible spenders. Instead, they were caught in a Catch-22, where the military demands

126 Kennedy, *Rise and Fall*, 44.

127 McNeill, *Pursuit of Power*, 91

128 Kennedy, *Rise and Fall*, 44.

of the age—massive increases in the size of armies and their costs, expensive construction of *trace italienne* fortifications and a requirement to protect merchant shipping from both royal navies and Barbary Pirates—outpaced the ability to acquire funds. Philip II, in particular, believed that future military conquests would secure the riches necessary to get the country out of debt.[129] This did not prove to be the case. Spain continuously defaulted on its loans and declared bankruptcy. The lesson from the Spanish decline is that no matter how good a country's military is in the field or at sea, if the expenditures of the country are greater than the revenue provided, that country will eventually decline in power.

Although the Hapsburg Empire proved unable to maintain its 'appendages,' the heart of the empire, Vienna, and the area that would later be known as the Austrian Empire persisted. The Hapsburg Empire presents a clear example of the first great European power. Unique in its formation, geography doomed this empire to fight too many wars, spend too much money and consolidate too many heterogeneous cultures to persist. With its power constantly checked by an alliance of balancing forces throughout the two centuries, this empire felt—possibly more than any other sovereignty at the time—the effects of the Reformation and the continual European struggle for continental dominance. Under these pressures, it failed to consolidate and spread its power as later European powers would be able to do. The different strategies pursued by its three largest components—the United Provinces, Spain and Austria—tore the empire apart, but led to relative success for each of the parts.

3. France (1648–1789)

France emerged from the Thirty Years' War as the European hegemon. It achieved this feat by reinstating a monarchy to control the state, but allowing the flexibility for older cultural institutions to fade away rather than be abolished. Although the official state religion was Catholicism, Henry IV kept state interests

129 Kennedy, *Rise and Fall*, 47.

distinct from those of the Church. Under Louis XIII, Richelieu, chief minister of the king and a cardinal of the Church, used the king's armies to consolidate power and establish the French style of absolute monarchy. This model was followed by the other European powers of the time.[130] The concept that allowed this monarchy to remain stable was a large bureaucratic administration composed of the middle class. This administration supported the monarchy and appeased the classes that had previously been under nobility rule. France's power was also supported by a rich resource base and a large population, which allowed a certain amount of self-sufficiency. Upon entering the Thirty Years War, French forces and generals were inferior to those of Spain and Germany, but through experience in battle, the military dramatically improved. When the French military skill matched those of its opponents, France's power overtook that of its neighbors by virtue of a broader resource and manpower base from which to support an Army. Following the Peace of Westphalia in 1648 and the conclusion of war with Spain in 1659, Louis XIV, who had come of age in the time of civil disorder, saw fit to maintain a large standing army—foremost to maintain order within the state, and secondly to project power outward.[131] The large population and resource base allowed Louis XIV, in the later part of the seventeenth century to dramatically expand the French armies to meet the expansionist aims of the state.[132]

With focus on maintaining a hegemonic status and a premier military from Louis XIV, the French military modernized and professionalized its force. This innovation may have been more imitative of earlier Italian inventions, but nonetheless, produced a French army second to none.[133] Standardization occurred in both organizational and tactical arenas. Soldiers were regularly paid with money from tax revenues and civilian administrations controlled supply of

130 McNeill, *Rise of the West*, 580–581.

131 McNeill, *Pursuit of Power*, 124.

132 Kennedy, *Rise and Fall*, 88.

133 McNeill, *Pursuit of Power*, 125.

equipment. Doctrinally, infantry, cavalry and artillery units were distinguished, but coordinated as never before in combined arms fighting—first pioneered a millennium earlier by the Assyrians. Drill was the other doctrinal and organizational change that helped the French Army maintain the country's hegemonic status. First pioneered by the Romans, later adopted by Maurice of Nassau of Holland—the key European who popularized drill—the art was perfected by Lieutenant Colonel Martinet of the French army. Martinet, whose name was to become synonymous with detailed drill and standardization, infused the French army with a concept that every free moment should be spent in drill. The discipline and standardization that this first concept of 'garrison training' instilled, allowed the French army to keep soldiers occupied during times when they may otherwise have been causing problems and to instill an *esprit de corps* that helped socialize the fighting unit. Coupled with longer enlistments that resulted from a standing army, and the French structural innovations had numerous positive consequences on the vitality of their military.[134]

In the first power transition, France's decline was a culmination of factors. The dissolution of the Hapsburg Empire was affected by balancing forces of other European powers—led by France. With the power of the Hapsburgs gone, France became the primary power in Europe. In a European environment of pluralistic power, focus then switched from balancing against the Hapsburgs to balancing against France. In his goal to expand his landholdings and weaken his neighbors, Louis XIV attacked to the north, east and south. France, instead of accounting for the balancing dynamic on the continent and developing a strategy against it, continued to pursue expansion under Louis XIV. Lacking a clear grand strategy to effect expansion, the government that had once standardized and professionalized its force, now divided emphasis between its land and maritime forces.

As a major land power, France's maritime component should have been built to support and strengthen its army. Ironically, the same military that had

134 McNeill, *Pursuit of Power*, 132.

distinguished ground forces into separate maneuver units and innovated the doctrine to standardize their fighting, failed to integrate its ground and maritime components. While ground forces attacked neighbors in every direction, the French navy focused outwardly. A sizable navy built under the direction of Louis XIV's finance minister, Jean Baptiste Colbert, coupled galleons and merchant ships. These naval forces sought to build colonies throughout the world—including entering the Indian Ocean in 1666. Colbert innovated with the French navy doctrinally in the establishment of France's maritime code, the *Ordonnance de la Marine*—which became the model for other European powers. He also conducted organizational innovation by establishing naval academies and bases throughout France.[135] But the French Navy remained doctrinally focused on attacking the superior British Royal Navy, instead of supporting the army campaigns. In this endeavor, the French were defeated time and again by the superior British sea forces. These defeats, coupled with the rising costs of maintaining a direct battle fleet, caused the French navy to resort to commerce raiding—what they called the *guerre de course*—as their driving doctrinal concept.[136] This decision determined that France would never be a major seapower, and consequently would lose power over the coming centuries as seapower became paramount. In contrast to Britain's integrated land and maritime strategy, France did not create a coherent grand strategy to maximize the effectiveness of its professional and standardized forces.[137] This strategic overstretch, lack of grand strategy, and balancing of other states against it led to France's decline into Revolution.

135 Clark Reynolds, Command of the Sea: *The History and Strategy of Maritime Empires*, v.1 (Malabar, FL: Robert E. Krieger Publishing, 1974), 178.

136 Reynolds, *Command of the Sea*, 195.

137 Kennedy, *Rise and Fall*, 88.

4. Britain (1648–1800)

Sir Walter Raleigh, quoting both Francis Bacon and Themistocles, stated, "Whosoever commands the sea commands the trade; whosoever commands the trade of the world commands the riches of the world, and consequently the world itself."[138] Britain's story of the rise to global world power begins with a Portuguese named Prince Henry the Navigator. In the late fifteenth century, the Portuguese invented technological improvements in navigation that made sea faring expeditions possible.[139] However, the story of British global power is not only one of sea power; Britain dislodged France from the world power position with a complementary maritime and continental strategy. The reciprocating 'virtuous triangle' of trade, colonies and navy was a necessary, but not sufficient component that brought Britain to global power and maintained its status there.[140]

In the beginning of the sixteenth century, only England and Portugal possessed a standing navy. However, the Dutch maintained control of the seas with a vast merchant-marine fleet, an expanded commercial empire, and a virtual monopoly on maritime trade. European powers, like the Dutch, tended to lease or confiscate merchant ships in times of war to build a fleet, or build ships for naval purposes, but lease them to merchants in times of peace. Countries also used privateers extensively to conduct their business on the high seas and in newly discovered lands.[141] England used these merchants and privateers, along with its limited navy, to establish colonies in North America, the West Indies and India. Despite relatively limited involvement in the Thirty Years War, England had significant internal revolts and disputes during the same period. As a result of these internal crises, many English settlements abroad were left to fend for

138 Sir Walter Raleigh, quoted by Reynolds, *Command of the Sea*, 105.

139 McNeill, *Rise of the West*, 565.

140 Kennedy, *Rise and Fall*, 96.

141 Modelski, *Seapower*, 53.

themselves and created organic government in the absence of a colonial one.[142] Francis Bacon brought the concept of sea power to England with his 1625 article, "Of the true greatness of Kingdoms and Estates,"[143] but Oliver Cromwell set its course for history.

Following the Thirty Years' War, and continuing civil strife in England, British merchants looked to expand trade and sea power. France, in its ill-fated attempt at both land and maritime hegemony, began an undeclared maritime war on the English Navy followed by a declared continental war. At the same time, the Dutch continued to expand and monopolize their hold on maritime trade. In October 1651, Cromwell pursued and the English Parliament passed the Navigation Act—directly aimed at Dutch trade supremacy. It forbade goods from entering English ports, except in English boats or in the boats of their country of origin. Because the Dutch did not produce goods for export, but rather monopolized the movement of those goods, this legislation set the course for the Anglo-Dutch Wars.[144] Cromwell quickly innovated the organization of his navy to meet the demands of this new grand strategy. The naval administration was overhauled, several army colonels were designated 'Generals at Sea,' and English shipyards doubled the fleet's strength in two years.[145] This rapid change was possible due to the political integration between Cromwell and the navy leadership that supported him during the English Civil Wars. From this integration, the 'generals at sea' were able to bring more discipline to the Royal Navy with their 'Fighting Instructions' and alignment of doctrine.[146] This rapid transformation of the Royal Navy through a political champion, political

142 Reynolds, *Command of the Sea*, 178.

143 Modelski, *Seapower*, 7.

144 Reynolds, *Command of the Sea*, 179.

145 In a story similar to the Sumerian phalanx, the Europeans pioneered convoy tactics as a means of safeguarding merchant vessels in the seventeenth century, only for the innovation to be forgotten for centuries. The convoy doctrine failed with the advent of the dreadnought, which could destroy many ships in convoy and required convoys to have an escort. This innovation would be fully reinstituted in the Second World War with convoy escorts.

146 Modelski, *Seapower*, 206.

integration with military leadership, and doctrinal and technological innovation is an example of the speed at which military innovation can take place. The success of this innovation is confirmed in the Anglo-Dutch Wars.

The Convoy Act of 1650 provided English merchants with naval convoy protection, following the Dutch model. An arms race for sea power ensued, with the Dutch building an additional 150 warships. The Dutch ships outnumbered the English; however, the latter were professional naval ships, whereas the Dutch still built dual-purpose ships manned by armed merchantmen. In the Anglo-Dutch Wars, the English adopted the doctrinal innovation of line-ahead firing formations, where 'ships of the line' would move broadside of the enemy in order to deliver a maximum volley of firepower. [147] Although the Dutch adopted this line-ahead tactic and held their own through the three wars, especially the second, they were ultimately defeated at the battle of Gabbard Bank, ending the series of wars. Both navies used line-ahead tactics, but wind and superior professionalism helped the English defeat the Dutch and establish themselves as the leading maritime power in the world. Military innovations in sea power directly supported the political aims of the state, and the 'virtuous triangle' was borne.

Britain's grand strategy was not solely maritime-focused, but followed a grand strategy that hedged against continental threats. Following the conclusion of the Thirty Years' War, and still somewhat in the throes of their own civil war, the English found themselves at war with France in 1702; Louis XIV attempting to establish absolute domination of the continent. The English adopted many of the innovations of the Thirty Years' War, and combined them with audacious leadership to mitigate the French threat, while remaining focused on maritime dominance. The English pursued a continental strategy that included military aid to countries on the continent that balanced against France—including their recent enemy, the Dutch—and supported campaigns that directly attacked France.[148]

147 Reynolds, *Command of the Sea*, 179–182.

148 Kennedy, *Rise and Fall*, 98.

The English New Model Army adopted the doctrinal innovation of drill, which had swept the continental militaries of the time. They also adopted and furthered the technological innovations that had taken place with firearms, culminating in the invention of the Brown Bess in 1690.[149] In the continental war with the French, the English formed a 'Great Alliance' with Austria-Hungary. When the Austrian capital of Vienna was threatened by French forces in 1704, John Churchill, the Duke of Marlborough, brought the English doctrinal and technological innovations to bear in defense of his country's allies. Marlborough's March to the Danube represents one of the great deceptions of the age and secures his position as a great doctrinal innovator in his time. He was able to save Vienna by conducting an operational deception in which he threatened Strasbourg—psychological key terrain for King Louis XIV—while turning his armies towards Vienna to attack the French forces there.[150] This deception was possible only with a well-drilled army, skillful planning, robust logistics and leadership. Marlborough was one of the most successful battlefield commanders prior to Napoleon, with successes culminating in a masterful deception at the siege of Bouchain seven years later. Although the internal politics of England at the time were in total ruin, the Queen and Parliament still managed to provide a grand strategy that supported a continental war against France, which provided the space and time to pursue maritime dominance of the world. "Geographical advantage and economic benefit were thus merged to enable the British brilliantly to pursue a Janus-faced strategy: 'with one face turned towards the Continent to trim the balance of power and the other directed at sea to strengthen her maritime dominance.'"[151]

149 McNeill, *Pursuit of Power*, 142. That this musket would remain mostly unchanged in the British Army until 1840 is not only a testimony to its effectiveness, but, alternately, a warning that no innovation may rest on its initial superiority.

150 Jon Latimer, *Deception in War* (New York: Overlook Press, 2001), 15–16.

151 Kennedy, *Rise and Fall*, 98 quoting Idem, *Army of Flanders and the Spanish Road*, pp50ff.

5. Lessons From the Age of Mercantilism

> Only military resilience and technological innovation—especially the capital ship, infantry firepower and the artillery fortress: the three vital components of the military revolution of the sixteenth century—allowed the West to make the most of its smaller resources in order to resist and, eventually, to expand to global dominance.[152]

Military might and economic strength became inextricably linked. Militaries became a tool of the state to increase its wealth, to not only protect its borders and extend its territorial holdings. Timing also speeds up in this era—the Ottoman Empire rises to prominence with an advanced civilization, is challenged, and falls within three hundred years. In an earlier age of less interconnectedness, the margin of advantage enjoyed by the Ottoman civilization would have sustained its power much longer. The Ottoman Empire provides a perceptive lesson for the United States. Like the Byzantine Empire, the Ottomans relied on the same institutions that made them a great power to maintain that power. A centralized bureaucratic system built upon an advanced civilization allowed the expansion of the Ottoman Empire over diverse peoples and vast lands. However, this same bureaucracy stifled innovation at the empire's zenith. When forces were dispersed to remote distances, the internal failings of a sclerotic bureaucracy heightened the effects of imperial overreach and hastened the downfall of the empire. The United States must heed the warning: that when its power is at its maximum, and its forces are spread across the ecumene, it is not a time to centralize control and assume its own superiority. Only by decentralizing control in order to allow innovation to generate from within, will a great power maintain that position.

The case of Siena, although not a great power, also holds lessons for the United States. The small city-state used all of its resources to build an elaborate *trace italienne*—the preferred defensive system of the time. However, the construction of this bastion was so expensive that Siena had no money to raise an army or naval forces. After a long siege in 1555, the city-state surrendered

152 Parker, *Military Revolution*, 175.

and was annexed by Florence.[153] There is no "silver bullet" in a state's protection of its society. Adoption of technology that exhausts the state's resources in the name of national security, may result in its inability to protect its society. Additionally, Sweden stands out as an anomaly is this era. Unlike the mercantile powers of continental Europe, Sweden expands its empire for purely defensive means.[154] Much of this expansion is based upon the massed volley fire innovation of its king and military commander, Gustavus Adolphus. This singular innovation significantly changed the revolution in military affairs that occurred during this period and probably holds the origins of the later invention of the machine gun.

Britain and France, in contrast to one another in this period, provide some of the most discerning lessons for America. While each power spent much of its wealth on military might, only Britain developed a coherent national strategy that integrated its power. The British 'Janus-faced strategy' ensured geopolitical success through this period and well into the next. It did this by alternately balancing with other powers against France and creating alliances that counter-balanced forces looking to disrupt its power. As France built a sizeable naval and land component, it failed to integrate these to reach maximum potential. On the other hand, Britain, through a coherent national strategy, integrated its military forces to maintain and expand its power throughout the globe. The United States must learn these lessons from Britain—not only does political integration of military power through a coherent strategy allow for rapid innovation of the military, but also horizontal integration of military services allows for the concerted application of military power and the increase of global power. In the First Period of Globalization, "…technological and organizational innovation continued, allowing Europeans to outstrip other peoples of the earth

153 Parker, *Military Revolution*, 12.

154 Michael Roberts, *The Swedish Imperial Experience 1560–1718* (Cambridge: Cambridge University Press, 1979), 2.

more and more emphatically until the globe-girdling imperialism of the nineteenth century became as cheap and easy for Europeans as it was catastrophic to Asians, Africans, and the peoples of Oceania."[155]

D. THE DISSOLUTION OF EMPIRES IN THE SECOND PERIOD OF GLOBALIZATION, 1800–2000

If the First Period of Globalization can be described as "Europe's Period," then the Second Period of Globalization should be called "America's Period." The two hundred years of this period saw a continuation of the European rise to global prominence, leading to two world wars that destroyed that rise and the empires it had created, followed by a superpower confrontation with global reach like the world had never seen, and culminating in a single dominant power that defied previous definitions. The environment that created this rapid change was marked by an increasing rate of technological innovation—the naval innovation from wood and sail to dreadnoughts took over fifty years, while the development of the technology, doctrine, and organizations to support nuclear warfare took only fifteen years.[156] In this environment, learning was easier and the diffusion of technological innovation was more rapid. This increasing rate of technological innovation and sophistication was also attended by increasing costs. In this environment, the extent of civil-military integration becomes paramount—as coherent national strategies will guide and check this rapid pace of innovation to meet the power goals of the country. When the goals of the military lead the goals of the state, the tragedy of professional militarism occurs, as it did in Japan and Germany. Conversely, when the military innovates in the absence of a coherent national strategy, it risks bankrupting the nation that it seeks to protect, as was the case with France. In this period, once again Britain provided a model for the United States: civil-military integration allowed rapid innovation of its

155 McNeill, *Pursuit of Power*, 143.

156 Andrew Krepinevich, "Cavalry to Computer: The Pattern of Military Revolutions," in *The National Interest*, 37 (Fall 1994), 13.

military through a coherent national strategy that created alliances where the country was weak and applied integrated military power where it was strong.

As a result of the military revolution in Europe and the expansion of European countries into global empires in the First Period of Globalization, this period began with five great powers, all of which were European powers: the Austrian Empire, France, the British Empire, Prussia, and the Russian Empire. In the two hundred years that followed, the Austrian Empire would dissolve into a middle, then a regional power and Italy and Japan would intermittently reach great power status. These three powers will be briefly covered in the introduction below, while the countries that maintained great power status throughout the period will be discussed in the sections that follow.

The Austrian Empire was a successor empire of the Hapsburg Empire discussed in the previous chapter. As its successor, the Austrian Empire inherited the military innovations, and the geopolitical difficulties, of the Hapsburg Empire. The Austrian Empire, later Austria-Hungary, was more diverse in cultures and languages than any other European power. When the country deployed to war in 1914—the event that solidified its fall from great power status—the deployment order was given to its military in fifteen different languages.[157] Nevertheless, the ethnic diversity itself was not a military problem—in fact, the army helped unify the country by skillfully integrating diverse ethnicities in its ranks. Although the country developed a well-functioning bureaucracy, supported by and supporting an industrial capacity superior to many other powers of its time, this system failed to maintain a well-resourced military. Due to its geography, ethnic diversity, and heritage, the Austrian Empire had many enemies, yet maintained the desire for great power status. It failed to match these desires with military adaptation that would fulfill them. By the end of the nineteenth century, Austria-Hungary was trying to maintain great power status, but only spending the resources of a second-rate power.[158] This

157 Kennedy, *Rise and Fall*, 216.

158 Kennedy, *Rise and Fall*, 218.

mismatch was the result of a lack of civil-military integration: the military leadership differed greatly with the emperor and the foreign ministry on the strategy to maintain Austrian power. This lack of integration would be revealed in the First World War.

Italy was a latecomer to the modern Great Power system with its unification in the 1860s. However, its entrance into great power status does not suggest that it was on par with the other great powers of the time. Italy's illiteracy rate of 37.6 percent reflected an agricultural society in an industrial era.[159] There was a great disparity in the resource distribution between the more affluent north and the less industrialized south, and although the country had been unified in governance, it remained regionalized in outlook. Its industrial capacity was a fraction of the capacity of the other great powers at the time. From a geopolitical standpoint, Italy's greatest weakness was a near-complete divide between its military commanders and their civilian leadership. With regional tensions preventing strategic deployment of the military, the latter was marginalized in resource allocation and public perception. Italy did show some technological and doctrinal military innovations with the production of swift battleships and a successful irregular warfare component that innovated doctrine for divers and submarines. However, the most illustrative point of Italian naval innovation in the interwar period is the debate over the building of a fleet to support grand strategy. The Italian naval leadership divided into three camps in this debate: the *innovatori* ('innovators') who argued for a navy built around light vessels and submarines; the 'evolutionists' who wanted to retain battleships, but build a new capital ship as the nucleus for the navy; and the 'die-hard' faction made up of the senior leadership of the navy who argued for the *status quo*. The die-hard faction won the debate due to their seniority and sway with Mussolini. The Italian navy did create better battleships, and especially naval special warfare doctrine, but the institutional inertia of the organization drove the navy towards the battleship as the capital ship, while the other great powers moved to the aircraft

159 Kennedy, *Rise and Fall*, 204.

carrier.[160] The lack of integration of these battleships with both aircraft cover and ground operations made them singular cases of successful innovation, but insufficient to win the fight in the Mediterranean or maintain power status. While other great powers in history were able to maintain that status through a societal innovation and industrial capacity that supported military innovation, Italy presents the antithesis of this reinforcing cycle—lack of industrial capacity, anti-military sentiment among the population, and a divide between military commanders and civilian leaders made Italy the weakest and shortest duration great power in history.

Italy presents the case of a divided society that fails to support the military, whereas Japan's rise to great power was the exact opposite. The homogenous society of Japan, while under the control of the samurai culture, did not modernize in the First Period of Globalization. However, this culture imbued the society with an ethos for integration that, coupled with the geographical isolation from the quarrelling western powers, allowed Japan to modernize and innovate in the Second Period of Globalization. These factors only created the environment for innovation, the actual force behind this innovation were entrepreneurs in the Japanese social elite. The Meiji Restoration in 1868 began the process of transforming Japan from an isolated imperial government and weak military power into a modern, industrial power supported by a strong military.[161] In order to complete this transformation, the Japanese society realized the threat of western power encroachment in Asia and adopted the slogan, *fukoku kyohei* ('rich country, with strong army').[162] With this societal backing, Japanese leaders sent military commanders and industrial engineers alike to Europe in order gather the lessons of the industrial and military revolutions there. The Japanese adopted the Prussian military organization and purchased modern weaponry,

160 Robert Mallett, *The Italian Navy and Fascist Expansionism 1935-1940* (London: Frank Cass, 1988), 3.

161 Kennedy, *Rise and Fall*, 206.

162 Kennedy, *Rise and Fall*, 207.

while simultaneously building an organic weapons production capability. They also quickly modernized the country's infrastructure with a rail network, telegraphs and shipping lines.[163] The Japanese leadership's greatest innovation was aligning its society's goals with its military ones. Once this alignment was effected by the social elites, the population supported spending resources to imitate the lessons of western powers while simultaneously building organic capacity.

The fall of Japan from great power status is endemic of the period—it is a story of strategic overreach resulting from a lack of civil-military integration. What began as a social mobilization to prevent western encroachment led, in the early 1900s, to Japanese encroachment policies in pursuit of its own expansion. As Japan expanded into Manchuria and Korea, it met and defeated the expansionist ambitions of the Russian Empire. Japan's confirmation of great power status came with this victory in the Russo-Japanese War in 1905. Over the next four decades, Japan spread south and east into the resource-rich area of Indonesia in order to continue these expansionist aims and feed its continually modernizing economy. When its empire expanded beyond the limits of its ability to maintain its sovereignty, it clashed with the allied powers in the Second World War—losing great military status forever and great power status for fifty years.

The Second Period of Globalization began with two existing great powers from the previous period, France and Great Britain, and witnessed the rise of Prussia into Germany, Russia into the Soviet Union then back to Russia, and the United States going from a divided country heading into civil war to a hyperpower. This period also witnessed the failure, measured in catastrophic loss of life, of applying military doctrine from a previous era with the technology of the industrial revolution. The Industrial Revolution was followed by a technology or information revolution that connected the world as it has never been previously—and may hold the same ominous lessons for the next century.

163 Kennedy, *Rise and Fall*, 207.

These factors will combine with the technological innovation of nuclear weapons to transform not only military doctrine, but the very nature of warfare as a component of state policy.

1. France (1799–1940)

Many countries throughout history have ensured alignment of foreign policy with military aims by having the leader of the country and the leader of the military be one in the same. From the time of Sargon the Great, many leading powers were built on this model. However, as states developed separate administrative and military systems throughout history, they tended to also develop leadership for each, with the Chinese first codifying the subordination of military power to civilian leadership. In the previous period, Frederick the Great of Prussia rekindled this idea of a warrior-king, while the Second Period of Globalization produces the archetypal warrior-king in the person of Napoleon Bonaparte.

The French Revolution left France with a modernized political system, a strong foundation for field armies and an ideological fervor to motivate the soldiers.[164] Napoleon seized power in 1799, adopted a geopolitical objective similar to Louis XIV's in the preceding period, and maximized his well-trained military to this end. Also in line with the preceding period, one European state's increase in power caused the other states to balance against it. Throughout his reign, Napoleon was in constant conflict with Britain, Prussia and Russia; ultimately meeting defeat at their hands. The Congress of Vienna in 1815 marked the end of the Napoleonic Wars and the beginning of a new era in European politics.[165] In the years between Napoleon's final defeat at Waterloo and the rise of his nephew, Napoleon III, France reverted to a monarchy, and then re-established a republic in multiple civil uprisings. Following Prussia's defeat of Austria-Hungary in 1866, Napoleon III recalculated his foreign policy to

164 George Modelski, *Principles of World Politics* (New York: The Free Press, 1972), 61.

165 Modelski, *World Politics*, 61.

resist further Prussian expansion, but he was unable to restructure his military to support this policy.[166] France was defeated first in 1871 by the Germans, and then suffered greatly in both world wars at the hands of its German neighbors. However, throughout the nineteenth century and well into the twentieth, France continued to expand its global empire—second only to the British Empire in the early part of this period. After losing territorial claims in North America and the Caribbean to the British and Americans, France expanded its colonies into Indochina and Africa.

Despite the dramatic political upheaval that occurred at the end of the eighteenth century, the tenets that made the French Army successful in the previous period continued in this period. The French Army that Napoleon assumed command of in 1799 was broken by years of revolution and lack of unity, but the members of the military were veterans of the revolutionary wars and instilled with the values of drill and training from the previous period. Napoleon built on this foundation with the concept of *levée en masse,* which capitalized on the revolutionary fervor of the people and the population advantage that France had over its European competitors. This concept allowed scaling up of forces to sizes such as no military in history was previously able to accomplish. Napoleon's greatest organizational innovation was the Army Corps. His *Grande Armee* was organized into all-arms groups that could act independently or in support of one another.[167] By arranging these groups into close-order marching formations, called battalion squares, each corps could maneuver to support another, alternating positions as vanguard, flank guard, or rear guard. The success of this innovation was demonstrated against the Prussians at the battles of Jena and Auerstadt in 1806. Added to this revived military strength was the grand strategy genius of Napoleon—not only in the innovations described above, but also in national policy. Napoleon's "Continental

166 Barry Posen, *The Sources of Military Doctrine* (Ithaca: Cornell University Press, 1984), 26.

167 Latimer, *Deception in War*, 25.

System" was a trade ban imposed on his greatest competitor, Great Britain.[168] This system attacked Britain's center of gravity, the global trade that supported the island's disproportionate national power. Napoleon waged economic warfare on the British; enlisting the continental satellite states he had acquired to cripple the British economy. The successes of Napoleon and the *Grande Armee* paved the way for a broader expansion of the French Empire, but held the seeds of eventual downfall.

Following expansion into Africa with the establishment of Algeria as a French colony in 1830 and still riding the success of the innovations in the Napoleonic Wars, the French Army of the later nineteenth century grew complacent. The military staff was bureaucratized to the point of resisting changes that Napoleon III sought in 1866. Their system had deteriorated significantly, with a General Staff completely detached from the field units, a broken logistical system, and professional military education system that allowed illiterate officers to serve.[169] The army had also failed to adopt the repeating rifle—a key technological innovation that changed the doctrines of many militaries of the time. The indication of this fall from preeminence came with the Franco-Prussian War of 1870–1871. The French military was beaten soundly and rapidly by a superior Prussian army and a superior logistical system based on the advanced Prussian railway. This defeat and the loss of Alsace-Lorraine by the French directly contributed to France joining the Triple Entente in World War I—realizing loss of organic power, the French had to ally with previous enemies to maintain some power and its sovereignty. The result of France's Pyrrhic victory in World War I, was a war-weary country and military. This directly led to French the innovation of defensive doctrine, which was initiated from within the military and supported by the civilian leadership.[170] This doctrinal innovation, and the technological innovation that supported it—the Maginot

168 Kennedy, *Rise and Fall*, 129.

169 Posen, *Sources of Military Doctrine*, 26.

170 Posen, *Sources of Military Doctrine*, 225.

Line—shows the “neutral value” of innovation. The French defensive doctrine in the interwar years, and its reliance on the Maginot line reflect the fact that change is not always positive. In some cases, innovation can create a false sense of security and lead directly to one’s defeat, as the French initially experienced in the Second World War.

In the period between 1815 and 1870, the French status as a great power, albeit second at this time to British power, was still unquestionable—with Britain maintaining a remarkably small army and Germany yet to unify and pose an existential threat. Yet, during this period of French global power, the military became complacent and allowed a deterioration of the institutions that previously made it successful. A crumbling professional military education system failed to produce leaders that were able to continue innovating for power maintenance. Even when a leader saw the need to innovate, as did Napoleon III, the bureaucratic military leadership failed to heed his warnings and blocked his initiatives. Complacency and lack of innovation led to the army’s complete failure at the hands of an innovative and well-organized Prussian force. This defeat began the decline of French global power, which continued through two World Wars and a dissolving empire. The lessons for the American military are apparent. A bureaucratic military leadership that resists the changes of its civilian leadership can directly threaten the power of the country. However, change, in and of itself, is not always positive. The war-weariness of the French military led to the adoption of a defensive doctrine in the interwar years. While this was an innovation, when measured against the offensive innovations of the German Army, it proved to be a failing one. This case again highlights why civil-military integration of a national strategy that accounts for the strengths of rising challengers and innovates against them is the only course that supports national power.

2. Britain (1800–1950)

"If the Punjabis and Annamese and Sioux and Bantu were the 'losers'…in this early-nineteenth-century expansion, the British were undoubtedly the 'winners.'"[171] In the nineteenth century, Britain was the preeminent mercantile power in the world due to, "their adroit combination of naval mastery, financial credit, commercial expertise, and alliance diplomacy."[172] While Britain was not affected as directly as France or Austria by the unification of Germany, this new power did pose a threat to British economic hegemony—as did the rising power of Russia and the United States. By the end of the nineteenth-century, Britain's global power preeminence was dissipating with the diffusion of technology from the Industrial Revolution and the consequential rise of new power competitors. While the British economic output was still growing at the turn of the century, it was losing in relative terms—its share of world trade shrank from 23.2% in 1880 to 14.1% in the period 1911–1913.[173] The British growth model shows the deficiencies of relying on economic power alone to sustain national power, while conversely showing the ability of an extremely wealthy country to 'buy' military power when the time comes for war.

Britain was unique in that it possessed far less land-based military power than its global preeminence would suggest. Notwithstanding the Royal Navy, which was designed to exceed the combined capability of the next two most powerful navies, Britain's absolute military might was far less than its relative strength. For this reason, Britain presents an interesting case of a power that was not only able to maintain great power status, but able to maintain power preeminence with significantly less military strength, relative to its continental competitors, through cost-effective military innovation. Britain's establishment of a Royal Navy and subsequent building of this navy for the express purpose of surpassing any two of the existing navies at the time resulted directly in its great

171 Kennedy, *Rise and Fall*, 151.

172 Kennedy, *Rise and Fall*, 151.

173 Kennedy, *Rise and Fall*, 228.

power status from 1714 to 1914.[174] This translation of sea power into national power was codified by Alfred Thayer Mahan in his 1890 work, *The Influence of Sea Power Upon History, 1660–1783*, in which he credited Britain's global power status directly to their control of the seas.[175] Mahan's work would spur the expansion and innovation of American, German and Japanese naval forces in the years before World War I. What is unique about British military innovation, as the preeminent global power in the years leading up to World War I, is that it is relatively non-existent. Yet, Britain was able to win the war with help from its allies and maintain its great power status.

Britain presents an exceptional case in which it surpassed the power of France in the nineteenth-century, after defeating Napoleon at Waterloo, to become the greatest power in the world. It then focused its efforts on colonial expansion, while other powers on the European continent vied for advantage against each other. With relative little expenditure on land forces, and an extraordinary market share of global trade, Britain dramatically increased its wealth while not expending that wealth on a standing army. Even though its army deteriorated during this time, Britain was able to make up for its relative weakness in the First World War with its garnered wealth and vastly superior naval forces. In the interwar years, Britain would show more military innovation in preparation for the Second World War.

In the interwar period, it would take civilian intervention in Britain to create the Royal Air Force, as well as its Fighter Command air defense system. The organizational innovation of the Royal Air Force highlights the tendency of military organizations to resist innovation, which occasionally requires the intervention of civilian leadership to facilitate it. However, the Royal Air Force itself was responsible for the doctrinal innovation of strategic bombing. Because the RAF was an entirely new organization, there was no existing doctrine posing

174 Modelski, *Seapower*, 10.

175 Alfred Thayer Mahan, *The Influence of Sea Power Upon History, 1660-1783* (New York: Dover Publications, 1987), *passim*.

the institutional inertia that sometimes prevents doctrinal innovation. Yet, even with this lack of inertia, the RAF did not transform strategic bombing from a concept into set doctrine until war with Germany forced this transformation.[176] The doctrinal innovation of strategic bombing shows the advantages to innovation created by a new organization that has no doctrinal inertia to overcome. However, the fact that the RAF failed to codify this doctrine shows the resistance of innovation in military organizations without external pressure. In the case of the establishment of the RAF that external pressure was British civilian leadership; in the case of acceptance of a new doctrine that external pressure was the existential threat of an offensive Germany.

The decline of Britain in world power is an interesting case, as well. Unlike the dramatic fall of Napoleon or the dissolution of the Roman Empire, the British decline can be measured in relative terms. While technically Britain maintains great power status throughout this period—with permanent membership on the United Nations Security Council—in the first fifty years of the twentieth century, Britain falls from the greatest power in the world to a distant third behind the United States and the Soviet Union. Having established a world empire of colonies during the age of sail, Britain successfully industrialized this empire and maintained global power through the Industrial Revolution—using the technology of the revolution to expand its colonial power and wealth. Yet the first chink in the British armor became evident with the loss of the American Colonies in the War of American Rebellion. Conversely, a hundred years later, the Boer and Matabele wars begin to sour British society's taste for colonialism.[177] As Britain remained focused on its colonies as its major source of revenue, the rise of Prussia into Germany would shape the course of world events for the next fifty years. Rising powers such as Japan, the United States, and Russia, which were neither over-extended empires nor facing existential threats, would build military

176 Posen, *Sources of Military Doctrine*, 225.

177 In an interesting case of doctrinal innovation overcoming technological innovation, the Matabele warriors displayed an asymmetric type of innovation. They employed guerrilla warfare and fought from the mountains to counter the British technological innovation of the Maxim Gun.

forces to rival those of Britain, and eventually overcome the latter's power. The United States can garner lessons from Britain's cost-effective military innovation. The resources dedicated to defense spending may wax and wane through the years, as more or less money is dedicated to building national wealth in other areas. However, the decreased spending on military might may be offset with strategic alliance formation and an innovative society that allows for the scaling up of military power in times of need.

3. Prussia and Germany (1772–1945)

At the end of the First Period of Globalization, not only a warrior-king who was able to align grand strategy with military strategy, but also a great innovator ruled Prussia. Frederick the Great was directly responsible for Prussia's rise to great power through his military innovations and his political acumen.[178] The legacy that he left would shape the geopolitics and military of Prussia and Germany for centuries. However, military means were not solely responsible for Prussia's rise to power. The state was economically stable, compared to both its other German confederates and its European neighbors, and administered its affairs through an efficient bureaucratic system.[179] Following its decisive defeat of France in the Franco-Prussian War, Prussia joined with the other German states to form the German Empire in 1871; a unique monarchy supported by a well-functioning bureaucracy. The empire's first Chancellor, Otto von Bismarck, continued in the military traditions of Prussia, while simultaneously avoiding war in Europe as he isolated France and maintained a balance of power on the continent. He warned against unabated German militarism that could lead to world war. His warnings were ignored by the new Emperor, Wilhelm II, and the German Empire set a course that led to World War I. The Treaty of Versailles,

178 Kennedy, *Rise and Fall*, 91.

179 Kennedy, *Rise and Fall*, 91.

which ended World War I, would pave the way for a new German militaristic leader, Adolf Hitler, who would directly cause World War II in pursuit of *lebensraum* and world domination.

King Frederick II (the Great) was one of the great doctrinal innovators of his time. He established an officer corps based on the Junker landed nobility of Prussia then matched this corps with a well-drilled army. This extraordinary military, combined with his tactical genius and doctrinal innovations, allowed Frederick to secure great power status for Prussia.[180] In one example of his doctrinal innovation, the Battle of Leuthen in 1757, Frederick routed the Austrians by utilizing a feint infantry attack against the main line of the Austrian forces, while using the majority of his force and artillery to roll up the Austrian flank.[181] Frederick termed this maneuver the Attack in Oblique Order. In this fashion, he completed the transition from mass warfare to maneuver warfare begun by Epaminondas fourteen hundred years earlier. His doctrinal innovations would be studied and employed by Napoleon fifty years later and would lay the groundwork for Napoleonic-style tactics.

The efficiency and strength of the Prussian army cost four-fifths of the country's revenue, but this cost was manageable due to resource rich areas that Frederick conquered and the efficient bureaucracy that turned these resources, and later industrial capacity, into revenue production for the state. Additionally, there was an organizational innovation in Prussia to use foreign soldiers and entrepreneurs for the improvement of the military and the economy.[182] The innovation of external entrepreneurs and efficient bureaucracy facilitated the construction of an industrial infrastructure like no other in Europe. By 1866, Prussia displayed the ability to mobilize a million-man army, move it by rail to meet the enemy, and successfully command this force in battle.[183] This

180 McNeill, *Pursuit of Power*, 155.

181 Latimer, *Deception in War*, 19-20.

182 Kennedy, *Rise and Fall*, 91.

183 Posen, *Sources of Military Doctrine*, 26.

innovation and efficiency led to Prussia's success over France in 1871. Later, after German leadership had long-since dismissed the warnings of Bismarck to staunch the militarism of Germany, Alfred von Tirpitz proved the chancellor correct. Tirpitz innovated an organizational plan to build up the German Navy, based on imitating the technological inventions of others—while his strategy was somewhat unique, he applied the technology of battleships to this strategy, rather than capitalizing on the new technology of submarines. Tirpitz's 'Risk Theory' was based on the idea that a navy need not be as strong as to take on every opponent, but rather be strong enough so that the cost of defeating that navy by one's enemy would weaken the enemy enough to be susceptible to third party attacks.[184] As with the French innovation of defensive doctrine and the Maginot Line, this innovation turned out to be a failed one. While trying to firmly establish Germany as a great power through the development of a powerful navy, Tirpitz set off an arms race with the British that contributed to the outbreak of the First World War and the loss of German power. In line with a theme of this period of globalization—the increased pace of learning and technological diffusion—this arms race allowed imitation of technological developments by both militaries. This theme only further highlights the need for frequent and continued innovation as the rate of diffusion of technology increases.

Possibly the greatest German military innovation was the development of Blitzkrieg Doctrine in the interwar years. This innovation incorporated the technological innovation of tanks into new organizations that allowed for fast offensive movement; contrasted with the French who parceled tanks out to existing formations. The blitzkrieg doctrine—as with the establishment of the Royal Air Force in Britain—required civilian intervention for adoption, which is surprising given the offensive predilections of the German Army.[185] However, the German Army initially sought to apply new technology to old offensive doctrinal concepts rather than innovate the doctrine to maximize the

184 Modelski, *Seapower*, 307.

185 Posen, *Sources of Military Doctrine*, 225.

effectiveness of the technology. This inertia had to be broken by civilian intervention to force the Army to develop its greatest doctrinal innovation. The contrast between the French and German approaches to incorporating technological innovation is telling for any military. The opening battles of World War II show that technological innovation alone is not enough to increase the strength of a military. This new technology must be incorporated into doctrinal, and sometimes organizational, changes to maximize its effectiveness. Interwar Germany also displayed a well-integrated inter-service component, with battlefield cooperation between the army and air force; less so between the Luftwaffe and the German Navy. Germany displayed a much closer integration of service components than either France or Britain, which both experienced significant service rivalry for budget share.[186] Hitler, in the opening phase of World War II conducted a doctrinal innovation in the form of strategic deception. Capitalizing on the power of unitary state and military heads, Hitler was able to conduct Operation Barbarossa to allow early success of his military campaign. This deception operation combined diplomatic deception, in the form of Russo-German Non-Aggression Pact of 1939, with the military capability of the German Blitzkrieg, to afford Hitler initial success in the surprise attack of Russia.[187]

Why did the German combination of doctrinal, organizational, and technological innovation not facilitate maintenance of great power status? This innovative military did succeed in raising Prussia, then Germany, to great power status in the short term. However, the story of Germany's decline probably begins with the death of Bismarck. This able politician understood the power, and the danger, of German militarism and sought political balancing to reduce its threat. When Bismarck died, first Wilhelm II and then Hitler, allowed unabated militarism to fuel their pursuit of world domination. In two world wars, the rising industrial powers of Russia and, especially, the United States would ensure this

186 Posen, *Sources of Military Doctrine*, 227.

187 Russell Stolfi, "Barbarossa: German Grand Deception & the Achievement of Strategic and Tactical Surprise Against the Soviet Union, 1940-1941" in Donald C. Daniel and Katherine Herbig, eds., *Strategic Military Deception* (New York: Pergamon, 1982), 195–223.

domination dream was not fulfilled. In the process, these two industrial giants would transform economic capacity into military might to create a new category of great power—the superpower.

4. Russia and the Soviet Union (1721–1989)

In geopolitical terms, Russia became a factor in European power politics during the Seven Years War. Yet, the eighteenth and nineteenth century's global powers were sea powers and empire of colonies. While Russia maintained a key power position on the European continent, it did not contend with Britain or France globally.[188] Under Peter the Great, Russia was recognized as an empire in 1721 and Catherine the Great oversaw the Age of Russian Enlightenment from 1762 to 1796. Sea power began in the early nineteenth-century, but the Russian Empire remained economically backward and slow to innovate its industrial capacity through the Industrial Revolution. Despite this, the sheer volume of resources—including personnel to field armies—and its status as a 'gunpowder empire' allowed Russia to fend off horsed tribes from the east and pose a considerable risk to the west.[189] When Napoleon's strategic overreach carried his forces into Russia in the early nineteenth-century, the massive Russian Army, coupled with irregular forces such as the Cossacks, pushed him all the way back to Paris. The Russian officers of the Napoleonic campaign returned home with liberal ideas for reforming the tsarist state. For the next one hundred years, Russia underwent periodic internal revolts while maintaining great power seemingly through size and resources alone. The high costs of personnel and resources in the First World War led the Russian population to become disenfranchised with the government and set the conditions for the Bolshevik Revolution. This revolution ushered in a new era in the international system and the United Soviet Socialist Republic was formed in 1922. First Vladimir Lenin and later Joseph Stalin, transformed the Soviet Union in the interwar years

188 Kennedy, *Rise and Fall*, 94.

189 Kennedy, *Rise and Fall*, 95.

through industrialization of the economy and collectivization of its huge agricultural resources to support the largest land force of World War II. Following the largest invasion in human history by Germany, the Soviet Union was able to repel the German attack at an immense cost of life and resources. However, the Soviet Union emerged from the Second World War as a global superpower, dividing the world between the United States and itself in a global balance of power.

In the realm of specific military innovation that supported Russian geopolitics, Peter the Great was the first and most prominent innovator in the period of Russian great power. Upon entrance into the Great Northern War against Sweden, Peter realized the inferiority of the Russian military and began a modernization program to create a navy and improve an army through well-drilled infantry tactics and use of artillery. The Russian navy began construction of smaller galley ships, in an era when large warships were the focus of most powers, and began parallel construction of a canal system that maximized the effectiveness of these galleys. Most importantly, Peter began a process of militarization that provided industry for the fledgling empire and a focus for maximizing the industrial production of the empire towards a specific goal. This foundation led to a large standing force equipped and drilled in modern techniques, a naval component doctrinally organized for small galley craft and a canal system that would prove decisive almost a century later.[190]

When Napoleon invaded Russia, he had already stretched his logistical supply lines across Europe. The Russian Army, on the other hand, were not only fighting on home territory, but also had doctrinally innovated a logistical supply based on the internal canals and rivers. Napoleon's forces could not move supplies by cart, and therefore could not maneuver, as quickly as the Russian Army using the waterborne logistical resupply.[191] This innovation, combined with the overwhelming mass of the Russian Army and the formidable weather,

[190] Harold Lamb, *The City and the Czar* (Garden City, NY: Doubleday, 1957), 298.

191 McNeill, *Pursuit of Power*, 206.

allowed the Russians to stop Napoleon's expansionist ambitions and push him all the way back to Paris. This campaign confirmed Russia as the greatest land power in Europe. Although it experienced numerous other campaigns throughout the nineteenth-century, the Russian Army innovated very little, but instead relied on its mass to maintain power. The Russian Navy did innovate somewhat with the industrial revolution, but still lagged behind the capability of the British and French navies of the time—a trend that would continue for the next century.[192] This inconsistent innovation would become evident in the Crimean War, when French and British naval power sustained logistical resupply that could not be matched even by the Russian masses, yet technological and doctrinal innovation allowed the Russians to destroy Ottoman forces at Sinop. This war effectively reversed the trend of the Napoleonic campaign—showing the importance of logistics in both cases, but the failure of the Russians to continue innovation that would support its massed armies away from the homeland. The Crimean War also provides an example of when technological innovation alone can be decisive in battle. The British and French armies were using the rifled musket with a range of 1,000 yards, while the innovatively inconsistent Russian military still used the smoothbore musket with a 200-yard range. [193]

The lack of Russian military innovation continued into the First World War. Able to overwhelm enemies with mass and resource superiority, Russian military leaders saw little need to innovate. In World War I, this mass did still prove decisive against Hapsburg and Austrian militaries, but was insufficient to defeat the well-trained troops and well-planned operations of the German military. As the war developed into a total war, Russian political leadership 'outsourced' munitions production to groups of business leaders. These businesses were able to dramatically increase munitions production to support the war effort, but had the unintended consequence of causing massive inflation.[194] The social

192 Modelski, *Seapower*, 285–287.

193 McNeill, *Pursuit of Power*, 230.

194 McNeill, *Pursuit of Power*, 329.

consequences of this organizational innovation laid the groundwork for the Bolshevik Revolution. The collapse of the Russian Army at the end of World War I marked the high-point of massed conscripted armies. Completing the cycle begun by Napoleon over one hundred years earlier, in which he translated revolutionary fervor into massed military might, the limits of this ability were displayed by the collapse of a Russian military that was worn by war and politically fragmented.[195] It would take a leader equally adept at political and military innovation to maintain the power of the Russian state.

Vladimir Lenin artfully mixed a compelling information campaign with active armed revolution to overthrow the Provisional Government of Russia. Lenin's timing at the end of the First World War capitalized on the massive losses that Russia had sustained and the population's disaffection with the ruling elites.[196] From this political chaos, Lenin established a Soviet system to provide health care, education, and civil rights. The military innovation of Leninism was to see that, organizationally and doctrinally, the military was no longer a subset of the state, but could be a direct extension of it. In the communist Soviet Union, politics and military were inextricably linked—military leaders were required to be part of the political leadership as well. This phenomenon created a dramatic social shift that forced the innovation of the military to support the ideology of the state.

Under the draconian policies of Josef Stalin, the Soviet Union established a command economy. Although these policies had devastating effects on the population, they resulted in the most rapid transformation from an agricultural economy to an industrialized one in history; graduate engineers in the Soviet Union rose from 47,000 in 1928 to 289,000 in 1941.[197] In the late 1930s, the threatening global environment and Stalin's own paranoia caused a militarization

195 Keegan, *History of Warfare*, 234.

196 To appreciate the demographic shifts in Russia during the First World War and the political upheaval of the Bolshevik Revolution, one should consider the population in 1914 was 171 million, and had plummeted to 132 million by 1921. See Kennedy, *Rise and Fall*, 321.

197 Kennedy, *Rise and Fall*, 323.

of the Soviet Union. Although Stalinist policies stifled innovation in most other realms, Soviet military leaders studied western theorists and were able to innovate doctrinally. This doctrinal innovation was supported by a state-run industry that produced tanks and aircraft faster than most other powers combined.[198]

The Soviet machine focused on quantity over quality. The rapid expansion of its military forces and weaponry prior to World War II focused on Soviet 'gigantism.'[199] Due to Stalin's purges of military leadership, the quality of the Soviet military was almost wholly reliant on its size at the outset of World War II. That it was able to maintain power during the war is a credit to its 'gigantism,' its production abilities, its political alliances, and its harsh geography. The cracks in the Soviet system that undergirded this lack of quality would increase over the next fifty years to eventually cause the downfall of the entire communist system. The same advantages afforded by a centralized bureaucracy that facilitated the Soviet Union's industrialization and militarization prior to World War II, also allowed it to quickly adopt a new offensive doctrine supported by nuclear weapons. The industrial capability of the country sped production of nuclear weapons—directly responsible for an arms race with the United States that shaped the very concept of warfare. In a classic example of military doctrine undermining the state it is created to protect, the cost of building the nuclear capability to support USSR's offensive doctrine helped speed the dissolution of the state itself.[200] The Russia-Soviet Union-Russia cycle of rise and decline provides another lesson for America alongside those of Japan and Germany. The Bolshevik Revolution ushered in an era of militarism that was successful in World War II against the German threat. This military success bred an environment in which the civil-military integration was tipped to the side of militarism. As with the Assyrians and Spartans of an earlier era, unchecked

198 Kennedy, *Rise and Fall*, 324.

199 Kennedy, *Rise and Fall*, 324.

200 Posen, *Sources of Military Doctrine*, 20.

militarism can directly cause the downfall of the society it seeks to protect. While the Soviet Union maintained civil-military integration to a degree that blurred the lines between the two, the pursuit of the military goals caused the downfall of the state. Facing the United States, and needing to build not only nuclear weapons, but also a huge conventional force, the Soviet Union's focus on defense overburdened an economic system that was too weak to support it. While civil-military integration is imperative to maintenance of great power, the balance of this integration must always tip in favor of the civilian side. Otherwise, even a well-intentioned military can spend its country into economic ruin and power decline.

5. The United States (1898–Present)

The United States' geographical isolation allowed it to develop industrially and economically, while remaining detached from the nineteenth-century wars in Europe. It became a great power in this period primarily because of its rich natural resource base and its relative lead in industrialization, unhampered by great power war. Save for the presidency of Theodore Roosevelt, in which he attempted to take a more active engagement in world politics, America remained isolationist until the First World War, and again afterward. On the eve of World War I, "the United States had definitely become a Great Power. But it was not part of the Great Power system."[201] The United States was so little a part of the great power system that most European powers did not factor its might into the alliance system, which began World War I. The American entrance into World War I was not decisive because of its military capability, but rather its productive capability. Its industrial potential and manufacturing output was more than twice that of Germany's, while its military forces remained small and unprepared for modern warfare.[202] Yet America emerged from the First World War as the world's greatest financial and creditor nation—replacing Britain place in this role

201 Kennedy, *Rise and Fall*, 248.

202 Kennedy, *Rise and Fall*, 271.

in pre-war years.[203] Following the Washington Conference Treaty System, the United States again adopted its isolationist foreign policy. This policy included the trade protectionism of the 1930s that, combined with the Great Depression, damaged the American economy more than any other in the world. This isolationism predictably caused a sharp reduction in military forces in the interwar period. In the late 1930's America began ramping up production of war materiel for sale to Britain, which would facilitate its own rapid military growth after the attack on Pearl Harbor. The Second World War convinced most Americans that an isolationist policy was no longer feasible and the country quickly slid into a Cold War with the Soviet Union.

The bloodiest war in America's history, the Civil War, may explain much of the isolationist feelings of Americans up to and after the First World War. The Civil War holds some evidence of American military innovation, especially in doctrine and technology. The use of telegraphs and railways to coordinate troop movements over long distances was a direct product of the Industrial Revolution. Lincoln, a proponent of new technology, turned these technological inventions into doctrinal innovations. Lincoln combined the political-military integration necessary to eventually find a general to command the Union Army who could successfully integrate the technology with doctrine to capitalize on Northern advantages in industry and manpower. This strategy became the cordon offensive that Grant successfully conducted against the South.[204] Additionally, some of the raiding and skirmishing tactics used—especially by Confederate officers such as Mosby—continued a tradition of irregular warfare begun by Nathaniel Greene in the American Revolution. This continuing doctrinal innovation showed signs of superiority over accepted Napoleonic tactics, in light of rifled muskets and more accurate fire. These irregular tactics would be further flushed out in the Spanish American War and the Frontier Wars with the Native Americans. One remarkable case of doctrinal innovation was the U.S. Marine

203 Kennedy, *Rise and Fall*, 327.

204 James McPherson, *Tried by War: Abraham Lincoln as Commander in Chief* (New York: Penguin Press, 2008), 214.

Corps' Small Wars Manual published in 1940. This manual was a one-of-a-kind doctrinal innovation produced from the 'bottom-up.' It codified lessons learned by marines in guerrilla campaigns and insurgencies of the late nineteenth and early twentieth centuries, and represents one of only a few doctrinal innovations in history that was generated not from an imaginative leader, but rather from the collective lessons of the soldier-rank. However, the institutional knowledge and appreciation for these tactics would be lost in the twentieth century U.S. military, resulting in defeats in Korea and Vietnam.

In 1890, Mahan predicted the end of the British command of the seas and tried to prepare the United States to assume that role.[205] Mahan's ideas directly influenced the rising powers of Germany and Japan, as well, and in the United States, his work found a political champion in the person of Theodore Roosevelt. Roosevelt created the Great White Fleet, then used this technological and organizational innovation as a linchpin of his foreign policy, 'walk softly and carry a big stick.' America's productive capacity allowed it to support Britain with war materiel prior to World War I, and also allowed rapid expansion of its own military upon the decision to enter the war. When the United States began building a fleet to take part in World War I, and then codified naval parity with the British in the Washington Treaty System of 1922, it marked the assumption of America as the world's naval power and the world hegemonic power.[206] Mahan's wishes had been fulfilled.

In the interwar years, the United States, in line with its isolationist foreign policy greatly reduced its military strength. By the end of the Great Depression, "the United States was spending less on armaments than Britain or Japan, and only a fraction of the sums spent by Germany and the Soviet Union."[207] Additionally, its army had no tanks, so that when war in Europe broke out, the U.S. military was wholly unprepared to enter it. Fortunately, the groundwork had

205 Modelski, *Seapower*, 9.

206 Modelski, *Seapower*, 10.

207 Kennedy, *Rise and Fall*, 331.

been laid to allow rapid scaling up of U.S. military forces. In 1938, Congress passed the "Navy Second to None" Act, which authorized dramatic expansion of the fleet. Also, the Army Air Corps had tested the B-17 Bomber and the Marines had developed refined amphibious warfare doctrine.[208] These preparations, even with a lack of resourcing, laid the groundwork for the U.S. military to rapidly expand its capacity and maximize the country's latent industrial capability to quickly enter the war.

During World War II several doctrinal and organizational innovations took place in the U.S. military. Imitating the innovation of the German airborne doctrine, the American military tested and then created two divisions of paratrooper infantry. In another organizational innovation, the U.S. military rekindled its irregular warfare tactics to create the Office of Strategic Services—an organization that conducted sabotage, subversion and reconnaissance behind enemy lines with indigenous personnel. America's most important innovation of World War II was a technological one—the development of the nuclear weapon. This weapon's development not only ended the war when it was used against Japan, but also set the stage for a nuclear arms race for the next forty years. More importantly, the development of the nuclear weapon displayed the power of an innovative military working in tandem with an innovative society. As the Chinese had done centuries earlier, the United States was able to mobilize it society to the war effort and create a sense of innovation within that society during World War II. That many perceived Germany's fascist ambitions for world domination as an existential threat may have aided this mobilization. Regardless, the organization of the Manhattan Project joined the best scientific minds of American society to work on a military aim. This societal-military innovation loop created the seeds for later organizations such as DARPA and NASA. The civil-military integration that resulted would allow the United States to continue societal and military innovation towards a common goal throughout the Cold War.

208 Kennedy, *Rise and Fall*, 331.

Following the end of World War II, the United States' demonstrated capability of nuclear weapons led the other resultant superpower, the Soviet Union, to quickly develop this capability. The arms race reached a peak in 1962, during the Cuban Missile Crisis. The specter of thermonuclear war shaped global power politics until the fall of the Soviet Union, and, to a lesser extent, beyond. This one technological innovation ensured that all proxy wars during this period would remain limited in nature. While the U.S. military would slowly adapt to respond to the conventional military threat across the Fulda Gap, it would engage in several wars during this same period that required a wholly different type of organizational structure. Yet it would fail to understand the need for this organizational innovation and would fight irregular wars with regular formations. The fall of the Soviet Union in 1991 left the United States as the sole superpower. Yet, like militaries of the past, the 'success' of the U.S. military in the Cold War does not signal a time to maintain the status quo, but rather a period in which increased innovation is necessary. The resounding success of the U.S. military over Iraq in Operation Desert Storm (not a 'tough test' of American power), only served to reinforce the opinions of those who felt that no change was needed in the dominant military of the time. However, America's position as a global hegemon quickly began to resemble that of Britain in the late nineteenth century. Although its power was not declining in any measurable form, its competitors were rising in relative terms across military, political, and especially economic realms. In this time of globalization and increasingly rapid technological innovation, more frequent change was necessary in a world that dissolved from two rival superpowers, to an ecumene of rising competitors—both states and non-state actors.

6. Lessons from the Age of Overstretch

The Second Period of Globalization saw dramatic shifts at the international system level. Empires that had overextended were fraying at the margins. Technological innovation, which increased in frequency and diffusion, started showing the limit of its power as irregular forces altered doctrine and

organization to counteract it—such as the Matabele in South Africa or the Viet Cong in South Vietnam. Ideological revolutions that altered the political landscape of countries and regions directly affected the whole constitution of the militaries in those areas, as in the Soviet Union. The German rapid innovation in doctrine, organization, and technology to formulate the Blitzkrieg proved initially successful, but this innovation was limited in its ability to sustain great power. The limitation was the national strategy to which it was employed—overreaching strategies of global domination proved even more disastrous to the militaries that pursued them than the overreaching empire strategies of a previous era.

Most importantly, the Second Period of Globalization highlights the nuances of civil-military integration. German fascism, Japanese imperialism and the Soviet Union provide examples of highly integrated civil and military affairs. Unlike earlier failing powers, their fault was not in lack of integration, but in the balance of it. In each of these three countries, the military component built upon initial success—often as a result of successful innovation—to rise to prominence within its own system. When this unabated militarism took place, both Germany and Japan allowed national strategies of empire expansion to overstretch their resources. Both militaries built on early innovative victories—the Blitzkrieg in Germany and the Japanese aircraft carrier attack doctrine—to further the militarism in their respective governments. Ultimately, this overreach caused the backlash of an alliance of stronger powers. The case of the Soviet Union is similar, but over a longer period. The militarism that arose directly from Lenin and Stalin caused the Soviet Union to fall, not in a world war, but under the weight of its own system. As with Germany and Japan, civil-military integration was high, but the balance of military control in the system was too high for the country to sustain. Racing a wealthy American economy built on a capitalist model in a technologically sophisticated nuclear and conventional arms race, the pace of military innovation in the Soviet Union proved too rapid for the economy to support. The breakdown of the social-military innovation feedback process caused the dissolution of the country.

The lessons for the United States are numerous and poignant. In an era of rapid technological change and globalization, a military must remain innovative. Yet the military's innovation must not occur in a vacuum. To be transformative to national power, it must feed and be fed by a system including social innovation. Most important for the U.S. military are the nuances of civil-military relations. Integration of the military into a broader national strategy is required to both guide and bound its innovation, lest the aims of a well-intentioned military directly undermine the power of the state. The civilian leadership responsibility is to provide this coherent strategy to allow military innovation in its pursuit. The balance of power in this relationship must always tilt towards civilian control, as the fall of numerous great powers, from the Assyrians to the Soviets, have shown the path of unabated militarism.

III. U.S. MILITARY INNOVATION IN THE AGE OF THE UNTHINKABLE[209]

A. LESSONS FROM HISTORY APPLIED TO AMERICA IN THE TWENTY-FIRST CENTURY

The ancient Egyptians, Greeks and Romans each provide lessons for the current U.S. military. These three vibrant societies built militaries to protect the civilization they had created. As the Akkadians, Assyrians and Persians developed administrative structures to facilitate their military power, they both innovated organizational techniques and highlighted the weak cultural foundations on which this innovation was built. The persistent powers—especially Ancient Egypt, Athens, and China—were those with resilient civilizations. Those were the civilizations that, even when sovereignty was lost, the civilization persisted. Even more prescient for the modern U.S. military is the revelation that the most successful power maintainers were those that built upon the soft and hard power components described above, and created from it a feedback loop—where the innovativeness of society directly supported the innovativeness of the military. In return, the innovative military protected, expanded, and diffused innovation to the society. China from the Han Dynasty to the modern era is the archetypal case of this feedback loop. In twenty-first century America, this means that it is no longer enough for the military to be innovative while standing separate from the society. In maintaining global power, the U.S. military must foster and adapt its innovation from the society that it protects—taking the best technological innovations from society, and adapting doctrine and organizations to maximize their use. The U.S. military has made headway in this area during the last ten years of conflict, now more widely using commercial off-the-shelf technology and information systems to its advantage, but this trend should increase as the military begins adapting organizations and doctrine to maximize the available technology. Yet, the military is not a passive

209 Ramo, *Unthinkable*, *passim*.

actor in this feedback loop, either. The U.S. military must continue to diffuse innovation to the American society, as it did with the Internet in the 1980s and it continues to do with medical advances learned in combat today, to sustain the innovative cycle. Advanced education for military leaders in civilian institutions is a first step to creating the networks between the military and society that would foster this cycle.

If the Ancient Era is illustrative of the need to foster an innovative cycle between society and the military, the Medieval Era displays the interplay of military might and diplomacy. The Chinese first successfully subordinated military power to civilian administration, realizing the value of a standing professionalized force, controlled and deployed by a non-military leader. The Byzantine Empire first translated this authority into successful diplomacy—using military strength as a deterrent and the threat of force as a diplomatic tool. The Byzantine Empire also proved the perils of a sclerotic bureaucratic and military system that again reinforced the need to innovate. The bureaucracy and demonstrated ability of the Byzantine military is what allowed this empire to rise to power out of the Roman Empire. However, the organization that proved successful in gaining the empire great power, proved ultimately responsible for its power decline. A bureaucracy and military that fails to innovate, even with the best intentions of protecting the state, can directly cause the downfall of the power it seeks to protect. The lessons for the current U.S. military are two-fold. First, the military is ultimately subordinate to and in support of America's foreign policy. Any demonstrated strength and capability should be for the purpose of future diplomatic influence, rather than to justify the existence and expenses of the military. Second, no matter how efficient and effective the bureaucracy and military are that allow a state to gain power, they must innovate to maintain that power. The U.S. military of the nineteenth and twentieth centuries defeated the world domination aspirations of fascism and communism, while maintaining a liberal democracy at home. That same structure will not suffice to defeat the

world domination aspirations of jihadism, or the unknowable threats of the future. The U.S. military must constantly innovate in order to maintain the power status it so dutifully earned in previous centuries.

The First Period of Globalization provides examples of the importance of national wealth to defense. In this era, states begin to view their militaries as means with which to gain more money. Yet, there are cautionary tales from this era for the U.S. military, as well. As powers sent their militaries to the far corners of the globe, these militaries had varying success in garnering wealth and power for their country. Powers that were able to continue expansion, such as Britain and France, maintained power through this period and into the next. However, powers whose military were spread to distant lands, but retained centralized control, lost power and dissolved. Countries that deploy troops to distant lands must be able to decentralize control of those troops. Otherwise, the costs of maintaining those dispersed troops under centralized control can cause the collapse of the state system. When America deploys it troops to distant lands in operations that should directly support its coherent foreign policy, it must resist the temptation that technology offers to maintain rigid control of those troops. Instead, the National Command Authority must have the confidence in its professionalized military to execute those distant operations in the proper manner. Also, the case of the small city-state of Siena provides a harbinger of great powers in the following era. This Italian city-state spends so much on the construction of a *trace italienne* that it bankrupts itself. In the next period of globalization, great powers did the same on a larger scale. The U.S. military must always remember that its purpose is to protect the United States. If the organization becomes so bloated and expensive that it bankrupts the very system it was designed to protect, then it has failed in its mission.

In the Second Period of Globalization, the trend of economic preeminence continues to rise. Global powers, such as Britain and France, are able to maintain their power only through the codification of great power status in the United Nations Security Council and their own alliance formation. Yet, their

empires collapse as rebellions for independence match the powers' technological superiority with doctrinal superiority in irregular warfare. The development of nuclear weapons reshapes the very nature of warfare, as power and diplomacy are determined by possession of one specific technology. At the end of this period, three new powers emerged with varying military capability: China, Germany and Japan. China has a huge land army, but little naval or air capability for power projection. However, its economic centrality to the rest of the world makes it a global power on par, or ahead of, countries with much more capable militaries. Germany and Japan also become great powers, with very little military capability—and possibly because of it. Many argue that the economic and innovation dominance of Japan is precisely because it does not have to spend money on military might. The U.S. military must remember that however dominant it might be today, it is only one component of U.S. power. The U.S. military must also remember that technological innovation can provide a distinct advantage in combat, but that, just as the Matabele's negated the effectiveness of the British Maxim Gun, technological superiority can be overcome by irregular tactics. Only when technology is coupled with adaptable doctrine and executed by an organization structured to optimize its effectiveness, will it be truly decisive.

Most importantly, from the Second Period of Globalization, the U.S. military must heed the warning of pre-war Germany and Japan and the 1980s-era Soviet Union. If the military expands its role into policy formulation based on past successes, and uses this elevated position to justify future spending, it runs the risk of disrupting the civil-military balance. The U.S. military must continue to innovate in support of a coherent national strategy that guides this innovation. It must also accept the reality of constrained resourcing in support of larger national power. A military that continues to innovate in the absence of a national strategy, or in spite of civilian control of this innovation risks upsetting the balance that keeps militarism in check. It also runs the risk of outspending the country that it seeks to protect, and contributing to its downfall.

B. THE CURRENT AND FUTURE SECURITY ENVIRONMENT

The Information Age is truly a period in history like no other. However, the historical record is replete with 'periods like no other.' The invasion of ancient Egypt by the 'seapeoples' or the massive destruction caused by industrial-era weapons meeting Napoleonic tactics in World War I, were no less disconcerting to societies of those ages than the concept of cyberterrorism is to today's societies. To say that world in the twenty-first century is complex is both jejune and trite. In the 'age of the unthinkable' national and military leaders must make decisions and take actions to reduce that complexity where they are able, and embrace and prepare for it where they are unable. Innovations in organizational structure, doctrine and technology are all in the 'realm of the controllable' for military leaders; the nature of evolving threats or the timing and placement of their attacks are mostly unknowable. All that military leaders can do for the latter is to adjust the former to be resilient, adaptable, and capable to meet and defeat them. This innovation must take place in a resource-constrained environment. The good news is that resource constraints and innovation may be complementary rather than at odds.

Joshua Cooper Ramo, in *The Age of the Unthinkable*, describes the world as a sand pile. His analogy rests on the experiments of physicist Per Bak, who measured how sand piles, as complex adaptive systems, adjusted to each new variable, or grain of sand, that was dropped onto them. Ramo explains that, like the sand pile, the world is a complex adaptive system that readjusts with every variable.[210] Yet, sometimes in the interconnected global system, also like the sand pile, an adjustment is not possible and part or all of the system collapses. The lesson in this experiment is that the U.S. military cannot predict all the threats of the future. As such, there is no way to design the perfect military to meet those unknowable threats. Instead, military leaders must design a military

210 Ramo, *Unthinkable*, *passim*.

system that allows innovation, both from within and externally, to create maximum adaptability. "History is a series of strategic surprises." [211] A military's capability is in its ability to adapt to them.

Although the exact future security environment is unknowable, one can deduce certain trends from the past and current environment. One school of thought is the abundance-scarcity paradox, which states that information, connections and 'recipes' will be abundant, while strategic resources (energy, land, food and atmospheric space for emissions), institutional capacity to handle trans-boundary risks and time will be scarce. The abundant resources are products of the information age, with the term 'recipes' referring to the, "instructions for arranging resources to achieve a defined end."[212] The scarcity in geographic resources is a persistent theme throughout history, the scarcity for time is a newer revelation—as information, connections and recipes are more abundant, the competition for mindshare to deal with this abundance becomes a scarcity of its own. This last concept can be a predictor of future conflict: as information abundance raises the expectations of a growing population that do not have the resources to meet expectations, conflicts will increase.[213] This requires a shift in thinking from national interests (an inherently zero-sum mindset) to collective security, however broadly defined.

The final trends in the current and future international system are the transitions of power. Power is currently transitioning from West to East in the international state system while, simultaneously, power is also diffusing from states to non-state actors—from the few to the many.[214] The power shift from West to East is caused by the reemergence of China, rising powers such as India

211 GEN Stephane Abrial, NATO SAC for Transformation, Lecture at the Naval Postgraduate School, Monterey, CA, February 24, 2011.

212 David Steven and Alex Evans, "The Resilience Doctrine," in *World Politics Review*, 7/7/2009, 5.

213 Steven and Evans, "The Resilience Doctrine," 5.

214 John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: Norton, 2001), 361.

and South Korea, and other countries economically catching up from the gap created by the industrial revolution. The power diffusion from states to non-state actors is a result of technological innovations in the information age that enable 'the many' to wield great influence. "We need a new narrative if we are to understand power in the twenty-first century. Its not whose army wins, but whose story wins."[215] The cause of the Peloponnesian War was the rise in the power of Athens and the fear it created in Sparta. The greatest danger the United States has in managing these two power transitions in the twenty-first century is fear—because fear can cause an overreaction that leads to war.[216]

C. A NEW NATIONAL STRATEGY FOR THE AGE OF TRANSPARENCY[217]

In a future defined by abundant information, scarce resources, and shifting and diffusing power, the United States needs a new national strategy. From the soft power of ancient Egypt and Athens to Ronald Reagan's concept of a 'shining city upon a hill,' powers that defined their strategy in terms of what they stood for, rather than what they were against, have been successful in defeating challengers and maintaining that power. Two values that the United States should build its strategy on are security and prosperity.[218] These values are universal enough to elicit the support of U.S. society and understood broadly enough to obtain allies rather than enemies. In the future world of abundant information, scare resources and the expectation gap that this creates, the United States must adopt a broader view of security while understanding that its prosperity is inextricably linked to that of other nations. From a realist perspective, this statement of strategy is aimed at America's two rising challengers—the threat of a modernizing Chinese military and the irregular threat

215 Joseph Nye, "Global Power Shifts," TED Talk, July 2010, www.ted.com/talks.

216 Nye, "Global Power Shifts."

217 Kimberly Dozier, Panel Discussion at the NDIA SO/LIC Symposium, Marriott Wardman Park, Washington, DC February 9, 2011.

218 Wayne Porter and Mark Mykleby, "A National Strategic Narrative," A Woodrow Wilson Center Publication (Washington: Woodrow Wilson Center, 2011).

of terrorist organizations and other non-state actors—by professing a 'story' of American power that is more inclusive and benign than its enemies' 'story.' From an idealist point of view, this statement of a strategy for security and prosperity allows the United States to align its interests with it values so that pursuit of one is not in conflict to the other. "All states have a grand strategy, whether they know it or not. That is inevitable because grand strategy is simply the *level* at which knowledge and persuasion, or in modern terms intelligence and diplomacy, interact with military strength to determine outcomes in a world of other states, with their own 'grand strategies.'"[219]

The United States has a grand strategy, which it implicitly forwards every time it deploys its military in support of its interests. Its failure is in effectively expressing this strategy globally and in aligning its interests and values to that strategy. The values of security and prosperity were evident in Washington's support for the Egyptian democratic protestors in early 2011. However, these values came into direct conflict with the past U.S. interests that supported Hosni Mubarak for decades. The support for the latter was largely based on the U.S. fear of Islamic extremism and its threat to Israel, and provides an example of the failure inherent in defining a country's strategy in terms of what the country is against.[220] In a similar case, the United States has isolated Iran—refusing to deal with it diplomatically and economically, even disallowing private interaction. The costs of this refusal to engage are felt in Iraq and Afghanistan, where Washington is trying to forge political and economic stability, while completely isolating the largest power in the region.[221] Finally, there is a certain simplicity in developing a national strategy based upon a country's values rather than focused on its threats: in a future security environment of unknown threats, a coherent strategy based on the latter is wholly impossible.

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219 Luttwak, *Grand Strategy of the Byzantine Empire*, 409.

220 Idea developed in discussion with CAPT Henry J. Hendrix, Department of Defense, Office of Net Assessment, The Pentagon, Washington, DC, February 10, 2011.

221 Parag Khanna, Lecture at the Naval Postgraduate School, Monterey, CA, April 14, 2011.

It is not within the scope of this study to write a new national strategy, but only to highlight its usefulness in shaping the U.S. military for the future. A clearly defined strategy would allow military leaders to 'nest' their innovations into a higher-level concept, so that an innovation's effectiveness could be measured by both military and national leaders. The absence of this clearly defined strategy keeps military leaders pursuing change in their own right—either along their personal belief of the 'right', or parochial budgetary fights that stifle innovation—the engines of institutional inertia. "All states must have a grand strategy, but not all grand strategies are equal. There is coherence and effectiveness when persuasion and force are each well guided by accurate intelligence, and then combine synergistically to generate maximum power from available resources. More often, perhaps, there is incoherence so that the fruits of persuasion are undone by misguided force, or the hard-won results of force are spoiled by clumsy diplomacy that antagonizes neutrals, emboldens enemies, and disheartens allies."[222] America must ensure that its grand strategy is clearly articulated, then align its diplomatic, military and development power in support of that grand strategy.

D. STRUCTURAL CHANGES IN DIPLOMACY, DEVELOPMENT AND DEFENSE TO FOSTER INNOVATION

With a national strategy that broadly defines security and prosperity for an interconnected global environment, the U.S. Department of Defense should no longer be the face of America to the world. Security should no longer be even a 'whole-of-government' approach, but rather a 'whole-of-society' one, in which the military plays an integral, but lesser role. This transformation begins at the diplomatic level with a strengthening of existing multilateral alliances, such as NATO, and a pursuit of new multilateral alliances, such as ASEAN.[223] In this

222 Luttwak, *Grand Strategy of the Byzantine Empire*, 409.

223 In the Cold War, the United States feared empowering middle powers as regional hegemons because they would limit access to lesser powers in their regions. George Liska (*States in Evolution* (1973), 153) proposes empowering middle powers to provide enough stability that the United States could then focus on lesser powers.

diplomatic initiative, the United States should seek to transform the 'entangling web' of bilateral alliances that it maintains, especially in Asia, in favor of multilateral ones that pursue collective security and burden sharing. However, this approach is not completely idealistic. In maintaining national power through multilateral alliances, the strategy should focus particularly on partnership organizations, or as a last resort, individual countries that posses a complementary strength to U.S. power. For example, NATO and the EU militaries possess specific competence in nation-building activities, which the United States lacks. Likewise, the ASEAN nations, through a cooperative relationship could begin taking responsibility for some of the Asian sea lines of communication, in order to free the U.S. Navy from this burden. In pursuing this course, the United States should also support a restructuring of the United Nations Security Council. The five permanent members have assured their own status as great powers, while the reality of the global power structure may not support their claim. A more objective selection of permanent membership may include newer powers such as India, Japan or Germany. Of course, France and Britain would be increasingly wary of this objective selection, but may be afforded the compromise of a permanent seat for the European Union. Regardless of the diplomatic intricacies involved, if the Security Council remains unchanged, any future attempt to wield the power of the United Nations will be thwarted by its arcane adherence to a post-World War II power structure.

In line with a new national strategy for security and prosperity, the United States must signal the world of this shift from a military outlook to a diplomatic one with the transformation of our Geographic Combatant Commands (GCCs) to Regional Interest Directorates (RIDs). The regional interest directorates would be under the direction of a civilian, not a uniformed military flag officer. This civilian would be a presidential appointee, most likely coming from a foreign service, military or intelligence background, but would report directly to the President. By having these directors, and a majority of their directorate, not in uniform, the United States can reduce the perception of a global empire, while

they work to build relationships and capacity with partnered nations through the existing embassy structure—not despite it. These RIDs would transition in place with the current GCCs, and would initially remain staffed with a large military component that currently exists. A significant military component would remain in the RIDs, but would be only one part of the diplomacy, development, defense triad that should make equal parts of these future RIDs. For far too long, the United States has claimed that it is not a global empire, while simultaneously carving up the world and placing it under the purview of military leaders. The United States can maintain its military power, and increase its national power, by changing the face of its organizations for global interests from a uniformed one to a civilian one that truly seeks diplomacy, development, and defense interests.

To further substantiate this transformation, the Pentagon should become the Executive Office Building. While some have called for a complete shutdown of the Pentagon—"[t]hat five-sided structure is the bastion of hierarchy, of old ways of thinking and acting"[224]—in an age of constrained resources, a repurposing of the building is more cost effective. In line with the new national strategy that defines American values and transforms our geographic command military face to a regional interest civilian one, the Pentagon could serve as the locus of an interagency and whole of government approach to foreign relations. If the secretaries of each of the key executive departments share the same building, surely cooperation and horizontal innovation will result.[225] The five sides of the Pentagon could hold one each of the: Department of Internal Security (a combination of the Departments of Homeland Security and Justice), Department of Defense, Department of State, Department of Development (formerly the U.S. Agency for International Development, now as a full executive department), and Department of Intelligence (the current intelligence community

224 Arquilla, *Worst Enemy*, 228.

225 There is a practical argument that having five executive department heads in one building presents a force protection issue—the Pentagon becomes an extremely high-value target. The counter-argument is that the Pentagon is already a high-value target for its symbolic virtue. Also, with the schedules that department secretaries maintain, the actual likelihood of all (or more than two) of them being in the building at one time is small.

under the Director of National Intelligence). This combining of all the departments in one building should have multiple positive effects, two among them are the reduction in the bureaucratic structures that have grown unabated in each one of these departments over the years, and the reduction of redundancies between departmental functions. In the case of all departments, many of the functions done in Washington today should be pushed out 'to the field.' The creation of RIDs that integrate diplomacy, development, and defense would assume many of these functions pushed out from the currently bloated Washington bureaucracies. The potential for reducing redundancies is best highlighted by the Department of Intelligence. Each department (State, Defense, and Homeland Security) has a large intelligence component to support their own interests. Combining the departments in one building in Washington would surely highlight these redundancies and allow for true whole-of-government consolidation of functions. In this, and many unforeseen ways, combining most of the executive departments in the Pentagon, while pushing the functions out to RID locations reduces redundancies both vertically and horizontally, makes more synergistic organizations, and reduces costs.

The final, and arguably most potent, structural change that would force departmental integration is funding. A pooled funding approach must be instituted to force departments to work with one another. A model already exists for this type of funding approach. The Section 1206 funding model institutes a dual-key approach to foreign military assistance, with proposals for missions generated by either the GCCs or the embassy country teams. Proposals for funding are then routed either through State or Defense channels and must receive both SECDEF and SECSTATE approval prior to execution.[226] Expansion of this concept and inclusion of the RID transformation only makes this funding model more practical. The RID Director would vet funding requests that were then processed by the Executive Office Building (the Pentagon).

226 Nina Serafino, "Security Assistance Reform: 'Section 1206' Background and Issues for Congress," February 11, 2011. Congressional Research Service, 7-5700, www.crs.gov, RS22855

Concurrence by the three department secretaries (State, Defense, and Development) should be facilitated by their location within the same building. From another monetary point-of-view, the government must change the way it spends money—from the end-of-year 'spending sprees' to a more market-based approach. The priorities for this market-based spending would be set by the national strategy and execution of that strategy by RID Directors. More intuitively, departments and organizations have to lose the 'spend it or lose it' attitude that currently pervades government spending—it is completely antithetical to saving money in a resource-constrained environment. Instead, a market-based government spending approach would reward departments and organizations that save money and streamline processes with more 'profits.' In this way, efficient organizations, rather than large ones, will be rewarded with more money.

The three structural changes proposed above are designed to impel the integration of the military into the broader interagency and whole-of-government power structure. As the lessons of great powers in history prove, not only must integration occur between the civilian and military leadership of a country, but also among the various forms of national power in order to capitalize on the strength of the country. By changing the 'face' of American foreign policy from a military one to civilian one, with the institution of regional interest directorates to replace geographical combatant commands, the United States would demonstrate the preeminence of diplomacy over force. By forcing the Pentagon to assimilate all the departments involved in American diplomacy, defense and development, the United States could create synergy, reduce personnel and allow for more innovative organizations with less bureaucratic overhead. Finally, by pooling the monies that resource each department, the administration could cut costs by reducing redundancies, and, more importantly use funding to ensure alignment of the actions of each department with the national strategy.

E. THE DEPARTMENT OF DEFENSE: REDUCING REDUNDANCIES, MAXIMIZING CAPABILITIES, AND CREATING RESILIENCY THROUGH TECHNOLOGY-STRATEGY INTEGRATION AND ORGANIZATIONAL INNOVATION

The U.S. military is currently the uncontested technological leader in warfare. This technological innovation needs to continue through the sponsorship of R&D on a market-based purchasing system versus the pay-to-build system that currently exists. This transformation will have limits—a private company cannot expect to front the costs for R&D of large systems, such as a new jet fighter aircraft, and may require seed money from government funding to do so. However, the pay-to-build system has become the rule rather than the exception, with government contracting companies assuming relatively little risk and reaping huge profits.[227] This system, like government spending in general, needs to transform to a more market-based approach. Innovation, especially in technology, will be enhanced by the competition created from market-based purchasing by the military. This continued technological development will face two crucial questions in the future: what is the right mix of quantity versus quality, and how do we avoid letting our technological ability to kill outpace the ethical thinking about that ability.[228]

As the French before World War II serve as a reminder that technology alone does not make military might, the U.S. military must continually adapt this new technology to doctrines and organizational structures that maximizes its use. Although the U.S. military remains the unparalleled technological leader in the world, it applies new technologies to doctrine and organizations that have not changed since World War II. In the army, corps and division structures still exist and create burdensome bureaucratic overhead, even as the organization has begun transitioning to the brigade combat team as the primary fighting element

[227] For a list of the most outrageous of these government contracts see: John Arquilla and Fogelson-Lubliner, "The Pentagon's Biggest Boondoggles," *The New York Times*, Op-Ed, march 21, 2011, accessed at: www.nytimes.com/interactive.

[228] Peter W. Singer, Secretary of the Navy Guest Lecture Series, Naval Postgraduate School, Monterey, CA, February 15, 2011

on the battlefield. In the navy, the aircraft carrier remains the capital ship, leading to air combat operations flown from aircraft carriers instead of more convenient land bases, only to justify the existence of the carrier.[229] The air force touts integration, but remains focused on strategic bombing as its core value instead of close air support. The U.S. military of the twenty-first century must eschew the model of the pre-World War II French military—adopting a defensive doctrine, building the Maginot Line to support it, and haphazardly applying the technological innovations of tanks to existing organizations. Instead, the U.S. military should more closely follow the innovation of pre-World War II Germany—realizing the importance and potential of new technologies to support a nested military strategy by adapting doctrine and organizations to maximize their use. The first stage of this transformation is the civil-military integration described above in a coherent national strategy and a whole-of-government integration to guide military innovation. Britain in the nineteenth century provides a good example of this grand strategy, with integration of naval and land forces to simultaneously balance threats on the European continent and expand its empire. The next step happens at the military level. The horizontal integration must occur between the U.S. services, such as the integration between the German ground and air forces in blitzkrieg doctrine.

In pursuing 'jointness,' the U.S. military must embrace a paradox: it must continue to facilitate cooperation between the services, while maintaining varied capabilities to prevent 'unifiedness.' Unifiedness occurs when multiple services apply huge bureaucratic overheads to relatively small mission sets, so that 'everyone gets to play.'[230] This has often been the case in recent joint operations, especially combat operations, and has created a dilution of the distinction between mission sets. An unintended consequence of efforts to force

[229] For numerous years, in support of Operation Enduring Freedom, Afghanistan, naval air support was flown from carriers in the Arabian Sea in order to justify the existence of aircraft carriers. Flights would have three times as much 'time on station' had they been based at one of the two secure airfields in Afghanistan—Bagram or Kandahar.

[230] Edward Luttwak, "Notes on Low Intensity Conflict," in *Dimensions of Military Strategy*, edited by George Edward Thibault (Washington: National Defense University Press, 1987), 339.

joint integration, is a blending of roles and missions that has created more redundancy rather than less. Instead, the U.S. military needs to integrate the capabilities of the joint services by adjusting forces to the proper place on the attrition/relational-maneuver spectrum.[231] Each service component and specialty within those services were created out of a perceived need to function along this spectrum—the army air corps of World War II was at the attritional end of the spectrum, while the psychological operations branch of the army was created to fill a gap on the relational-maneuver end. Yet, as threats and combat scenarios have changed, services have either tried to wrongly apply their end of the spectrum to the problem at hand ('Shock and Awe' bombing campaign in 2003) or unilaterally shifted their mission set to get into the fight (Navy SEALs conducting village stability operations in Afghanistan). The natural tendency for individuals and organizations alike is to converge on the problem at hand.[232] By clearly delineating roles and missions for each service and the specialties within that service, the U.S. military will create a range of capabilities that will make it uniquely resilient in meeting the unknowable threats of the future. But this delineation requires forcing mechanisms, "…military organizations will seldom innovate autonomously, particularly in matters of doctrine. This should be true because organizations abhor uncertainty, and changes in traditional patterns always involve uncertainty. It should also be true because military organizations are very hierarchical, restricting the flow of ideas from the lower levels to the higher levels. Additionally, those at the top of the hierarchy, who have achieved their rank and position by mastering the old doctrine, have no interest in encouraging their own obsolescence by bringing in a new doctrine."[233] In order

231 Luttwak, "Low Intensity Conflict," 339.

232 Recent efforts at joint integration are reminiscent of a four-year-old soccer team, everyone chases the 'ball' around and adapts their capabilities to the current fight. The U.S. military needs to be like the World Cup Soccer team—everyone has a position (specific capability) that integrates into the larger whole to make the team successful. A good soccer team is resilient—if the enemy gets past the mid-fielders, it is stopped by the defenders. If the enemy scores a goal, the strikers score a goal for the home team. A four-year-old soccer team is not resilient. One good, or lucky, four-year-old who breaks away from the pack with the ball is very dangerous.

233 Posen, *Sources of Military Doctrine*, 224.

for U.S. military to innovate towards a resilient organization for the future, it must adapt its organizational structures, not only to meet the current threats, but also to diversify capabilities to meet the unknowable threats of the future. It must then break the bureaucratic structure that stifles innovation to allow for the rise of innovative leaders.

1. Army

The U.S. Army, as the largest component of the U.S. military, can also provide the majority of cuts to manpower. Personnel costs are the second largest portion of the Department of Defense budget.[234] Therefore, reducing total personnel numbers is a cost-saving endeavor. The primary target for these reductions are the heavy armored and artillery forces that have spent most of the last decade protecting convoys and conducting other missions outside of their function specialties. As a hedge against rising peer competitors—and assuming that some in the army still wish to fight old-style opponents in old-styled ways—these forces should transfer to the reserve component, where the capability is maintained in the event of a large-scale war but at a fraction of the cost.[235] This transfer of heavy forces to the Reserve component can take place as combat teams are transitioned from brigade to battalion level. The brigade combat team modernization of the army is a good first step towards decentralizing units to fight in a more dispersed manner. Now the army must take the next step and transition these self-sustaining units to the battalion level. This would create three times as many maneuver elements within the army while reducing the total force structure. In addition, now that the transformation to the brigade combat team is complete, and the continued transformation to the battalion combat team should begin, the corps and division structures in the army should disappear. The concept of a 'fighting general' as in World War II, should never occur

[234] Department of Defense, "FY2010 Department of Defense Budget: Total Obligation Authority, Budget Authority, and Outlays," accessed at http://comptroller.defense.gov on May 25, 2011.

[235] Arquilla, *Worst Enemy*, 210.

again,[236] as the army maximizes the capability of technology and decentralizes maneuver operations to wise and seasoned lieutenant colonels and colonels. This depth of experience at a lower rank structure would be facilitated by the personnel system outlined below. General officers, in this system, would no longer be considered commanders; instead, they become the managers of the army with the colonels and their maneuver units as its center of gravity.

In the dissolution of the corps and division structures altogether and the transition from brigade combat teams to battalion combat teams, units can return to their core competencies to provide the maximum variety of capabilities. Limited battalions would maintain an airborne capability, as this specialty is resident in the 75th Ranger Regiment, and any denied airfield seizure will be conducted by the latter. This smaller combat team also allows more diversity in capability. The field artillery units that have been protecting convoy operations in Iraq for the last eight years, can transition to a counter-insurgency support force—translating the institutional knowledge gained in combat operations into doctrinal innovation for real capabilities necessary for the future. The army's advise and assist brigade combat teams can transition to multiple advise and assist battalion combat teams. These units are an example of the capability diversification necessary to building a resilient army for the future. A constabulary force of National Guard units can augment these specialized units. The National Guard units receive real-world experience in responding to natural disasters within their home states, which makes them uniquely suited to fill this role as a post-conflict constabulary force. There should also be a formal network for training and employment established between advise and assist active units, constabulary force National Guard units, and U.S. partners who possess institutional knowledge in both of these missions, such as the United Kingdom. The limited number of heavy units that should remain in the active force should

[236] For a complete discussion of the pitfalls associated with technology and micromanagement, see Peter Singer, *Wired for War.*

return to their core competencies, providing a capability that can fill the gap in future conflicts until the mobilization of the heavy forces from the Reserve component can occur.

2. Navy

The Navy must come to the realization that the aircraft carrier should no longer be its capital ship. This study does not argue for the elimination of the aircraft carrier, but rather a transition to its being a lesser part of the greater whole. The aircraft carrier provides both a real military capability and a diplomatic one. Few diplomatic gestures are as strong or clearly understood throughout the world as sending a U.S. Navy aircraft carrier battle group into an area—even if its deterrent record is poor, with failures such as Korea in 1950, Vietnam in 1965, Lebanon in 1982 and Kuwait in 1990. Yet, still no ship in the U.S. arsenal has this diplomatic power, and in the context of military power always supporting diplomatic power, this capability should remain. From a purely military standpoint, the aircraft carrier does offer the capability of power projection through air superiority in a self-contained package that the air force and smaller ships cannot fulfill. The aircraft carrier still possesses a vital role in the U.S. arsenal.

Submarines are also an important weapon in the U.S. arsenal, providing surreptitious capability for force projection and weapons employment. However, in an age of increased cooperation and the need for transparency in U.S. foreign policy, the submarine should also not be the capital ship of the navy. The perception of submarines as the ‘silent force’ is in contrast to a U.S. strategy of transparency and cooperation. These assets are integral to maintain within the navy, but their designation as the capital ship undermines the diplomatic primacy of foreign policy. Instead, the amphibious assault ship should become the capital ship for the U.S. Navy, offering more ‘maneuver units’ at a lower cost. The amphib offers the U.S. Navy enough power projection to control sea-lines of communication and conduct military diplomacy at a fraction of the cost of an

aircraft carrier. In addition, it provides a diverse capability—tailorable to the needs of the mission without the overhead costs inherent in a huge carrier. In an era of maximizing diverse capabilities while minimizing costs, the amphib should become the capital ship of the U.S. Navy.

3. Air Force

The air force should transition strategic bombing to the Reserve component. As with the army's heavy units, the possibility of needing this capability for large-scale conflict in the future is low, while the timeline for their employment is long. The capability's focus on major combat operations makes it ideally suited for the Reserve component. The active air force should refocus on close air support and intelligence, surveillance, and reconnaissance (ISR) activities in support of irregular warfare. The latter of these priorities, ISR, has already begun transition to unmanned aerial vehicles (UAVs), while the possibilities for this technology to drastically change doctrine has only begun to be realized. The advantage that the United States possesses in UAV technology should be leveraged to its fullest; its only block to full acceptance being the parochialism of the service thus far. This technology offers possibilities in innovation of doctrine and organizations for the U.S. Air Force that exceed any other current singular technology. The ethical issues of 'computer-game warfare' require that a human remain in the decision loop for lethal technologies in the foreseeable future.[237] However, the potential to reduce personnel in the air force through the maximum employment of UAV technology and the transition of strategic bombing to the Reserve component remains high.

4. Marines

The Marine Corps should return to its core mission set as the global quick reaction force. One reason that the Marine Corps remains under the Department of the Navy is that the former was never meant to become a second land force.

[237] Singer, Secretary of the Navy Guest Lecture Series, February 15, 2011

The Marine Corps, as the smallest service component of the Department of Defense, has consistently proven its ability to 'punch above its weight.' This organization should maintain this focus and pull out of commitments in Afghanistan and Iraq that have relegated it to a second army force. Instead, when the army becomes involved in sustained operations, such as Afghanistan and Iraq, the Marine Corps must remain externally focused—able to support national security objectives and diplomacy in areas where engagements are more fluid. Its interventions in these areas must remain short-duration, as the organization is optimized to conduct. As with the army, the marines are able to transition much of their heavy armor and artillery to the Reserve component for the same reasons outlined above. A smaller force and closer integration of joint capabilities would allow the marines to reduce the redundancies. A foreign officer once said of marine aviation, "I'll never understand your military—not only does your navy have an army, but your navy's army has an air force!"[238]

As the reference to the U.S. Marine Corps *Small Wars Manual* mentions above, the marines have a history and tradition steeped in irregular warfare. As such, the military should maximize this institutional knowledge and allow the marines to take a broader role in foreign internal defense operations in support of U.S. foreign policy. In these global quick reaction force and foreign internal defense missions, the Marine Corps could reduce personnel and equipment as it integrates with other services and special operations forces to reduce its size and increase its ability to innovate.

5. Special Operations

The U.S. special operations force must remain small and selective, or it may risk losing its value altogether. Some within the special operations community have parochially attempted to defend special operations' mission sets against the encroachment of other U.S. military units. This argument is made by

[238] Steven Metz, "Grunts and Jarheads: Rethinking the Army-Marine Division of Labor," Op-Ed, Strategic Studies Institute, September 2007. Accessed on May 24, 2011 at www.strategicstudiesinstitute.army.mil.

those who would create stagnant bureaucracies and further the institutional inertia to inhibit innovation. On the contrary, special operations should welcome and facilitate the diffusion of capabilities from their units to the general-purpose forces. Technological and doctrinal innovations that are diffused to smaller decentralized units in the military who are able to fulfill that capability, only allows special operations forces to push further into innovative realms. What has been termed 'the laboratory role' for special operations, this ability to doctrinally innovate more quickly due to smaller size and less bureaucratic structure, must be maintained by a selective and agile special operations force.[239]

As with the larger military, the roles and missions of special operations forces must be returned to their core competencies and adapted to the future security environment. The current trend of U.S. Special Operations Command to refer to special operators as, '3-D Warriors: defense, diplomacy, and development,' is an indication of mission drift and redundancy. None of the service special operations units assess, select, or train their operators to be diplomats or developers. Instead, 3-D Warriors reflect the catch-all nature of special operations to handle the missions that other government agencies are unable to. The organizational resiliency that the military needs to foster to meet future unknowable threats, is not accomplished by diluting the mission sets of the capable, but by diversifying the capabilities of each element of the military, then placing those capabilities into the correct context to support national power. "A rapidly changing world deals ruthlessly with organizations that do not change and USSOCOM is no exception. Guided by a comprehensive enduring vision and supporting goals, we must constantly reshape ourselves to remain relevant and useful members of the joint team."[240]

A second trend in the historical overview of military innovation in great powers is the need to integrate horizontally among military components. Once a

[239] Eliot Cohen, *Commandos and Politicians: Elite Military Units in Modern Democracies* (Cambridge, MA: Harvard University, 1978), 31.

[240] Peter Schoomaker, *Joint Maritime Operations Syllabus and Study Guide,* Academic Year 2010-2011, U.S. Naval War College, 3–50.

great power achieves vertical integration of its grand strategy and military doctrine, it must assimilate the capabilities horizontally for maximum effect. The French failed to accomplish this horizontal integration twice in its great power history—failing to match the continental strategy of the British in the First Period of Globalization and failing to integrate doctrine with technology across ground and air forces in the interwar period—both of which led to a loss of power. The Germans, in the interwar period present a successful example. Their integrated land and air power allowed for successful prosecution of blitzkrieg doctrine and maximized the power of the state. The U.S. military must continue its transition towards 'jointness' while ensuring it does not converge on 'unifiedness.' In matching complementary capabilities, the U.S. military will not only achieve a synergistic effect to its military power, but also will be able to cut personnel and systems—a move necessary in a resource-constrained environment. The recommended doctrinal and organizational changes above, allow for the dispersion of military capabilities to make the United States more resilient to the unknowable threats of the future. However, the Byzantines, Ottomans and Germans proved that singular innovations are not sufficient for maintaining a nation's great power status. A great power military must not view innovation as a goal or event, but rather as a process—it must create an innovative organization that continually adapts to the changing security environment.

6. The U.S. Military Is Not a Meritocracy: Structural Changes Needed to Create an Innovative Military

As long as the U.S. military promotion system is rigidly based upon time in service, as it is now, the organization will not be a meritocracy. Military organizations in history that employed a meritocracy system had an institutional ability to integrate innovative mindsets into their doctrine and strategy. In essence, this is an essential aspect of systemizing defense innovation. The Roman Empire and the Mongol Empire both represented very different types of meritocracies, but both allowed innovative leaders to rise in the ranks and create

some of the most innovative organizations in history. A true meritocracy would allow leaders to promote the most promising soldiers and officers despite their inability to meet any time-in-service requirements. The 'year-group' promotion system codifies a rigid bureaucratic structure that ensures slow change and little innovation. That this promotion system is centralized at the service headquarters—the U.S. Army's Human Resources Command determines the promotion of its more that half a million personnel—is further evidence of the extent of bureaucratic overhead. In the doctrinal transition from larger-and-less maneuver units to smaller-and-more, discussed above, the military must lead with a personnel system that decentralizes decisions for promotion and leadership to lower commanders. This departure from the year-group promotion system and centralized control will allow innovative leaders to move more rapidly through the ranks in a system that will always require rank and position to make drastic changes. In line with this move from the year-group system, the military should adopt a general schedule-type pay system. Positions in the military hierarchy would still have ranks, but each rank could have a step-system similar to civil servants. This would shift the military promotion system from an 'up-or-out' paradigm to an expertise paradigm. If a young officer does not want to compete for higher-level commands, but rather is content to stay in one job for five to seven years, he may continue to receive step-increase pay raises that reward his length of service, but allow him to build expertise in his job. To support this decentralization, the military should also stop the three-year change of station process. Longer assignments at duty stations will give leaders time to assess their subordinates more adequately and choose those that are deserving of promotion. While not transforming the U.S. military completely to the British regimental system, the rotation between units would still fulfill the intent of the U.S. military to broaden the perspective of its officers and non-commissioned officers, while providing enough permanence at each station to allow job mastery.

While some may fear that this system could lead to perpetuating dysfunctional norms within a unit—a commander could promote and assign those leaders who adhere to his line of thinking—the information age will prevent this. In an era of interconnected communications, operations, and information, the possibility of building an 'enclave of dysfunction' is greatly reduced. Peers and superiors alike will be able to self-police in an organization that will inherently remain hierarchical—and the future rating and evaluation system should include their perspectives, as well. Others may contend that this system could allow a very young officer to rise to a level that outpaces his experience. While the military is not, and never should be, a business, there is a business analogy in order here: some of the most innovative businesses in America have relatively young CEOs. Experience does not automatically translate to good leadership or vision, instead the most successful companies blend younger and older people at all levels of the hierarchy to maximize the value of experience while maintaining an innovative energy in the organization. The potential costs of both of these arguments are outweighed by the benefits of a proposed promotion and command system that would break the monopoly for decision-making that age and experience in the military currently hold.

The other method to ensure consistent innovation and break institutional inertia is education. "Education and selection of leaders are the heart of any country's long-term military capacity."[241] While a general schedule-type pay and rank structure and an extended time on station period would provide more stability to military units and leaders, allowing them to stay in positions longer, the potential downfalls of making these organizations less fluid would be balanced by education. The U.S. military must maximize the use of the best higher education system in the world that is resident in its country, as a direct measure to facilitate the social-military innovation loop. The professional military education system, long a buttress of institutional inertia against change, should be reduced to the

[241] Eliot Cohen, "Presidents and Their Generals," Interview with *American Interest Online*, September–October 2010, accessed at www.the-american-interest.com.

basic levels of training and indoctrination necessary. The current system does not educate, in the sense of pushing to students to think abstractly and broadly, it trains. As such, it is taught at the most basic level further eroding the meritocracy of the military. Professional military training should be reduced to basic officer training for the newly commissioned, and possibly one other training requirement at the company to field grade transition point. These training opportunities should not be pass-or-fail as they are now, because this leads to a 'check the block' mentality among the students. Instead, they should be competitive, with assignments and job opportunities based on performance. Outside of the basic level of training for officers and non-commissioned officers, education opportunities should be broadened and diversified through civilian institutions. The innovative thought among military leaders will increase in proportion to the number of leaders that are educated in civilian schools. Also resident in civilian education is the collaborative teaching method that the next generation of military recruits will seek. In the information age, American society is moving towards an expectation of collaboration in decision making and information sharing (think Wikipedia). The next generation of military recruits will expect to have a part in 'the process.' In order for the military to maintain recruitment of the highest level performers, it must establish means for collaboration, while figuring out the limits of this collaboration—where can the organization create collaboration within a system that must retain a level of hierarchy. Civilian education and an overhaul of professional military education system are necessary to bring the training and education standards of the military in line with the demands of the society from which it seeks to recruit.

IV. CONCLUSION

"American military power underwrote a world where people can even talk about soft power, and some people dwell on that term as if that underwriting by hard power does not and never did exist."[242] Hard power has, and will always, play an integral role in national security. From ancient Egypt to the present, civilizations have aligned hard and soft power to force their will upon others, to protect their culture against others, and to deter aggression. Regardless of the civilization's values or form of government, certain truths about military and national power are consistent in the historical record. States that successfully integrated their civil and military aims are able to gain power. States that maintain this integration in a balance favoring civilian control and checking militarism are able to maintain power. Militaries that innovate consistently within this construct are able to maintain their nation's power even longer. Militaries that fail to innovate, or rely too heavily on one innovation at a point in time, ultimately fail and cause their nation to lose power. The end to which a nation directs its military strength is based upon its values, and its ability to translate those values into a strategy to maximize its power.

The United States needs a national strategy. Yet, in the absence of this strategy and with a coming budgetary crisis, the Department of Defense has a choice. It can either reshape itself in a model to make its country more secure and maintain its great power status, or it can continue to look for opportunity to fight for budget share. The latter will take the decision out of civilian and uniformed military leadership and put it in the hands of Congress and the President. The right choice is to reform to a system that fosters innovation and capability diversification, rather than waiting for an external entity to arbitrarily cut personnel or programs, while keeping the ineffective organizational models. The

[242] Cohen, "Presidents and Their Generals."

U.S. military must embrace the opportunities of the information age and accept the concept that, “the future is not something to predict, it is something to achieve.”[243]

[243] Don Tapscott and Anthony Williams, *Wikinomics: How Mass Collaboration Changes Everything* (New York: Penguin Group, 2008), xiii.

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