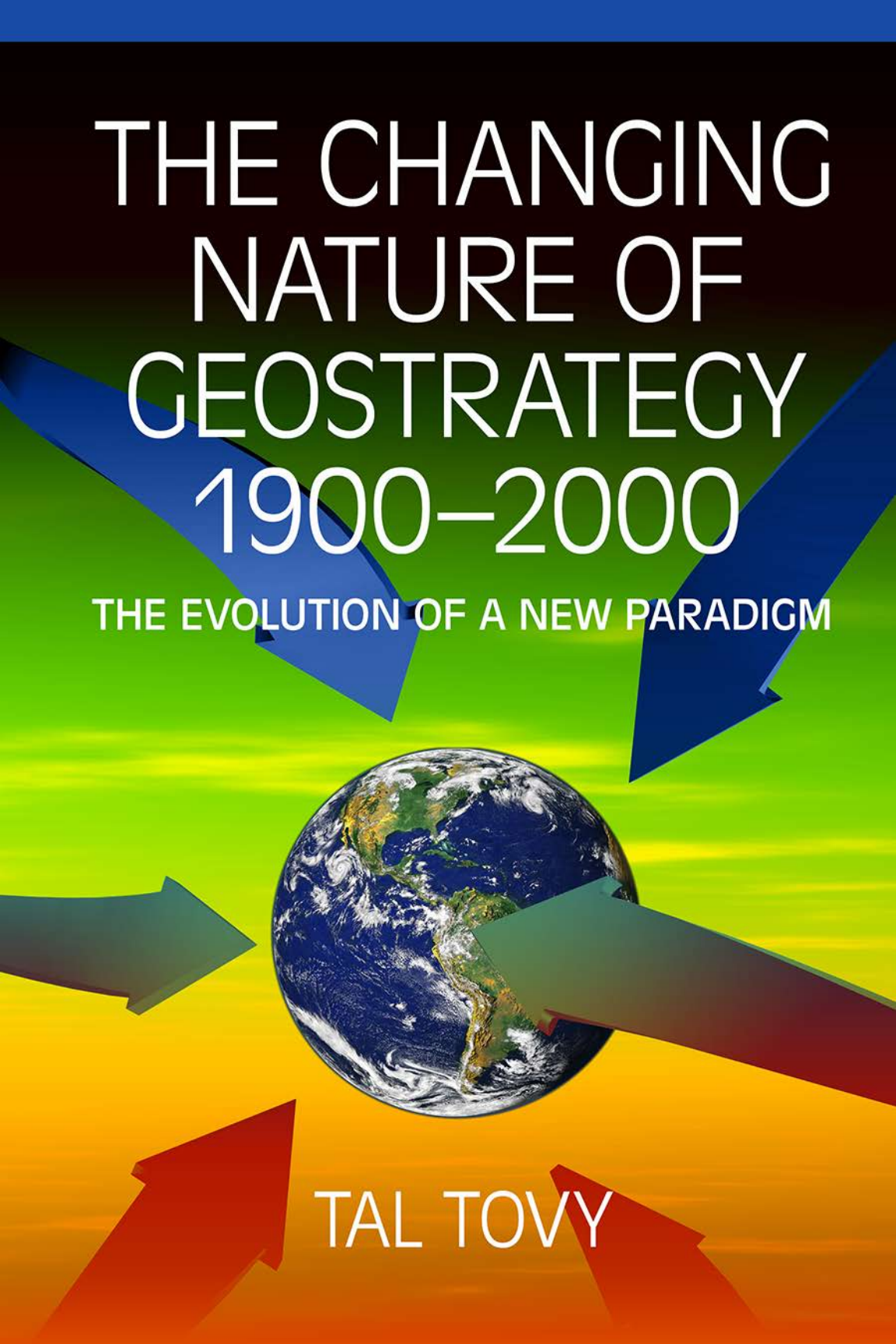
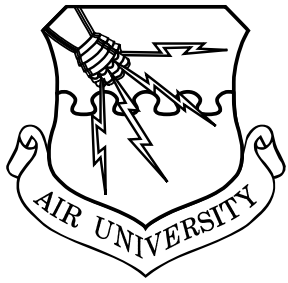
THE CHANGING NATURE OF GEOSTRATEGY 1900–2000

THE EVOLUTION OF A NEW PARADIGM



TAL TOVY



The Changing Nature of Geostrategy

1900–2000

The Evolution of a New Paradigm

Tal Tovy

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Disclaimer

Dedicated to Omer, Shachaf, Yaniv, Aviv, and Edo.
I hope that you will not need to go back and see
whether the operational paradigm of the twenty-first
century has changed and you will be able to
categorize this work as science fiction.

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Foreword

In 1973 the United States military emerged from the Vietnam War in a difficult situation. While the primary mission of facing the Soviet Union in Europe continued, the Yom Kippur War between Israel and its neighbors demonstrated that Soviet military technology had equaled—and in some cases surpassed—the weaponry of the American Army. For almost three decades, American planners had relied upon superior equipment to offset the massive Soviet advantage in military manpower, but that advantage, at least on land, had evaporated. The problem was exacerbated by the switch to an all-volunteer force and reductions in military funding.

To confront the problem, US Army leaders, beginning with Gen Creighton Abrams, called for a reordering of doctrinal assumptions and the development of new hardware to support the new operational concepts. In particular, American planners sought to overcome the fundamental problem they faced in geostrategy: how to defeat a seemingly limitless supply of Soviet Red Army units in the event of a conventional war in Europe. Previous attempts to overcome geostrategic limits and defeat or bypass enemy static defenses included airborne operations, amphibious landings, and a reliance upon nuclear deterrence. However, the new concept, AirLand Battle, called for a tactical defense supported by aggressive operational maneuvers to destroy the command and control of Soviet formations before they could reach the battlefront.

To buttress the new doctrinal system, Abrams called for the development of new weapons, eventually incorporated into the military as the Abrams tank, the Bradley fighting vehicle, the Patriot air defense missile, the Apache and Black Hawk helicopters, and the multiple launch rocket system. These weapons all contributed to the new concept and surpassed their Soviet counterparts in virtually all aspects. When combined, the new weapons and doctrine might take advantage of the Soviet reliance upon traditional lines of communication while allowing American forces to bypass or ignore the need to maintain a secure route to the rear areas for logistical purposes.

The notion that lines of communication might be made irrelevant to modern warfare revolutionized the concept of geostrategy and led to many modern American military practices. These include the ability to base attack forces within the continental United States but still threaten enemy forces worldwide, as demonstrated by the use of B-2

bombers based in Missouri to attack targets in Iraq and Afghanistan. However, rendering lines of communication irrelevant may only be possible when facing an enemy comprised of modern military forces. Likewise, the modern American obsession with efficiency might hinder a system that includes a great deal of inefficient practices in exchange for global reach. Dr. Tovy's work promises an interesting examination of whether the principles of geostrategy, which have governed human conflict for millennia, might have receded in importance or even ceased to matter at all.

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About the Author

Tal Tovy is an associate professor at Bar-Ilan University in Israel. He holds a PhD in history from the University of Haifa. A veteran of the Israel Defense Forces, Dr. Tovy has published extensively on a variety of military history topics, including the influence of counterinsurgency theory upon American combat operations. His other fields of interest include Western military thought, US foreign policy, and US military history. In 2007 Dr. Tovy won the Yitzhak Sadeh Prize for excellence in writing military history. He is the author of two previous books: *Like Eating Soup with a Knife: The American Experience in Vietnam, 1959–1973*, and *Guerrilla and the War against It: The Military Heritage of Mao*, both in Hebrew. Among the journals he has contributed articles to are *Armed Forces and Society*, the *Journal of Military and Strategic Studies*, the *European Journal of American Studies*, and *War in History*.

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Introduction

Geostrategy links geography with strategies of war. It places the planning and management of war in the context of geographical, physical, and artificial (man-made) characteristics of the operational region. Geostrategy also demands a precise inspection of the geographical characteristics of an area from the point where military forces deploy until the desired destination. According to Geoffrey Sloan and Colin Gray, geography is "the mother of strategy."

Military history is rife with examples of operational successes and failures stemming from the geographical factor. However, are twenty-first-century military operations also contingent on the geographical-physical dimension? Has a new paradigm of war based on unprecedented technological processes brought about a change in everything related to classic geostrategy? These are questions that this study attempts to answer.

The term *paradigm* means law, theory, application, and usage, which provides a model out of which a consolidated tradition of scientific existence has emerged. The notion of paradigms comprises the foundation of Thomas Kuhn's groundbreaking study, *The Structures of Scientific Revolutions*, published in 1962. Kuhn's central claim is that scientific progress is based not on a gradual, chronological collection of facts and theories or a process of natural growth but rather on "leaps," or revolutions. For Kuhn, a new paradigm is created when a previous scientific theory in a specific field is inadequate in explaining phenomena discovered as a result of developments in scientific research. A new scientific theory can appear only when a certain detachment from the previous traditions occurs.

In his book, Kuhn examines revolutions related to the exact sciences, although he claims that scientific revolutions can be detected in every field of science. The revolution stems from the feeling of a certain scientific community that it can no longer appropriately confront the problems in various fields of science or when the existing paradigm has ceased functioning in the study of a specific perspective of a scientific field. On the eve of the French Revolution, military reasoning in Europe began emphasizing the integration of the science of geography into war plans. The thinkers of the end of the eighteenth century—most prominently Humphrey Lloyd, Georg Friedrich von Tempelhoff, and especially Heinrich von Bülow—claimed that when a commander plans his military progress, he must conduct

a geographical analysis of the given battlefield. Military utilization of geography stemmed from the development of cartography that resulted from the major geographical discoveries of the sixteenth century. The science of cartography advanced along with the development of the method for exact measurement, introduced in the seventeenth and eighteenth centuries.

In the second half of the eighteenth century, most of western and central Europe was covered with a network of detailed and precise maps. Maps not only provided relevant and precise information on the areas of military operation but also became an important tool in planning operations. The result was the emergence of a thought process that combines strategic military planning with geographical terms and—with the help of a system of simulated images—describes the movements of military forces within a prescribed geographical space. The chief image is the description of the line that expresses the connection between the army's position of origin and front line. This line was termed the *line of operation* and later the *line of communications*.

Moving along this line was the army as well as the reinforcements and convoy of provisions and supplies. The line also served for military withdrawal when necessary. Important consequences stem from the nature of these lines of operation. The shortest and most direct line must be selected in accordance with the circumstances, and it must be outlined so as to prevent exposure to attacks from the flanks. If it is too long, the enemy may sever it. The attacker, who wishes to shorten its line, must therefore try to advance its bases while the defender, on the other side, must maneuver so that he can threaten the attacker's line of operation. The fate of the war is entirely dependent on the line of operation selected—its defense or its attack.

The term *line of operation* was known to every commander who conducted his forces throughout the world before the military studies of the end of the eighteenth century. However, modern geostrategy is responsible for initiating the theoretical discussion of the nature of this line and its operational consequences. The operational perceptions that stem from the line of operation are what comprised the basis of Frederick the Great's and Napoleon's plans for operation and, in effect, held true until the end of World War II. The changes in the international arena as a result of World War II—and even more so after the Cold War—along with simultaneous technological military developments, brought about a revolution in the field of military operations (revolution in military affairs or RMA).

This revolution gave new meaning to the term *geostrategy* and everything related to the planning of military operations. Strategic bombers, nuclear submarines, and intercontinental ballistic missiles in effect cancelled out the classic geostrategic perspective and the traditional line of operation. Nevertheless, military planners searched for a way to manage war without letting it escalate to nuclear, or total, war. The precision-guided weaponry sometimes shot from thousands of kilometers away, elusive planes, and special forces operating in the depths of enemy territory without the need for means of communication in the classical sense raise questions about the validity of the geostrategic dimension even in the context of conventional warfare. This is why information warfare must be added—the use of systems of command, control, communication, computers, and intelligence to disrupt an enemy's capabilities. In warfare of this type, the line of operation is virtual while the line of communications is optical fibers.

The objective of information warfare is the neutralization of the enemy's commanding capabilities and not the physical destruction of the armed forces. Thus, mobilizing forces along the axes of perceptible movement becomes unnecessary because a virtual means of intrusion can be activated, such as computer viruses and Trojan horses. Based on the integration of technology, means of war, and new doctrines of war, this study seeks to answer the questions of whether the era of classic geostrategy, which stems from the mobilization of forces along the line of communications, has indeed ended and whether this new paradigm can be discussed. This is assuming that, in any case, the geographical component—the point of origin and even more so the destination—is still relevant.

The study concentrates on the line between these two points—the mobilization of forces along the line of operation—and analyzes how throughout history, starting with World War II, it begins to lose its physical characteristics since information warfare turns it into something virtual. The following simple diagram illustrates the foundation of the study:

A----------B

A—Point of origin

B—Destination

AB—The line of communications on which the study focuses

The first chapter surveys the theoretical and the historical development of the term *geopolitics* as a research area. From this we can understand the changing nature of geostrategy. The second chapter reviews the military revolutions during World War II and the Cold War through a theoretical discussion of the connection between strategy and geography. The third chapter discusses the development of the American military outlook from the period directly following the Vietnam War until the beginning of the twenty-first century, highlighting the cancellation of the geostrategic dimension and a change of the classic perception. The emphasis on the American military outlook stems from the fact that this is the leading reasoning in the world today, and most modern armies study the cognitive and practical American processes in terms of their relevant implementation for every army. This is especially salient among armies that are supposed to act in coalitions led by the United States (such as the British army) and armies that see themselves in possible confrontation with the US Army in the future. The fourth chapter examines the influence of the new paradigm on the shaping of new doctrines. This chapter analyzes new war plans and their geostrategic derivatives.

The process of shaping the new American doctrines is called transformation. This study intends to examine this transformation through its American strategic-operational perspective and show how the American military outlook since the end of the twentieth century until now has diminished the importance of the classic line of communications and is creating a new definition of geostrategy. The theoretical tools that will serve the analysis are the directive documents from the Quadrennial Defense Review (QDR) published in 2001 and 2006. These documents outline the steps the strategic level must take to fulfill the demands of the political level.

The working assumption of this study is that the conclusion of the Cold War was a turning point in international relations whereby the United States remained the only superpower in the world. The dichotomous perception that emerged after World War II—that the United States had one major enemy (the Soviet Union) and that American political, economic, and military capabilities were well defined—has changed. According to the new perception, since the end of the Cold War, many different entities threaten US interests, but the US security policy makers do not know exactly what to expect. From a military perspective, the high-intensity conflict that was supposed to be characterized by massive tank warfare and a battlefield saturated

with different means of war in the heart of Europe changed dramatically to rapid and decisive operations that can be operated from great distances without the option of an advance deployment of military forces.

The challenge for America after the fall of the Soviet Union is how to defend the United States and its allies from obscure, unknown, and, primarily, unexpected enemies. Hence, it must build up military forces ready for any scenario, including that which has not yet been deemed a threat. This type of thought process was evident in the United States even before September 2001, and one could say that the terror attacks accelerated those processes already at various stages of planning and implementation.

The important point in the 2001 *QDR* is the transition from a threat-based to a capacity-based perception. This change in perception is a transition from the situation in which a list of enemies and potential enemies exists and for which there is a strategy for dealing with them, to a perception that the United States must create a list of the potential capabilities of a future enemy. From this standpoint, the amassing of power emerges against a variety of capabilities (such as weapons of mass destruction) without being dependent on their geographical or political location. This means the United States can no longer be confident that it can identify a potential enemy ahead of time, but it does have the power, at a high level of certainty, to identify potential capabilities that an enemy may possess. Being prepared to confront a variety of capabilities will enable, according to the Defense Department, a more efficient response to an unforeseen enemy in advance. One could say that the transition from a threat-based to a capacity-based approach is the focus of the new paradigm.

Until the mid-1990s, the US Army prepared itself for war of all kinds of intensity, from peacekeeping operations to total nuclear war. In the atmosphere following the Cold War, the Spectrum of Conflict Model is no longer relevant. Moreover, within the framework of the current budget, the military cannot be ready for every possible scenario on a high operational level. The suggested model is the Hierarchy of Missions Model, in which the United States must examine its biggest threats. Thus, the American military forces must invest their resources for the most relevant scenarios by narrowing down their investment in resources for scenarios that have disappeared. The United States does not need to build up massive conventional forces since a scenario of high-intensity warfare against the Warsaw Pact is no longer

relevant. The problem with adopting the hierarchic model is that the United States has not yet come to realize the paradigm transition from a threat-based to a capacity-based approach. Defining the threats and capacities of potential opponents is most critical for determining the necessary process of change. Pinpointing their capabilities requires the development of technologies and the crafting of strategy or an array of strategies.

First and foremost, the United States must build a military power that will deter any enemy from acting against it. In the event of a failure to deter, the Americans require forces capable of acting on front positions without necessitating massive staging bases, such as the building up of power in Saudi Arabia on the eve of the Gulf War (1990–91), since the United States expects that it will not be able to operate from frontal staging bases. Furthermore, the need arose to develop the ability to reinforce those forces already positioned for warfare in different areas to defeat any opponent rapidly and decisively. The wars in Afghanistan (2001) and Iraq (2003) have exhibited this notion. The United States could not operate from land bases due to opposition from bordering countries. The solution is found in the capacity for operational agility combined with the use of massive special forces that activated the precision-guided weaponry in cooperation with air and naval forces.

The strategic commands of the political ranks were translated by the combined headquarters (strategic level) into an operational level. Concentration is placed on the building of task forces and close cooperation with interservices operations (joint operations), along with the strengthening and emphasis of informational operations. These trends change the classic perception of geostrategy.

Notes

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

1. Sloan and Gray, "Why Geopolitics?," in Gray and Sloan, *Geopolitics*, 3.
2. Kuhn, *Structure of Scientific Revolutions*, 3.
3. Ibid., 57, 74–75.
4. Ibid., 92.
5. Gat, *History of Military Thought*, 76–77. For a survey of military theory in the Enlightenment, see Starkey, *War in the Age of Enlightenment*, 33–63.
6. Bagrow, *History of Cartography*, 125–39.

7. For information on the integration of maps in war, see O'Sullivan and Miller, *Geography of Warfare*, 18–22.

8. The modern, groundbreaking, and most important examination of the connection between logistics and war management is Van Creveld, *Supplying War*, first published in 1977. It offers a close study of the main European systems, beginning with the Thirty Years' War (1618–48) and concluding with World War II.

Chapter 1

Geopolitics: Theory and History

Understanding changes in the concept of geostrategy requires appreciating the broad methodological framework from which it derives—geopolitics. Classical geopolitics (which includes geostrategy) upholds the link and mutual interrelationships between physical geography and the political system. Examining this science is helpful in the attempt to recognize the change in the role of physical location in the concept of modern geostrategy—a phenomenon central to this book. Thus, this chapter deals with the essential nature and development of the concept of geopolitics from a historical viewpoint through a discussion of the main thinkers in this field of research.[1] It also aims to situate them within historical processes, showing not only how these thinkers influenced geopolitics but also how geopolitics influenced historical processes. A basic assumption of this study is that every discussion of global geopolitics necessitates framing it within its historical context.

Stages in the evolution of geopolitical thought are analyzed via a review of geopolitical theories from the end of the nineteenth century until World War II. This era can be divided into two subperiods, according to the model proposed by Saul Cohen.[2] In the first—lasting until the outbreak of World War I—thinkers developed their theories according to the requirements of their own states. In the second—the years between the two world wars—it was German thinking that dominated.

Swedish geographer Rudolf Kjellén first coined the term *geopolitics* in his 1899 article about the formation of Sweden's natural borders. He describes geopolitics as a theory defining the state as a geographical organism or as a phenomenon within a certain expanse. Karl Haushofer, one of the important intellectuals in Germany between the two world wars, defines it as a doctrine concerning spatial determinism of general political processes based on many elements of geographical science. During World War II, American political science researcher Edmond Walsh defined *geopolitics* as the combined investigation of human geography and political science. He pointed out

that this approach was not a modern one but could be traced back to the days of Aristotle, Strabo, Montesquieu, and Kant.[3]

While *geopolitics* has more definitions, the consensus is that it is the research field that examines the system of national and international relations from a geographical viewpoint. In other words, *geopolitics* is the study of the influence of geography on world politics. The geographical point of view is that the locations of countries and the distances separating them from natural and human resources are vital to the essential nature and form of international relations. Any discussion of the concept therefore obliges us to examine first of all the basic foundations of its two components: geography and politics. This background is also important for understanding how the development of the new geostrategic approach is gradually eliminating the physical component of geography.

Geography is a research field that systematically examines the phenomena of location and place.[4] While location describes position, place examines a location's characteristics. Location is in fact the most fundamental precept in geography, affecting all the physical activities of human beings. A distinction should be made between absolute and relative location. *Absolute location* is the exact position of a certain place on the globe as scientifically determined by its longitude and latitude. *Relative location* is the position in relation to, or in comparison with, another place and is a key factor in understanding the internationality of geopolitics. For example, the geographical location of the United States between two oceans on the east and west and the position of militarily weak states on its southern and northern borders have contributed decisively to American foreign policy since the end of the nineteenth century. Geographical location also has ramifications in the military sphere. On one hand, because Britain is an island state, it prioritized sea power. On the other hand, because Germany is a state in the heart of Europe, it emphasized land power and consequently neglected the navy until the end of the nineteenth century.

In terms of place, geographers ask themselves questions about the areas in which various phenomena are found, why they exist just there, and what this signifies. This field also observes characteristics of areas and compares them to phenomena in other areas while taking into account world phenomena in general. The geographer's analysis is comprehensive, encompassing physical, social, economic, political, environmental, and human aspects constituting forces and factors

that shape human activity under local conditions throughout the world.

Under the heading of place are two main secondary spheres: physical and human. *Physical geography* examines the location and distribution of various aspects of the physical system—whether global or regional—comprising climate, vegetation, geomorphology (relief features), and ecology. *Human geography* focuses on the system of interrelationships between societies and cultures and the physical factors in which they exist and act. Among the secondary spheres of human geography are sedentary, social, general, historical, and political geography.

The study of physical geography is requisite for the understanding of human geography. An outstanding historical example is the physical and climatic location of Russia and its desire to obtain access to or control over warm-water ports. This aspiration has characterized Russian foreign policy since the period of Czar Peter the Great and explains (although simplistically) the series of nineteenth-century wars between Russia and the Ottoman Empire, the Russo-Japanese War, and Soviet foreign policy before World War II and later during the Cold War.

As mentioned, a secondary sphere in human geography is political geography. This sphere examines the link between politics and geography, ranging from the local to the international arena. Pertinent topics include the location of borders between states; distribution of municipal, electoral, and economic areas; relations of the center to the periphery; use of land and physical planning; systems of law and order; and management of common natural resources. This chapter deals later with the international aspect of geopolitics.

After World War II, Western thought discarded the concept of geopolitics because of the negative sense associated with the geopolitical perceptions in Nazi thinking on the eve of war—the concept of "living space" or Lebensraum. This idea was the philosophical basis from which Nazi Germany launched World War II and the framework in which war crimes and crimes against humanity had been carried out. Therefore, in the West, the concept of political geography was introduced instead.[5] During the 1970s, however, the use of the concept of geopolitics was restored, and today it is defined as a secondary branch within political geography. In this context, geopolitics mainly relates to the influence of geography on the international system and in the sphere of a country's foreign relations.[6] Yet one should

not overlook the fact that geopolitics at the global level also affects the local and interior politics of a state.

The geographical viewpoint of international relations begins with an examination of the most basic elements that distinguish a nation and a state. The definition of a nation is derived from commonly shared cultural, religious, linguistic, ethnic, and historical aspects. Therefore, the nation includes within it a collection of individual persons bound together and sharing the same cultural aspects together with a strong sense of self-definition. This cultural and ethnic solidarity makes it distinct from other nations that can all live together within the same political unit called the state. A nation can also be found living within a number of political units or states.

The state is the violent outcome of the modern international system created as a result of the Peace of Westphalia (1648).[7] The international system is based on sovereign and independent states not subordinated to any superior authority. The recognition of the principle of sovereignty—the absolute and unrestricted independence of a state to conduct its internal affairs without external interference—is one of the key foundations of this system. The delineation of the border is meant to serve as a political separation between states, even if an artificial division between nations.[8]

The distinction between *nation* and *state* is essential for understanding and analyzing the conflicts between nations. One of the main factors for the outbreak of World War I was the problem of minorities within a defined political unit and a national majority (the Austro-Hungarian and Ottoman Empires). Also, the conduct of foreign policy of Nazi Germany until the invasion of Poland was directed, among other things, towards the unification of the German nation under a single political unit. The presence of national, ethnic, and religious groups within one artificial political unit is one of the chief causes for the outbreak of civil war, especially in the developing world. This is the additional heritage of colonialism. Borders of the new states were drawn artificially on conference tables in Europe without concern for tribes, peoples, communities, religions, or local power groups. This contrived division is a major cause of the lack of political stability in Africa, South Asia, and the Middle East that continues today.

Geopolitics can thus be defined as the connection between geography and the formation and management of the foreign policy of a certain state or as the geographical influence on the conduct of foreign policy.

It includes a complex mixture of territorial interrelationships, power, and confrontation among political and national units. In international relations, the control over a certain territory means a display of power; increased power often means an extension of territorial control. Throughout history, numerous wars have broken out as a result of the quest for sovereignty over a certain area. The foreign policy of many states was undergirded by ambition to control a region for economic, strategic, and political motives. States defeated in war were forced to give up territory in favor of the victors. The link between power and territory can be noted at all levels of geography. Power represents the ability to control or sway others. Control over a certain territory also constitutes the essential sovereignty of a political unit both internally and externally.

The Era of Imperialistic Hegemony, 1890–1914

Philosophical-scientific writings and the formation of geopolitics as a research field are found in the transitional period between the nineteenth and twentieth centuries. But the formation of geopolitics was created much earlier due to the age-old desire to understand the relationship between permanent physical features (geography) and group human activity (politics). Denis Retaillé argues that "geopolitics is as old as the political discourse on territory and power."[9]

Perhaps the first geopolitician to be mentioned is Herodotus—the father of Western history. In his book *The History* (or *Histories)*, Herodotus analyzes the military confrontation between Persia and the coalition of Greek poleis. He observes that the geographical situation of the warring sides helped to spur this "clash of civilizations" called war as a human and political activity.[10] The classical political philosopher Aristotle dealt with many questions in his book *Politics*, which can be described as issues in the field of geopolitics. Aristotle examined the natural environment from two perspectives: its influence on man and man's influence on it, especially in the sphere of economics and warfare.[11] This shows that classical thinkers stressed the need for an analysis of all human activity in relation to basic physical components.[12] It is therefore possible to define the geopolitics of ancient geographers as "natural geopolitics," which claims that natural geographical conditions play into the conduct of interstate politics.

At the end of the seventeenth century, the foreign policy of the European powers began to rely on the foundations and principles that constitute modern geography. This development is closely related to the large geographical discoveries at the beginning of the modern age. Modern geopolitics of the twentieth century names Heinrich von Bülow (1751–1807), active at the end of the eighteenth century, as the precursor of this science. Bülow asserts in his writings that one can describe the conduct of war in geographical terms derived from Newton's mechanical laws. He thus proposes that because the force of military energy is weakened in inverse ratio to the square of the distance from its base of departure, military force is therefore limited to a certain geographical area of military activity.[13]

Bülow broadened his strategic principles to political ones in 1799. Since the area of capability of a certain army to act was geographically limited, Bülow claimed that small European states would be conquered by large states but that these would be restricted in their ability to continue spreading. The new formation of the European system would lead, at the end of the process, to the disappearance of war since a large state would no longer be able to expand further. War would therefore lose its rationale, and permanent peace would prevail.[14] Although the phenomenon of warfare did not disappear, Bülow's belief that the expansionist ability of a power is limited has been proved in historical retrospect to be correct. The perception of "imperial overstretch" underlies the thesis of Paul Kennedy's monumental work, *The Rise and Fall of the Great Powers* (1987).[15]

Modern theoretical thought concerning geopolitical principles began at the end of the nineteenth century—a period characterized by the intensification of nationalism and colonial expansion across the seas.[16] In this period, the mapping out of the world ended almost entirely, as did the division of the world into colonies by the European powers.[17] The European imperialist race was joined at the end of the nineteenth century by Germany and Italy and by two states outside Europe—Japan and the United States.

The imperialistic struggle, mainly between European states, in various parts of the world was transformed from the first decade of the twentieth century into a renewal of the struggle within Europe itself. Europe had enjoyed a century of quiet from the end of the Napoleonic Wars until the outbreak of World War I.[18] The Crimean War (1853–56), the other wars in the European periphery, and the wars of German unification did not drag Europe into total warfare. It is not

therefore fortuitous that at the end of the nineteenth century, geopolitical schools of thought began to develop in various European countries according to the perception of each state and its system of interests within internal European power struggles. At the same time, what is common to all the theoreticians discussed next is the desire to create a general, broad, and systematic theory that would stress the superiority of the state in which each of these thinkers was active within the changing and developing world of politics.[19]

The writings of these theoreticians reflect the international realities of their periods as well as the foreign policy principles of their states. They also suggest the social Darwinism that gave European states the justification to control the world. It provided the philosophical basis for one European state to regard itself as superior (and thus to justify European hegemony) over other European states.[20]

The first theoretician who should be dealt with in the period of imperialistic hegemony is Friedrich Ratzel (1844–1904), considered to be the father of modern geopolitics. The thought of Ratzel was deeply influenced by the German academic atmosphere of the end of the nineteenth century—a merging of philosophy with the natural sciences. Philosophy at that time was strongly connected with geography, as derived from the thought of the German philosopher Immanuel Kant. Kant was very interested in the relationship of the environment to humankind and regarded the progress of history as a kind of continuation of geography.[21] Ratzel was the first to examine space and location in a systematic way in relation to state activities. He provided the German geopolitical thinkers who followed him with scientific models for understanding the territorial expansion and enhancement of the political power of the state. His many writings also influenced the political ambitions of Germany at the end of the nineteenth century as well as in the period between the two world wars.[22] Understanding German geopolitics from the span between the unification of Germany until the outbreak of World War I (1870–1914) necessitates a geographical-historical review of Germany during the Second Reich.

Unlike many other states in Western Europe, Germany was not a unified political, national, and ethnic entity until the last third of the nineteenth century. The German-speaking areas in Central Europe were in fact a collection of principalities and independent cities. Only under the Prussian chancellor Bismarck did the process of the political unity of Germany begin. This process was completed in 1871 after

a series of wars between Prussia and its neighbors Austria, Denmark, and France.

The union turned Germany into the main power in Europe, and its economic and military strength were quickly transformed into political power. But its geographical location created many difficulties for its defense. Northern Germany was an area frequently exposed during the course of history to invasions. Germany also lacked natural borders and traditionally faced hostile neighbors both on the east (Russia) and west (France). German foreign policy therefore stressed territorial expansion with the aim of coping efficiently with the possibility of attack on those two fronts. Control over the center of Europe (Mitteleuropa) was the strategic way to face the military threats that stood before Germany.

With the establishment of Germany as the leading power in Europe and especially after the coronation of Wilhelm II as the emperor of Germany (1888), German foreign policy was drastically changed. The foreign minister of Germany, Bernhard von Bülow, claimed that the status of Germany in Europe obliged it to conduct a world policy (weltpolitik).[23] This policy resulted from the refusal of the emperor to regard the shores of the Baltic Sea as the sea border of Germany. His ambition was to make Germany a world power by increasing his naval forces and challenging the British Empire. In the framework of this aggressive foreign policy, Germany began an accelerated imperialistic process in western and eastern Africa, penetration into the Middle East, and the conquest of islands in the western part of the Pacific Ocean. The abandonment of the careful line of action that characterized the foreign policy of Bismarck (realpolitik) and the conversion of German foreign policy into an aggressive one led to a drastic change in the geopolitical framework of Europe, undermining the balance of European power.[24]

In 1890 Germany refused to renew the mutual security pact it signed with Russia in 1887. In this agreement the two sides had promised to preserve supportive neutrality in the event of an attack by a third party on one of the two states. Germany also recognized the hegemonic aspirations of Russia in the Balkans. Nonrenewal of this pact marked the beginning of the construction of the two rival blocs in World War I.[25] Nonrenewal of the Russo-German pact led to a rapprochement between Germany and Austro-Hungary, with Germany now supporting the hegemonic aspirations of Austro-Hungary in the Balkans.

Feeling isolated with regard to its tension with Britain in Asia, Russia began to draw closer to France. In 1894 Russia signed a defense agreement with France. In this political and military agreement, Russia and France committed themselves to come to the aid of the other in case of attack by Germany or Austro-Hungary. The political pacts and military treaties that Bismarck had so feared were now created, meaning that in case of war Germany would have to fight on two fronts at the same time. To avoid war on two fronts simultaneously, Germany developed a war plan aimed at a swift military move to overcome France and afterwards to turn its army eastward to face Russia. During the first decade of the twentieth century, Britain signed agreements with France (1904) and Russia (1907). Although these agreements were not directed against any particular state, they resulted in the creation of a political and military bloc vis-à-vis the pact between Germany and the Austro-Hungarian Empire. Austrian and Russian interests clashed in the Balkans because both empires sought hegemony in this region. In August 1914 the hegemonic struggle in the Balkans turned into an all-European war.

As mentioned, Ratzel's writings were influenced by the characteristics of German foreign policy during the two decades before World War I. His thought in turn influenced German thinkers in the period following the war. His previous academic training in the natural sciences, together with Kant's philosophy and Darwin's theory of evolution, led Ratzel to regard the state as a living organism that draws its life sources from the relationship of the population to the land.[26] The state, as a living organism, had to grow to continue living. His descriptions of the state are like an anatomical description of the human body. The capital city, the center of the decision-making process, is the brain; the communication lines within the state and those connecting it to the outside world are the veins; the limbs are the defense system; and the raw material is the vital food for the existence of the body and its growth.[27] Therefore, the state also had to expand to gain access to raw materials and to protect itself to survive in the political realities of Europe. Ratzel's geopolitical laws focus on expanse (*raum*) and location (*loge*). Expanse is dependent on the political characteristics of the population living and acting within a certain area. The concept of Lebensraum was developed from the idea that the state as an organism aspires to grow.

Ratzel's ideas also extended to thinkers outside Germany. As noted, Kjellén (1864–1922) published an article in which he originated the

term *geopolitics*. He describes the borders of Sweden in relation to the dangers his country faced from the territorial expansion of Germany and its conversion into a European power. Kjellén claims that the German political process in combination with Ratzel's perception of the state as an organism had upset the European balance of power, especially after the victory of Germany over France. This imbalance, he says, constituted an enormous existential threat to the national security of the small and medium-sized states of Europe, such as Sweden. To thwart Germany, Kjellén proposes the creation of a bloc of states to encircle Germany and halt its expansion. This bloc would have to stretch from Scandinavia through the Baltic States, Eastern Europe, and the Balkan States.

Kjellén was strongly impressed by Ratzel's perception of the state as an organism.[28] He therefore considers the natural environment (i.e., geography) the framework for state activity. Kjellén also deems geopolitics as one of the five scientific perceptions for understanding the activities of a state in space and time, along with demography, economics, social politics, and power politics. All these give the state its vitality, like that of a living creature.[29] Consequently, regarding the network of international relations as an existential struggle among living organisms led Kjellén to the deterministic conclusions that power states in Europe could be created only through war.[30] The influence of Ratzel and Kjellén is encountered later in the discussion about German geopolitics between the two world wars.

The third thinker active at the beginning of the twentieth century and whose works remain relevant is British geographer Halford Mackinder (1861–1947). His writings during the first two decades of the twentieth century are directed towards finding a way to ensure the political and economic superiority of Britain. During those years, Britain had changed its foreign policy and began to create a system of treaties with various countries—especially the defense treaty with Japan (1902) that maintained British power in East Asia in face of the Russian threat.[31] Britain's political and economic power in this period still rested on its military superiority at sea. This supremacy began to erode, however, at the end of the nineteenth and beginning of the twentieth centuries. Accelerated construction of intercontinental railways made possible imperialistic expansion and the relaying of military forces across land routes without the need for naval power.[32] The Berlin-Baghdad line (1896) and the Trans-Siberian Railway (1905) were the two most important railway lines in this regard. The

railways played a key role in European diplomacy at the end of the nineteenth century.[33] Now Germany and Russia could threaten the British colonies in Asia by land without having to cope with the unchallenged superiority of the British navy.

Mackinder perceived the world as a large and uniform land bloc comprising the continents of Europe, Asia, and Africa. He calls this bloc the "world island," with a pivot area extending over the territory of Russia and connecting the two continents of Asia and Europe, or Eurasia. Thus, Mackinder regards the geographical superiority of Eurasia as the most significant threat to British world hegemony. Moreover, geography is based on the centrality of a certain place and on the efficient and free movement from one place to another of ideas, merchandise, and people.

In 1904 he formulated his theory about the centrality of the land bloc in Eurasia, warning that control over its core-center could be the basis for future world control.[34] This was because the railways had an advantage over sea transport in terms of time and accessibility.[35] The Eurasian powers, especially the German-Russian pact, could circumvent the sea powers if they obtained control over the central region. About a decade later, inspired by Mackinder, the British geographer James Fairgrieve (1870–1953) coined the term *heartland*. For him, the heartland was the area where Russia was located, and it had enormous geopolitical advantages thanks to its geographical location and the continued development of railways.[36]

In 1919, in his influential book *Democratic Ideals and Realities*, Mackinder uses the term *heartland* in reference to the great advances in land transport as well as the rapid population rise and accelerated industrialization of Eastern Europe from the Baltic Sea to the Black Sea.[37] In his view, Eastern Europe constituted the strategic appendage of Eurasia. This claim led to his famous assertion that whoever ruled Eastern Europe controlled the heartland, whoever controlled the heartland ruled the world island (Eurasia), and whoever ruled the world island ruled the world.[38] The message to the British politicians was clear. The key to world domination was in the middle of the archway between Germany and Russia, or Eastern Europe—a region accessible to both Germany and Russia. Russia, Germany, Britain, and France directed diplomatic measures between the two world wars to create alliances or gain control over Eastern European countries. Britain and France signed a defense pact with Poland, for instance,

countered by the Ribbentrop-Molotov Pact that divided control over Poland between Germany and the Soviet Union.

Mackinder's geopolitical perception derived from an examination of Western history and the changing relationships in the power balance between land and sea powers. According to him, Rome dominated the ancient world and was an outstanding land power since it wisely created a road system vital for the rapid transfer of its armies to the various parts of its immense empire. At the beginning of the modern era, when ships began to sail the Atlantic Ocean, the advantage went to the European sea powers. This domination lasted for about four centuries. But in the meantime, the accelerated construction of railways throughout the world returned control to the land powers.[39] Mackinder therefore preaches in favor of a union between Western Europe and North America. Such an "Atlantic Union" could restore the hegemony to the sea powers headed by Britain. This shows Mackinder to have been the first geopolitical thinker behind the North Atlantic Treaty Organization (NATO), established in 1949 with the aim of defending Western Europe from future attacks by a mighty land power—the Soviet Union.[40]

In 1943, at the height of World War II, Mackinder changed his perception of the heartland state as formulated by his previous research.[41] His description of the world map was now based on regional power centers, each with its own unique physical and human characteristics.[42] The heartland without Siberia remained the core area. The second area (Middle Area) was in effect a combination of Western Europe and North America. The third (Monsoonal Lands) included China and India as a new balancing unit in the world system. The fourth area that would become, in Mackinder's view, a vital and balancing one in international relations was the South Atlantic: South America and Africa to the south of the Sahara Desert.

Another region, the "Mantle of Vacancies," is a strip extending from the forests of the Amazon in the west through the Sahara Desert and the deserts of Central Asia until reaching Siberia. This barrier belt divides the main populated communities and, in Mackinder's opinion, will be used in the future as a location for producing solar energy as a substitute for dwindling energy resources. The narrowing of the heartland borders indicates that Mackinder was well aware of technological developments in the means of warfare during the course of World War II, especially the strategic bombers. As we shall see in the following chapter, these implements of warfare undermined

by their very capabilities the traditional dependence on the physical aspects of classical geography and thus also of the concept of geopolitics.

Mackinder and the heartland theory he formulated had an enormous effect on British politicians during the period in which he was writing his works. German and American thinkers also took note of his perception of a balance of power derived from the idea of the heartland. Mackinder's influence was certainly felt during the Cold War era and pervades still today. It may be said that the 1919 version of the heartland underpinned the United States' containment policy during the Cold War while the 1943 version influenced the conduct of its foreign policy after the Cold War.

Geopolitical Thought in the United States, 1890–1945

Mackinder's writings are based on the tension between states with land versus sea power. The importance of sea power in geopolitical thought and as a military means for the conduct of foreign policy is particularly found at the end of the fifteenth century. The states of Europe—with Spain and Portugal among the first—began to express their political power through their warships.[43]

From the beginning of the modern era, Europeans have competed among themselves for world domination. After the Seven Years' War (1756–63) it was Britain that became a superpower, mainly thanks to its naval abilities. During the last third of the nineteenth century, a new imperialistic race began among the veteran European powers—joined by new countries such as Germany, the United States, and Japan.[44] Against this broad image of world politics, an American naval officer, Alfred Thayer Mahan (1894–1914), tried to explain the significance of the relationship among military, political, and economic power. In his writings, Mahan describes the influence of naval power on history. Mahan was recognized not only for his ideas on naval strategy but also for his concepts regarding a nation's geopolitical and geostrategic positions derived from its control of the sea.

Mahan is the first to present naval history against the broad canvas of historical events and political and economic interrelationships within the framework of the hegemonic struggle among the powers during the modern era—especially the struggle over the control of the seas among the large trading powers such as Portugal, Spain, Holland, France, and England. Margaret Sprout claims that Mahan held exclu-

sive sway over the formation of naval theoretical thinking—demonstrated in the creation and design of the large war fleets of the world, including those of Britain, Germany, and Japan. His ideas also spread to the US Navy and the realm of senior politicians, who adopted his doctrines and turned them from theory into practice.[45] In examining the rise of Britain to the level of a superpower, Mahan asserts that whoever ruled the seas would be militarily dominant. He thus concludes that establishing control over the sea and creating superior power necessitated building large war fleets based on battleships.

Mahan formulates his conclusions in his book *The Influence of Sea Power upon History, 1660–1783* (1890), a classic establishing his credentials both as a leading naval theoretician and geopolitical thinker of his era. It was England's naval superiority, he surmises, that gave it security as well as preferential world status and economic wealth. Denial of these advantages to its main enemies, especially the France of Louis XIV and Napoleon, was made possible by Britain's successful sea blockade of France's seaports. Britain's economic wealth, derived from its control over sea trade, gave it the ability to support its allies on the Continent and thus to deny France land hegemony in Europe. Another contributor to Britain's position as a superpower was its control over important sea passages. Adm John Fisher, commander of the Royal British Navy (1904–10), claimed that British world domination was based on Britain's control of the five most important sea passages in the world: Singapore (Straits of Malacca), the Cape of Good Hope, the Suez Canal, Gibraltar, and Dover (the English Channel).[46] Here we find the link between control over key geostrategic points (physical) and naval military power that translates into economic and political power.

Mahan further defines elements or principles he views as the basis for the creation of a naval power.[47] Constituting the natural conditions for turning a state into a world power, they encompass a state's geography, topography, and social and political character. The main question Mahan asks is, What can turn a state into a world power? Was it its geographical situation, its social and national character, or perhaps its centralized regime? The answer to this question was central to understanding the processes the United States had to undergo to become a superpower and whether it fulfilled the necessary basic conditions. Mahan was able to answer this question only after he had examined the position of naval power in the course of European history.[48]

According to Mahan, the first element is a state's geographical situation. An island state, for instance, has a salient advantage since it has no land borders. This was an absolute advantage for England. Holland had to maintain a large army to respond to threats from the mainland. France split its military efforts between naval and land operations, as did Spain. The British Isles were exposed to sea invasion. This geostrategic circumstance allowed Britain to focus on the construction and strengthening of the naval forces both for the sake of defense and for imposing a sea blockade. In this way England established its control over the sea routes to northern Europe and, after the conquest of strategic points (Straits of Gibraltar), in the Mediterranean as well. Mahan also regards the United States as an island state. On its eastern and western sides are the Atlantic and Pacific Oceans, and in the south is the Gulf of Mexico. Canada was never a threat, and Mexico did not constitute a strategic threat.

The second element is the national character of a particular nation and whether it has the capabilities of dealing directly with sea enterprises. Mahan perceives the sea trade of a nation during peacetime as the measure of its strength to withstand naval warfare. Also, the possibility of developing sea trade and shipping constitutes the source for military and economic power.

The third element is the character of the government that, in Mahan's view, is the decisive factor in the creation of naval power. The government decides whether to set up naval bases overseas and in which places. This is because these measures can lead to military confrontation with a power either already in a region or with similar interests there.[49]

Mahan, like Mackinder, regards Eurasia as the main rival of the maritime world but, unlike him, asserts that the inability of the land bloc powers—Russia and Germany—to turn themselves into sea powers would not allow them to become world powers. In Mahan's assessment, movement by means of sea communication routes is militarily preferable to movement of conscripts over land. He also claims that world domination could be obtained by control over key geostrategic points, especially natural and artificial straits. This is congruent with the model that Britain presented. In this context, Mahan urges the digging of a canal that would connect the Atlantic with the Pacific Ocean. According to him, control over geostrategic points around Eurasia together with an Anglo-American pact would lead to

world domination of the Anglo-Saxon sea powers. There is no doubt that Mahan was also influenced by social Darwinism.[50]

Mahan regards the broad expanse of the Pacific Ocean as "our sea" in the same way that the Romans perceived the Mediterranean—as an area the United States must control for political, military, and economic reasons. He therefore supported the annexation of the Hawaiian Islands, Guam, and the Philippines, which became the forward bases for the United States. He also claimed American hegemony over the Caribbean Islands. Control of the Caribbean Sea would secure the eastern exit of the canal that would connect the two oceans. This canal would be a key strategic point for world domination.

Mahan's influence continued into the realm of senior decision makers in the governments of Presidents McKinley (1897–1901) and Roosevelt (1901–9). They led, in fact, to the end of American isolationism that had persisted since the declaration of the Monroe Doctrine (1823). Watershed events attributable to Mahan are the annexation of the Hawaiian Islands and Guam (1895) and the Spanish-American War (1898). At the end of this war, the United States achieved hegemony over the Caribbean region and an important foothold in South Asia (conquest of the Philippines). He also motivated the acquisition from France of the rights to dig the Panama Canal, and in 1904 the United States began this endeavor.[51]

Another American thinker, Isaiah Bowman (1878–1950), turned to the field of political geography in an attempt to explain the new world order resulting from World War I and Pres. Woodrow Wilson's conduct of foreign policy during the course of the war (Fourteen Points document) and afterwards (Versailles Conference). For him, the war was an extremely formative event, just as the fall of Rome was for Europe during the Middle Ages and as the American Declaration of Independence shaped the development of modern democracy.[52]

Bowman describes World War I as a series of murders, invasions, and German aspirations motivated by the desire to control production and transportation routes. His world was greatly influenced by the Fourteen Points plan of President Wilson that, in fact, attempted to shape a new world order by eliminating factors leading to the outbreak of the war. Bowman himself served, at the request of President Wilson, as the senior adviser to the American delegation that came to the peace talks in Versailles. He therefore highlights the empirical process that should be conducted on the network of international relations. It involves analysis of a state's borders, resources, and national

and ethnic minorities and how these factors influence the international system. The purpose of this process was to reduce the dangers of political disorder resulting from a lack of stability in the world system, as on the eve of World War I. In this Bowman resembles Mackinder, with both claiming that the political strength of a state derives from its physical location, control of transportation routes, and technological means of warfare.[53]

Bowman's perception regarding the new world order is based on giving greater attention to the interests of a sovereign state and the need to create a system of cooperation and coordination within the international system. However, Bowman did not regard the League of Nations organization as an instrument for international cooperation. He rather envisioned numerous organizations with various functions to advance the plans for cooperation that would reduce the causes for the outbreak of war on the scale of World War I.

There are many testimonies to the ability of Mahan, Bowman, and others to shape the foreign policies of American presidents before World War I.[54] Mahan and Bowman continued to influence the conduct of American foreign policy throughout the first half of the twentieth century and, in the case of Mahan, even during the period of the Cold War and beyond it towards the twenty-first century. Mahan's emphasis on naval power and the importance of control over geostrategic points underlies US military and political thinking since World War II. The discussion in the next chapter, which also concerns the impact of aircraft carriers, will show that although Mahan is still relevant, his doctrine has undergone adaptation to post–World War II political and strategic realities—especially the upheavals created by the termination of the Cold War.

German Geopolitics, 1919–41

German geopolitical thinking in the period subsequent to World War I emerged against the background of Germany's defeat in the war, its humiliation in the peace treaty signed at Versailles (May 1919), and—in terms of this research—its geopolitical degradation. Germany after the war was a pale shadow of imperial Germany. All of its colonies in Africa and in the western part of the Pacific Ocean were taken away, but the harshest territorial damage was in stripping off areas from Germany itself. Alsace and Lorraine were returned to

France, and significant border adjustments were made in favor of Belgium, Denmark, Poland, Latvia, and Czechoslovakia. In addition to this, the social and ethnic solidarity of the German people was severely injured by the detachment of parts of Germany and the creation of new states. The Treaty of Versailles forbade the union between Germany and Austria and also created a German minority in Czechoslovakia and Poland.

The most important German theoretician in the period between the two wars was Karl Haushofer (1869–1946), an army officer in World War I who later turned to the study of political geography. Haushofer was not an original theoretician, and his writings were based on the thought of Ratzel, Kjellén, and to a great extent also on those of Mackinder.[55] According to Haushofer, geopolitics is the ability to use geographical knowledge to provide support and direction for the conduct of the foreign policy of a state.[56]

The essential nature of German *geopolitik*, according to the Haushofer school of thought, was to consider the state as a growing and developing organism in territorial terms. The concept of Lebensraum became strongly identified with German geopolitics, and the significance and implications of this perception were total warfare. Three basic presuppositions, merged together and derived from each other, underlay German geopolitics in the period between the two world wars. The first was Ratzel's perception of the state as an organism. The second was Mackinder's perception of the island state. The third was Pan-Germanism. Therefore, the expansion of Germany westward, eastward, and southward was unavoidable and necessitated the conquest of Eastern Europe and the European parts of the Soviet Union. In the west, Germany had to conquer the powerful British navy.[57]

Haushofer's perception of Lebensraum is that a dynamic state demands room for expansion to continue developing politically, economically, and culturally. Lebensraum is based on territorial expansion to ensure state access to raw materials and markets. In German perceptions, it meant colonialism; according to this reasoning, the British Empire was the Lebensraum of the British people. For Haushofer, German Lebensraum should be directed towards Eastern Europe rather than the creation of an overseas empire, as during the period of the Second Reich.

Haushofer's main reason for expansionism there was that the colonies ruled by Germany in Africa and the Pacific Ocean at the end of the nineteenth century were not as rich as those of the other European

powers, particularly Britain and France. Another reason was the inability of Germany to protect its settlements and the associated lines of communication (as required by Mahan's principles) owing to the naval inferiority of Germany in comparison with the naval powers, mainly Britain and Japan.[58] Moreover, Haushofer and other German theoreticians claimed that Germany's attempts to regain its colonies or to take control over new colonies overseas would face strong opposition not only by European powers but also by the United States and Japan and that the profit would be small in relation to the price. According to German geopolitical thinking, Germany had to obtain its Lebensraum by expanding eastward from Poland to the Balkans and should even aspire to penetrate into the Middle East.[59]

Germany's intention of expanding eastward led Haushofer to develop a pan-regional perception. He divides the world among three powers. Germany would control the entire world island (Eurasia and Africa), in accordance with Mackinder's perception; the United States would control the American continent; and Japan would control Asia and Australia. Interestingly, this division was the basis for George Orwell's well-known book *1984*. At the beginning of the 1920s, Hitler wrote his book *Mein Kampf*, in which he lays out in spine-chilling clarity his political intentions and those of his National Socialist Party to take over the government. Considerable portions of this book are devoted to the concept of Lebensraum. Hitler views the question of relations with Russia as the most decisive issue in the conduct of German foreign policy. For him, the function of foreign policy is ensuring the existence of the nation-state by creating an appropriate relationship between the size and growth rate of a population and the scope and quality of its land area.

This accordance would be created only when the livelihood of the people was ensured. Lebensraum of a sufficient extent would secure the existence of a people, and estimating the requisite extent must be based not only on present needs but also on planning for the future. Lebensraum served two additional purposes. The first was the aspiration of Germany to gain the borders that would include all German nationals—the concept of a "Greater Germany" (*Grossdeutschland*). The second was the creation of defensive borders from the geographical and military viewpoint and freedom from the feeling of encirclement by the East and the West. Hitler claimed that foreign policy before World War I was faulty since it focused on territorial expansion towards Western Europe and that if Germany wanted to be a world power and

ensure the welfare of its citizens, it should turn eastward. The idea of "blood and earth" (*Blut und Boden*) was intended for the sake of obtaining living space for the future, and these new areas could only be found in Eastern Europe and in Russia. Control over these areas would secure the eastern border of Germany, ensuring a large and permanent supply of food and raw materials as well as areas for the settlement of the German population.

After World War II, Haushofer was accused of providing the theoretical basis for Hitler's expansionist aspirations from the time of his rise until the German invasion of the Soviet Union in June 1941. Although undoubtedly familiar with Haushofer's prolific writings, important ideologues of the Nazi Party—such as Rudolf Hess and Hermann Göring—do not mention these in their own writings and speeches.[60] H. A. Jacobsen claims that it was Haushofer who gave the concept of geopolitics the criminal aspect Nazi Germany adopted in carrying out war crimes and crimes against humanity. The Lebensraum perception was not an academic theory but a dynamic plan to conquer the heartland of Eurasia and to dominate the entire world. Jacobsen adds that although Hitler symbolizes Nazi crimes in World War II, Haushofer was the intellectual force behind these crimes.[61]

German geopolitical writing, whose influence extended to Japan and Italy, can be defined as ideological geopolitics. This is because geopolitics provided the philosophical basis for Fascist imperialism that began to appear during the 1930s and continued until the end of 1941. The German perception of Lebensraum, the Japanese "southern resource area," and the Italian concept of "our sea" (mare nostrum) all derive from the ideological thought of Haushofer.[62] This view of ideological geopolitics would continue even during the Cold War, which should be primarily defined as an ideological struggle from which political, economic, and military conflicts emerged.[63]

Geopolitical theories developed during the first two decades of the twentieth century also suffused American thought. Generally speaking, American geopolitical thinkers embraced European theories in the late 1930s and first half of the 1940s. Much attention was given to the dichotomous relationship between British naval power that encompassed Eurasia (with the United States as the possible heir of this power) and Soviet land power that controlled Eurasia itself.[64]

During World War II, Nicholas Spykman (1894–1943)—a researcher in American international relations—published a study examining the place of the United States in the new world order that would be created

after the war. Spykman stresses the study of geography in its political context, viewing it as the most basic factor in the conduct of foreign policy by virtue of being fixed and unalterable.[65] His geopolitical and geostrategic ideas combine Mackinder's dimensions of land and sea with the evolving dimension of airspace. A state's foreign policy would therefore necessarily be influenced not just by neighboring states but by those far away. Spykman's study also reflects Mahan's views, particularly naval mobility's effect in developing a new geopolitical structure based on overseas empires.

Spykman divides the world according to Mackinder's model but claims that naval powers—particularly those of the United States—would eventually defeat the heartland surrounded by the sea world (the rimland).[66] Whoever controls the sea world would therefore control Eurasia and thus the entire world. This declaration made Spykman the "godfather" of the barrier states that enveloped the Soviet Union and that constituted the exclusive operational mechanism of the United States during the Cold War period. Also, in examining the geopolitics that would exist after World War II, Spykman foretells processes that occurred many years after his death.

One of his prescient claims was that the events in Eurasia would directly influence US national security. In great detail he asserted that the United States should aspire to the reestablishment of a strong Germany; only in this way could Communist expansion westward be blocked. He also foresaw Chinese-Russian rivalry over the question of borders—as indeed occurred in the 1960s—and the conversion of China into the main Asiatic power. Thus, the United States would have to concern itself with the defense of Japan.

During the first half of the twentieth century, Europe underwent two wars that drastically changed the existing world order and led to a decline of the political, economic, and military power of various European states—primarily Britain and France. After World War II, the center of world geopolitics transferred outside of Europe. For over four decades, it lay with the United States and the Soviet Union. The system of relations between these two powers—the Cold War—molded geopolitics. The revolutionary shift in the global balance of power also led to changes in the characteristics of geostrategy. These are discussed next.

Notes

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

1. Rather than examine all thinkers and schools of thought in the field of geopolitics, this study focuses on its founding fathers—those who contributed significantly to the understanding of major twentieth-century events or whose ideas far outlived their propagators.
2. Cohen, *Geopolitics of the World System*, 12.
3. Jones, Jones, and Woods, *Introduction to Political Geography*, 2–4; and Cohen, *Geopolitics of the World System*, 11.
4. Wright, *Study of International Relations*, 339–40.
5. Parker, *Western Geopolitical Thought*, 2; and Flint, "Changing Times, Changing Scales," 26.
6. Braden and Shelley, *Engaging Geopolitics*, 20.
7. Ray, *Global Politics*, 168–96.
8. For the development and characteristics of the sovereign state, see Jones, Jones, and Woods, *Introduction to Political Geography*, 21–37.
9. Retaillé, "Geopolitics in History," 35.
10. Martin, *All Possible Worlds*, 19, 21–23.
11. Kristof, "Origins and Evolution of Geopolitics," 17.
12. Strausz-Hupé, *Geopolitics*, 13.
13. Palmer, "Frederick the Great, Guibert, Bülow," 115.
14. Strausz-Hupé, *Geopolitics*, 16–18; and Gat, *History of Military Thought*, 85.
15. See also Burbach and Tarbell, *Imperial Overstretch*, 12–13, 20.
16. Parker, *Western Geopolitical Thought*, 3.
17. The Treaty of Tordesillas (1494) can be seen as the first agreement in which a European authority (the papacy) divided the world between Spain and Portugal.
18. For a review of political settlements by European powers from the conclusion of the Napoleonic Wars until the end of the nineteenth century, see Blanning, *Nineteenth Century*, 39–45.
19. Concerning the influence of imperialism on turn-of-the-century European politics, see ibid., 188–200. Historical research considers the imperialistic race as one of the causes of World War I.
20. Marriman, *History of Modern Europe*, 985–87; and Thomson, "Social and Political Thought," 105–9.
21. Parker, *Western Geopolitical Thought*, 11.
22. Smith, *Ideological Origins of Nazi Imperialism*, 146–50.
23. On the nature and significance of weltpolitik in turn-of-the-century international relations, see Bartlett, *Global Conflict*, 30–33.
24. Differences of opinion regarding foreign policy led Wilhelm II to dismiss Bismarck (1890), in effect marking the beginning of an aggressive German foreign policy.
25. Marriman, *History of Modern Europe*, 1016.
26. Martin, *All Possible Worlds*, 167–68; and Parker, *Western Geopolitical Thought*, 12.

27. Parker, *Western Geopolitical Thought*, 12.
28. Ibid.
29. Holdar, "Ideal State and the Power of Geography," 311.
30. Parker, *Western Geopolitical Thought*, 55–56.
31. Venier, "Diplomatic Context," 58–62.
32. Black, *British Seaborne Empire*, 261; and Braden and Shelley, *Engaging Geopolitics*, 13.
33. Renouvin and Duroselle, *Introduction to the History of International Relations*, 72.
34. Mackinder, "Geographical Pivot of History," 421–37.
35. Ibid., 434, 436.
36. Fairgrieve, *Geography and World Power*, 328.
37. Reference will be made here to the edition published in 1962.
38. Mackinder, *Democratic Ideals and Realities*, 150.
39. Painter, *Politics, Geography and "Political Geography,"* 139.
40. Ibid.
41. Mackinder, "Round World," 595–605.
42. For a cartographical description of Mackinder's changes in the heartland, see Cohen, *Geopolitics of the World System*, 18. For a discussion of the theoretical significance of the three versions, see Sloan, *Geopolitics in United States Strategic Policy*, 14–15.
43. Cable, *Political Influence of Naval Force*, 2–4.
44. Benns, *Europe 1870–1914*, 13–24; and Joll, *Europe since 1870*, 78–112.
45. Sprout, "Mahan: Evangelist of Sea Power," 415. For a discussion of Mahan's military thinking and a critical evaluation of his influence, see Crowl, "Alfred Thayer Mahan: The Naval Historian," 444–77.
46. Till, *Maritime Strategy and the Nuclear Age*, 83.
47. Mahan, *Influence of Sea Power upon History*, 29–82; and Sumida, "Alfred Thayer Mahan, Geopolitician," 49–53.
48. Reynolds, *History and the Sea*, 69.
49. Mahan, *Influence of Sea Power upon History*, 62–64.
50. Kearns, "Imperial Geopolitics," 175–76.
51. On American foreign policy at the end of the nineteenth century, see Pratt, *History of United States Foreign Policy*, 200–6.
52. Cohen, *Geopolitics of the World System*, 19–20.
53. Sloan, *Geopolitics in United States Strategic Policy*, 111–12.
54. Ibid., 209–10.
55. Murphy, *Heroic Earth*, 5; and Martin, *All Possible World*s, 184.
56. Tuathail, Dalby, and Routledge, *Geopolitics Reader*, 33–34.
57. Smith, *Ideological Origins of Nazi Imperialism*, 218–23.
58. In World War I, Japan easily conquered German colonies in the western Pacific. Germany's failure to reinforce its forces in East Africa against the British led to the loss of its colonies there.
59. Cohen, *Geopolitics of the World System*, 21–22.
60. Murphy, *Heroic Earth*, 106. Haushofer penned over 500 academic, popular, and newspaper articles and was also interviewed on German radio shows (ibid.).
61. Quoted in Natter, "Geopolitics in Germany, 1919–45," 187. See also Herwig, "*Geopolitik*: Haushofer, Hitler and Lebensraum," 231–36.

62. Concerning the influence of Fascist ideology on 1930s Italian imperialism advocating the establishment of a new Roman Empire, see Macartney and Cremona, *Italy's Foreign and Colonial Policy*, 301–2; and Parker, *Western Geopolitical Thought*, 76.
63. In this connection, see Agnew, *Geopolitics*, 102–13.
64. Parker, *Western Geopolitical Thought*, 107.
65. Sloan, *Geopolitics in United States Strategic Policy*, 64.
66. Cohen, *Geopolitics of the World System*, 22.

Chapter 2

Theoretical and Historical Framework

Strategy and Geography

The term *strategy* originates from the Greek form *strategus*, translated as the commander or leader of an army, a general. Antoine Henri Jomini, the most important theorist following the Napoleonic Wars, defines *strategy* as the art of bringing military forces to the battlefield. In this context, he also relates it to geography.[1] He views the purpose of military operations as conquering and holding vital geographical points that can support an attack or defense (depending on an army's mission), thus providing advantages that will bring a victorious end to the war. Jomini is considered the principal commentator on the Napoleonic Wars, and his preeminent text *Précis de l'art de la guerre* (*The Art of War*) from 1815 is in fact an attempt to explain Napoleon's successes by creating universal principles of war.[2] Consequently, his definition of *strategy* stems from the analysis of the Napoleonic Wars. One aspect of Napoleon's military genius is his concentration of military formations—dispersed throughout Europe—in preparation for decisive battles such as Ulm and Austerlitz (1805) and Jena and Auerstädt (1806).[3]

Carl von Clausewitz, the most influential theorist of Western history on the essence of war, argues in his 1832 book *Vom Kriege* (*On War*) that *strategy* is the doctrine of regarding battles as the objectives of war.[4] This definition points to the direct connection between the tactical and strategic levels and their effect on one another. From Clausewitz's definition, strategy appears to shape the war plan and the military resources necessary to reach success.[5]

Based on the perspectives of these prominent theorists, one can argue that strategy is reduced to war management alone and is directly connected with tactics, or the series of battles that comprise the war. However, these long-standing definitions don't differentiate between strategy and policy, and strategic achievements are measured in political terms. Moreover, in some situations, the strategic and tactical levels may not be equivalent in their military characteristics. For

example, strategy may be offensive and tactics defensive or vice versa, but any combination of the two is possible.

Strategy is currently defined within the general framework of levels of strategy from the political to the techno-tactic levels. The definition has expanded and no longer applies only to the battlefield (tactical level) and the war arena (campaign/operational level). The reduction of the meaning of strategy to operational activities alone was clearly antiquated by the end of the twentieth century. Its modern definition takes a broader perspective encompassing influence on security policy and preparation for war. The 2001 edition of Joint Publication (JP) 1-02, *Department of Defense [DOD] Dictionary of Military and Associated Terms*, distinguishes three types of strategy: strategy, national strategy, and military strategy. *Strategy* is the art and science of developing and operating all national power forces to achieve war-zone-level, national, and/or multinational goals.[6] In its American definition, strategy is certainly not only the military aspect of using force but also the operation of all the means of power of a nation. These include its geographic conditions and diplomatic, economic, human, and military power.

National strategy (also called *national security strategy* or *grand strategy*) is the exertion of a nation's power to achieve its objectives.[7] Therefore, while JP 1-02 refers to strategy in terms of the achievement of national goals, national strategy emphasizes the use of a nation's power to ensure their attainment. Strategy thus relates to a time of war while national strategy is practiced in times of peace and preparation for war. JP 1-02's definition of *military strategy* is close to the quintessential definitions of *strategy*: the art and science of using a nation's military forces to achieve the goals of its national policy through the use of force or the threat of using it.[8] This study primarily uses the term *military strategy*, which basically explains how to manage war and achieve victory over military forces.

Another theoretical framework in this study is geography, which, combined with strategy, created a new discipline—geostrategy. While geography is viewed as one of the foundations of national power, this study focuses on its classic connection with warfare. The understanding of this link helps to put into perspective the paradigm shift in American military thought in the late twentieth and early twenty-first centuries. From the dawn of military history, geographical conditions have been critical in the planning of military campaigns.[9] Military campaign planning considers not only the operation of military forces in a given theater but also logistics, communications, and

medical concerns. Geographical conditions are therefore within the responsibility of staff officers and of the military command.[10] Ignoring geography or the incorrect analysis of geography has often led to military disasters.

Well-known examples are the entanglement of France (Napoleon) and Germany (Hitler) in the war campaigns against Russia. Another example is the Sino-Indian War (1962), fought at high altitudes, sometimes over 5,000 meters. Chinese soldiers, arriving in the region several weeks before the battles, adapted themselves to the harsh physical conditions. Indian soldiers were hastily brought in, degrading their combat capabilities and eventually leading to India's defeat in the conflict.[11] Attributes such as distance, weather conditions, desert terrain, jungles, or urban scenarios have many times determined, to a large extent, the outcome of battle. Geography affects war management on all levels of warfare. In fact, military strategy considers the conditions and capabilities of a country when it intends to execute a military campaign. Other concerns include force factors such as economic strength, absorption capacity, national strength, and international conditions.

Geographical conditions are the preliminary reference in campaign planning. In the past, armies have used the wintertime for advancing over frozen lakes and rivers and spring and summer for finding food for soldiers and horses. Simplistically stated, environmental conditions are central to forming a war doctrine. Establishing a jungle warfare doctrine is impossible without a grasp of the area's physical character and the associated problems engendered. The same is true for desert warfare and fighting in mountainous or urban terrains. American field manuals dealing with war in various geographical environments always start by explaining unique geographical phenomena.

Geographical conditions are key in projecting military strength. During the Cold War between the USSR and the United States, the distance between the two superpowers significantly affected strategy. The Soviet Union had to find bases that would bring it closer to the United States. The attack ranges of American forces against the Soviet Union were short due to US Army presence in West Germany and Turkey and US naval power. Another implication of geography is the national security of a country. A country with natural borders holds an advantage over a country with no such borders. The fact that tsarist Russia, and the Soviet Union that replaced it, had no natural boundaries in the west and the south clearly underlay Russian foreign policy throughout history.[12] On the other hand, Russia's enormous

size prevented the armies of France and Germany from conquering it. Smaller countries cannot "sell" land in exchange for organization time for defense and offense. One of Israel's primary defense principles is moving the war as soon as possible into enemy territory—as early as the onset of battle. This principle is the basis of the Israel Defense Forces' (IDF) offensive strategy.

Louis Peltier and G. Etzel Pearcy recognize six factors that undergird the confluence of geography with strategy. They are central to strategic thought and influence—in different degrees—land, naval, and aerial warfare:

- Accessibility: evaluation of the ability to select routes of advance from bases or origin bases to the destination.
- Mobility: the total transport capacity over selected routes. This principle includes the speed of advancement, the effect of the seasons of the year, and the existence of roads and facilities that may expedite advancement. Mobility depends not only on the direction of movement but also on what is to be moved and the organization of movement.
- Visibility: the total forward sight capabilities that depend on terrain and climate conditions as well as human activities such as camouflage, smoke screens, and all other visual means of concealment. Visibility affects movement, target recognition, and creation of fields of fire (direct or indirect).
- Communicability: the possibility of broadcasting and receiving information through electronic means. Here, too, geographical conditions such as topography and weather intervene as they may improve or disturb electronic communications from a variety of devices.
- Availability: the presence of manpower and weapons at the right place, the right time, and in the right quantities. This factor can be translated into logistic capabilities, which are completely dependent on the distances from the place of production or manpower origin point to the war field. In addition to distance, terrain and weather conditions are other aspects. Human geography—the use of geography by enemy forces to disrupt point-to-point logistics—is also considered. Supply route vulnerability increases with distance.

- Vulnerability: the military's ability to hurt the enemy and, vice versa, the enemy's ability to hurt the military. This principle embodies all of the five previous principles.[13]

These principles are in fact the classical paradigm linking war planning and strategy, meaning that the planning and management of war are completely dependent upon geography. The side that secures geostrategic advantages is the one that will win. Before we examine the paradigm shift process in its geostrategic context, we shall discuss revolutionary processes in military history, first theoretically and then through test cases.

Military Revolution in History

To appreciate how weapons, combat doctrines, and technologies since World War II have changed the classical paradigm, we first examine the theoretical facet of the term *revolution in military affairs* (RMA). The theoretical discussion is supported with an examination of the historiography argument on the gunpowder revolution in European battlefields in early modern times.

Numerous RMAs have occurred throughout history, with far-reaching implications for human society: the inventions of the saddle and gunpowder, mass recruitment, armored campaigns in World War II, and nuclear arms. One does not need to be a historian to understand the repercussions of the gunpowder revolution, for example. The question then is what can be learned from those revolutions to optimally integrate technological developments in any future doctrine. It should be noted that because hundreds of years can pass between dramatic military innovations, some researchers prefer to use the term *evolutions* versus *revolutions*.

The Hundred Years' War (1337–1457) saw a gradual rise in the superiority of infantry carrying long-range weapons over cavalry when, in several important battles, the English bowmen were victorious over heavy French cavalry.[14] France indeed won the war, but the Hundred Years' War marked the beginning of the end of the cavalry class that had dominated European warfare for approximately a thousand years.[15] The rise in the strength of infantry armed with long-range weapons based on gunpowder led to the expansion of armies. Because only a central government could fund and equip large armies, they became centered on the king. This phenomenon had the

radical effects of dismantling the feudal system and beginning the move towards absolutism.

The introduction of the cannon changed the building of fortifications. These expensive emplacements required a great deal of funding, creating a new economic system based on a monetary economy. Villages thus gave way to the urban middle class and the city. Gunpowder also produced a rise in European power, expediting global changes. From the early sixteenth century, Europe began dominating most of the world. This remains true—in one way or the other—to this day and certainly up to World War II. Clearly this revolution did not occur overnight or in the lifetime of a person of that period. It can be generally said that the revolution began in the late fifteenth century and reached its peak in the mid-seventeenth century.

Historiographical discussion on the gunpowder revolution can instruct us on the great problems involved in setting up an agreed-upon mechanism for finding the revolution-initiating process. Its relevance to ongoing processes in the US military is demonstrated in the frequency with which the topic appears in reviews of the military revolution of the late twentieth and early twenty-first centuries. The modern historiographical argument also shows that hindsight does not assist historians, especially when we wish to examine whether processes that can bring about a revolution are occurring in this very age.

At the center of the argument is the technological-tactical aspect of the gunpowder revolution, meaning the question of what weapons and combat tactics initiated the revolution. This matter also emphasizes the difficulty in determining when the military revolution of the early modern age actually began.[16] The gunpowder revolution had worldwide implications. All revolutions following it, such as the mass conscription revolution that led to the totality of war, resulted from it.

The first to propose the gunpowder revolution as a military revolution was Michael Roberts. He argues that in the sixteenth and early seventeenth centuries, four characteristics of warfare emerged that differentiate the new warfare from the tactics of the Middle Ages: (1) the superiority of infantry armed with muskets over cavalry and infantry armed with spears; (2) a significant increase in the size of armies, especially in infantry units armed with muskets; (3) the search for the decisive battle; and (4) a rising need in military bureaucracy to deal with logistics.[17] Roberts recognizes these trends in the reforms made by King Gustavus Adolphus of Sweden during the Thirty Years' War (1618–48).[18] The sources of Swedish reforms are found in the

tactical changes of Maurice of Nassau during the Revolt of the Netherlands (1567–1648).[19]

One of Roberts's primary critics, Geoffrey Parker, claims that while these four changes indicate a military revolution, they had already begun in the Italian wars at the end of the fifteenth century rather than in the sixteenth century. Parker further recognizes revolutionary technological and tactical changes—the most important of which are siege warfare—that rendered the medieval castle obsolete and led to the creation of a new "star fort" fortification system (*trace italienne*).[20] The introduction of artillery to the battlefield was the impetus for these reforms.[21] Another development, according to Parker, was in the field of naval warfare, with an increase in tonnage because the ships were being armed with cannons.[22] The revolution in naval warfare, which led to a tactical naval revolution, became a global political revolution that resulted in the emergence of European colonialism. Roberts limits the revolution to Europe, while Parker determines that the military revolution in Europe led to a global political revolution and brought about an extreme shift in the global balance of power.

Another historian in this milieu, Jeremy Black, claims that a techno-tactical revolution led—at the end of the process—to an overall military revolution. This revolution began with the development of the bayonet, combining the functions of the gun and spear. The infantry was now more independent and did not need the protection of the cavalry. Other transformations generated in this progression included the formation of larger armies; the elimination of the feudal system; and, at the end of the seventeenth and early eighteenth centuries, the founding of the national countries of France, Austria, Russia, Prussia, and Britain. In the geopolitical framework, the establishment of these countries created the modern European conflict.[23]

As opposed to those who date the military revolution to the end of the sixteenth century or later, Clifford Rogers asserts that military revolutions were already evident in the fourteenth century in the Hundred Years' War. The first of these—the infantry revolution—was based on the performance of English archers armed with longbows over French heavy cavalry and the achievements of the Swiss infantry. The second—the artillery revolution—occurred in the first half of the fifteenth century. The third—the fortification revolution—began in the 1520s.[24] Thus, with Rogers's thesis at one chronological extreme and Black's on the other, the military revolution stretches from the mid-fourteenth century up to the mid-seventeenth century—a span

of approximately 300 years. It seems, therefore, that we are looking at a gradual development versus a revolution.

Unlike those claiming that techno-tactical changes were the basis of the revolution, Thomas Arnold states that the military revolution is related to a revolution on a higher level, that of strategy, which was to block the Turks and to overcome them militarily.[25] Until the 1530s, the Ottoman Empire threatened southeast Europe and Italy. In 1529 the Turks even laid siege to Vienna. Yet within less than one generation, Europe—particularly the Spanish empire—overcame the Turks thanks to Spanish superiority in the fields of artillery and field fortification (technological and engineering superiority).

This in fact supports Roberts's premise: European military technological superiority changed the global political order and turned the European superpowers—especially Spain, France, and Britain—into the sovereigns of extensive parts of the world, areas that did not embrace European methods of warfare.[26] The revolution was not merely technological but tactical-technological, meaning that new war tactics based on the new technologies were developed and implemented in it.[27] This wealth of historical approaches leads to a fascinating historiographical discussion that may never be decided, proving how difficult these issues are to define.

After looking at the mechanisms and theoretical nature of a military revolution, we should look more closely at the military revolutions during and after World War II. Such an examination will indicate revolutionary shifts with regard to the fundamental principles of the classic paradigm and in relation to the principles of geostrategy.

The First Cracks: The Development of Airpower

The beginning of this paradigm shift is found in the theories written after World War I on the use of airpower, particularly Douhet's *Il dominio dell'aria* (*Command of the Air*) in 1921.[28] His theory is based on two premises. The first is that the air force creates a completely new conception of war in which the air force is independent of geography and the limitations of the airplane are the range of flight and the enemy's possible resistance, thus turning the airplane into a clear assault weapon.[29]

His second premise is that the enemy's industrial and civilian centers—not his military forces—should be bombed from the air. These

bombings of the enemy will produce a drop in civilian morale and hold up its industrial production. According to Douhet, the aerial force has to be given strategic bombing missions and should not be used for tactical missions such as close air support (CAS) for army forces.[30] Douhet even supported turning the air force into an independent military service.[31] Moreover, he determined that the air force decides the battle and that the army and naval forces should wage a defensive battle for only as long as it was necessary for the air force to achieve victory.

Many of Douhet's principles have been proven incorrect.[32] His advocacy for using a single-purpose airplane—the bomber—was of course not implemented by the militaries in World War II, and to this day we find different aircraft with different mission designations. But his doctrine opened a discussion on whether aerial force can indeed decide a war by itself.[33] This discussion, which began as early as World War II when the Allies attempted to achieve victory over the Axis powers by using airpower, is yet to be decided.[34]

Before the landing in Normandy (Operation Overlord) in June 1944, the air force was the only means the UK and United States had in the direct war against Germany in Europe. Allied bombings were focused, as in Douhet's doctrine, on Germany's civilian centers and industrial concerns. Many studies have attempted to determine whether the campaign of strategic bombings against Germany caused its defeat. Some claim that it subdued Germany so that land forces had only to march in and engage in field combats that were not particularly difficult, especially in the western front, to achieve Germany's final defeat. Others argue that the bombings did not subdue the country's population, that the levels of industrial production for its army were hardly affected, and that if they were affected, then the industrial centers were quickly restored. Those making this argument claim that Germany surrendered only after the Allied forces met the Soviet military in the heart of Germany.[35]

In the case of Japan, the argument is not as strong. Between December 1944 and July 1945, the American 21st Bombardment Wing destroyed most of Japan's major cities. Approximately 40 percent of the built-up area was destroyed, and steel production and oil refinement were down to 15 percent.[36] At the heart of the historiographical discussion is the question of whether there was military justification for the dropping of two atom bombs on Japan.[37] My argument is that the atomic weapons developed at the end of World War II should be

regarded as conventional weapons since only after the war did military theories emerge that considered nuclear arms as nonconventional weapons. In other words, the atomic bombs dropped on Hiroshima and Nagasaki were the final chord of World War II, not the opening shot of the Cold War. This view leads us to conclude that the almost utter destruction of Japan's cities from the air led to the surrender of Japan, rendering unnecessary an American invasion that would have been even greater than that in northern France and entailed large-scale casualties.[38]

In sum, despite the disagreement of researchers on the efficiency of the strategic bombing campaign, it was one of the decisive elements in the Allied victory in World War II. On second thought, the very discussion is irrelevant as once a war is waged with interservice cooperation, no one service is preferable to the others, and victory should be achieved with all of the country's forces together. It is true that sometimes one service is more dominant, but this does not lead to complete victory. This is true for all conventional confrontation. The strategic discussion during World War II and the subsequent academic-military dialogue present us with the first cracks in the classic paradigm. That is, the air force—independent of geostrategic concepts—can affect the war, with some saying it can even decide it.

In any case, in many of the wars after 1945, the air force was of crucial importance.[39] Its proponents say that air force activities were many times so crucial that the army campaign was secondary. In their opinions, Douhet's doctrine has been proven correct and relevant even in the late twentieth and early twenty-first centuries. There is no doubt that the air force played a pivotal role in air campaigns such as Operation Desert Storm (1991), Operation Allied Force (Yugoslavia, 1999), and Operation Enduring Freedom (2001) (fig. 1). Advocates of using army maneuvers have difficulty in contradicting these claims. A less well-known example is the use of the US Air Force towards the end of the Vietnam War. This bombing campaign was called the Christmas Bombing (December 1972), but the operation's official name was Linebacker II. A review of that case can support proponents of airpower as well as the claim that its use at the strategic level can achieve results at the political level.

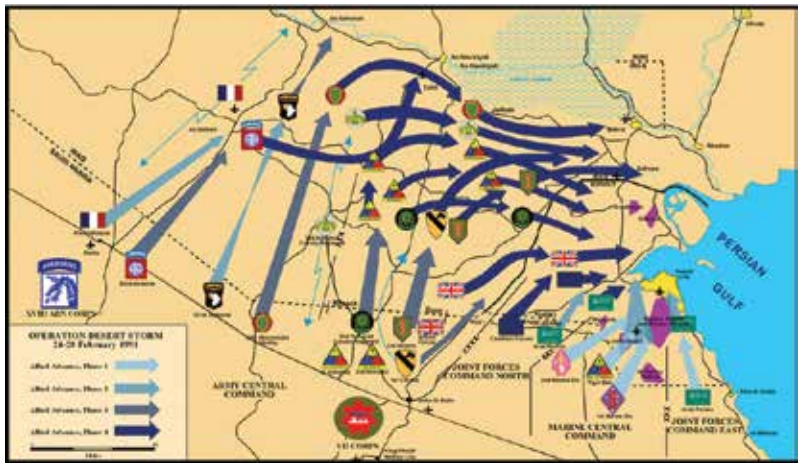


Figure 1. Desert Storm ground offensive summary. (Courtesy of the Office of the Secretary of Defense, Gulflink, Force Health Protection and Readiness Policy and Programs, http://www.gulflink.osd.mil.)

In October 1972, a peace treaty was almost achieved in Vietnam. But on 13 December, the North Vietnamese government set new conditions, and its representatives walked out on the negotiations in Paris. President Nixon sent an ultimatum to Hanoi demanding that the negotiations be renewed within 72 hours. North Vietnam refused, and so the American government used massive airpower to achieve a political solution to the war. Between 18 and 29 December 1972, American bombers worked intensively—both day and night—destroying the North Vietnamese air raid defense systems and strategic and economic targets. In over 3,000 sorties, approximately 20,000 tons of bombs were dropped.[40]

The economic, industrial, and military systems of North Vietnam were demolished, and, in fact, no quality military targets were left for attack in the country.[41] The fear that the United States would also bomb civilian targets and the system of dams on the Red River caused North Vietnam to cancel its conditions for the renewing of the negotiations, and on 23 January 1973, the peace agreement was signed. Although we do not know the decision-making process in the North Vietnamese politburo during the Christmas Bombing, some analysts are certain that Operation Linebacker II was an important catalyst and one of the primary factors in renewing negotiations and in the signing of the peace agreement.[42]

The question regarding the influence of the operation will remain open until access to Vietnam's archives is granted, but champions of aerial force cite this example as emphasizing air force capabilities in deciding the war. Despite the historical discussion, the proximity of the events should not be overlooked. Linebacker II is a test case teaching us that massive use of airpower against strategic targets can achieve goals set at the political level.[43] Either way, the increased use of airpower since the end of the twentieth century undeniably undermines classical geostrategy dealing mainly with army maneuvers limited to the physical means of communication. The historical and current discussion on the sole decisive ability of air forces in war will continue to fascinate researchers, but on the battlefield, new operational procedures are already in place. Air forces are not limited only to the use of various combat airplanes. Two more operative conceptions supporting the premise that we face a paradigm shift are derived from the air force—namely the development of vertical flanking and the effect of the air force on logistics.

The Vertical Flank: A New Operational Paradigm

World War II presents another military aspect that contradicts the classic paradigm. In the 1930s the concepts of airborne forces and vertical flanking were beginning to be developed. *Vertical flanking* is a flanking or seizing of enemy systems and land forces by paratroopers or airborne ground forces behind enemy lines.[44] It differs from land or naval flanking in that considerable enemy forces are found between airborne and main ground forces. A vertical flanking can be either tactical or strategic according to the types of objectives set and the effects achieved.

The Soviets were the first to develop these types of forces, but it was the Germans who first used paratroopers in a military operation.[45] German strategic successes—particularly in the conquest of Crete (May 1941)—led the British and especially the Americans to invest great efforts into creating their own airborne units. A significant development in the concept of airborne forces occurred in the Vietnam War with the unprecedented use of helicopters. This was perhaps the most characteristic feature of the American war effort in the conflict and the reason why this war is sometimes called the "helicopter war." The massive, intensive use of different types of helicopters enabled American ground forces to overcome the difficulties presented

by Vietnam's harsh topography. This was the tactic behind the use of the war of attrition, the main characteristic of which was the "search and destroy" operations. Army and Marine units combed the jungles looking for the enemy. Once the enemy was found, additional forces were flown in as reinforcement for the combat unit to flank the enemy and block its escape routes.

To reinforce my argument that airborne forces—meaning the vertical flanking concept—contributed to the undermining of the classic geostrategic paradigm, I examine three historical test cases focusing on the strategic importance of the operation's objectives. The first is Operation Mercury—the German conquest of Crete (May 1941); the second, Operation Neptune—the airborne phase of the Normandy invasion (June 1944); and the third, Operation Market Garden—the largest air operation up to that time (September 1944).

In the spring of 1941, Germany waged an offensive against the Balkan states, with most of the effort directed at Yugoslavia and Greece. Its mission was to dominate the central and eastern Mediterranean region after Italy's failure to do the same. Dominance of the Mediterranean was crucial to continuing the North African campaign. By the end of April 1941, Germany had seized the Balkan region, but the most crucial strategic target for controlling the central Mediterranean was the island of Crete. For the UK, this island was more important than mainland Greece as the bases established on it enabled the Royal Air Force to attack Romania's oil fields.[46] Naturally, with the fall of Greece, the importance of the island rose. Germany also recognized the strategic importance of Crete, and the resultant threat, and began preparing for the conquest of the island. The initial plan, prepared in the winter of 1941, determined that forces would be parachuted in to overtake the airports in Crete and an amphibious landing would be the main attack.[47]

However, the destruction of most of the Italian fleet and the control of the Royal Navy over that part of the Mediterranean led the German planning team to place full responsibility for the mission on the parachute and airborne forces.[48] The final plan was simple but bold: seize the three airports in Crete using three types of airborne forces (fig. 2). In the first stage, paratroopers and infantry flown in with gliders would capture control of the airports. Once control was achieved and secured, transport planes would land infantry soldiers to reinforce the bridgeheads.[49]

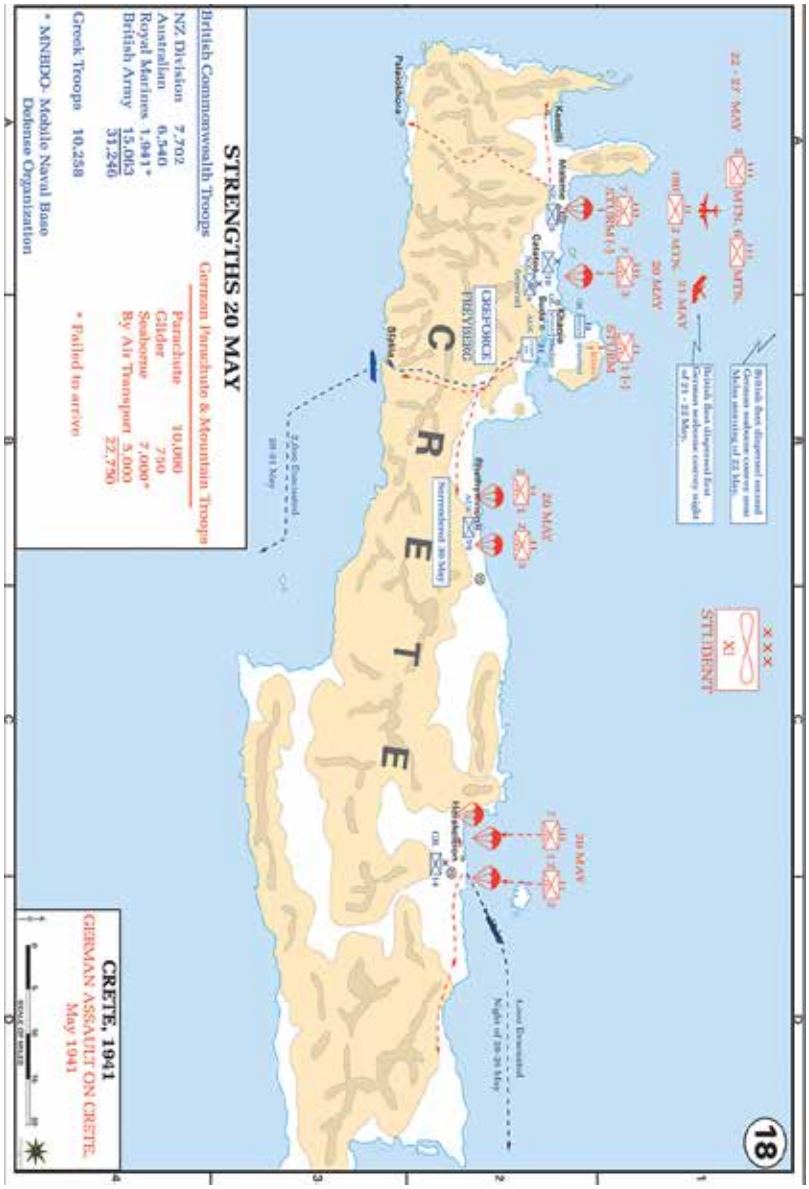


Figure 2. German assault on Crete, May 1941. (Courtesy of the Department of History, United States Military Academy at West Point.)

The first day of the operation (20 May) almost ended disastrously for the German airborne forces, but by the evening of that day, para-

troopers managed to hold the three airports. Over the next few days, the initial attack wave was reinforced with infantry soldiers flown in with gliders and transport planes under close air support by the Luftwaffe. On 26 May, approximately 20,000 additional soldiers landed in Souda Bay, and on 28 May, an Italian force landed on the eastern part of the island. In view of the danger of siege, the British command decided to evacuate its forces from the island. The evacuation was completed on 1 June 1941.[50]

The German attack on Crete was airborne: the invading army came in from the air rather than by land or sea. The attack was decided on the ground, with no assistance by land forces.[51] The German use of force was characterized by a complete reliance on air transport at the start of the attack. Land transport was not used in the attack at all. The British navy's absolute geostrategic control of sea routes to the island of Crete was completely negated by German vertical flanking by parachute and airborne forces. For Germany, the victory in the Battle of Crete was a Pyrrhic one, but the study of the battle by the British and especially the Americans and the creation of airborne units in Allied forces are clear proof of the strategic efficiency of vertical flanking.[52]

In September 1941, the American military attaché in Egypt published a summary report on the Battle of Crete and the airborne campaigns. Circulated throughout the military, it reached Lewis Stimson, the secretary of war; Gen George Marshall, the Army chief of staff; and Henry Arnold, the general of the Army Air Force. Junior staff officers were convinced that air mobility was critical for the United States, and the American Army accelerated the creation of airborne divisions, learning from the German case.[53]

The most famous of these were the 82nd Airborne Division and the 101st Airborne Division (Screaming Eagles), elite American units still in service. American airborne forces were first used in Operation Torch—the Allied invasion of North Africa in November 1942—and to a greater degree in Operation Husky, the invasion of Sicily in 1943.[54] In both parachute campaigns, combat teams from the 82nd Airborne Division were used. Until D-day—the Allied landing in northern France—the airborne campaigns were small in scope, consisting of up to a division. A few hours before the landing of the Allied forces in Normandy, two American airborne divisions (the 82nd and the 101st) and one British airborne division (the 6th) parachuted into the flanks of the landing area. The parachute operation was the

spearhead of the Allied invasion of Europe, and thus the concept of using airborne forces reached operational maturity.

Before the invasion, mission planners discussed the use of airborne divisions in the operations. On one side were those who maintained that paratroopers should operate deep in German-occupied France until control of the roads to the west of Paris was seized. This was the opinion held by General Arnold and particularly by General Marshall.[55] On the other side were the staff officers in the planning headquarters of the Anglo-American task force commander, Gen Dwight Eisenhower, who supported carrying out small operations behind the immediate German lines of defense on the canal (the Atlantic Wall). They wanted paratroopers to be used as special forces, similar to the British commando raids behind German lines in North Africa, to disrupt German forces along the front.[56]

Eisenhower's plan was a compromise between both schools of thought in that airborne forces would be concentrated in the coastal flanks to block the transport of German reserves from inland towards Normandy and the landing beaches.[57] Eisenhower's approach stemmed from the characteristics of the German armored force concentration in France. The German defense concept of the Atlantic Wall was a compromise between Field Marshals Erwin Rommel and Gerd von Rundstedt.[58] While Rommel wanted to fight on the beaches themselves, von Rundstedt contended that the Allies should be allowed a foothold on the beach and then be attacked with armored force before their troops had the chance to reorganize.

As German intelligence could not exactly determine the landing site (although the conception was that it would be in Pas-de-Calais), von Rundstedt placed the armored forces in the rear while the coastal fortifications were manned solely by the infantry.[59] World War II literature does not answer the question of whether Allied forces were aware of the disagreement between the two German field marshals.[60] But there is no doubt that Allied intelligence succeeded in locating German armor concentration, thus providing insight into the German armored force and defense system deployment.

Eisenhower himself explains why he chose the method of operation finally executed. He believed that a dispersed use of airborne forces was a waste of resources, and he rejected the notion of deep airborne penetration because of his perception that in the first days of the attack, no strong mobile land forces (meaning armored forces) would be able to rendezvous with the paratroopers. Eisenhower also

argued that distant operation of airborne forces would not pose a strategic threat to the Germans in France since they could amass sufficient firepower to destroy the isolated force. This was the opinion of both Gen Omar Bradley, commander of the US First Army on D-day, and Gen Sir Bernard Montgomery, commander of the 21st Army Group, and, in fact, of all the invasion forces. With the acceptance of Eisenhower's opinion, the Allies began planning the parachute campaigns. At Eisenhower's disposal were three airborne divisions: the American 82nd and 101st and the British 6th.

Photo/description courtesy of Library of Congress Prints and Photographs Division

Eisenhower D-day troops. Gen Dwight D. Eisenhower gives the order of the day, "Full victory—nothing less," to paratroopers in England just before they board their airplanes to participate in the first assault in the invasion of Europe. Eisenhower is meeting with US Co. E, 502nd Parachute Infantry Regiment (Strike) of the 101st Airborne Division. The photo was taken at Greenham Common Airfield in England about 8:30 p.m. on 5 June 1944.

The mission of the 82nd Airborne Division, under the command of Gen Matthew Ridgway, was to take over the town of Sainte-Mère-Église, a main crossroads in the Cotentin Peninsula, and to seize crucial passages across the Merderet and Douve Rivers. The objective of the 101st Airborne Division, under the command of Gen Maxwell D.

Taylor, was to control departure routes from Utah Beach and to protect the southeastern flank of the beachhead within the landing area of the US VII Corps. The American sector of the amphibious landing area (Omaha and Utah beachheads) was spread over many extensive flooded areas with few roads (fig. 3).

Airborne forces were also charged with controlling roads so that the landing armies could use them to advance from the beaches inland. Another mission was to seize bridges on the two major rivers of Normandy to prevent the Germans from crossing them in a counteroffensive. This meant that the two American airborne divisions were to secure the western flank of the invasion. In the eastern flank of the British landing area (Sword beachhead) was the best access route for a German counteroffensive. Blocking this flank was the mission of the 6th Airborne Division, under the command of Maj Gen Sir Richard Gale. The division was ordered to operate in the eastern flank of the landing and to capture vital passages across the Orne River and the Caen Canal.

Many books have been written about the invasion campaign and the actions of the paratroopers, and this is not the place to describe the course of the battles themselves.[61] The key lesson is that despite the difficult problems in parachuting and the disbanding of organic units into smaller forces, at the end of the first combat day the three divisions reported that they had completed their primary missions. Historical research supports this claim and highlights the heroic fighting of the paratroopers and the success of their mission despite enemy superiority. But was the operation of the airborne divisions critical? And how does this example serve the premise of this work?

As noted, the mission of the airborne forces was to isolate the landing beach flanks, thereby preventing German armored reinforcements from waging a counteroffensive. Eisenhower claimed that the air force alone could not stop travel in the roads of northwestern France. The example he cited was that of the American experience in Italy at that time. On that front, as well, the American Air Force had aerial superiority, and roads in Italy were few. Although the Air Force launched approximately 1,000 bombing raids a day on the three main German roads, it still could not stop German movement at night.

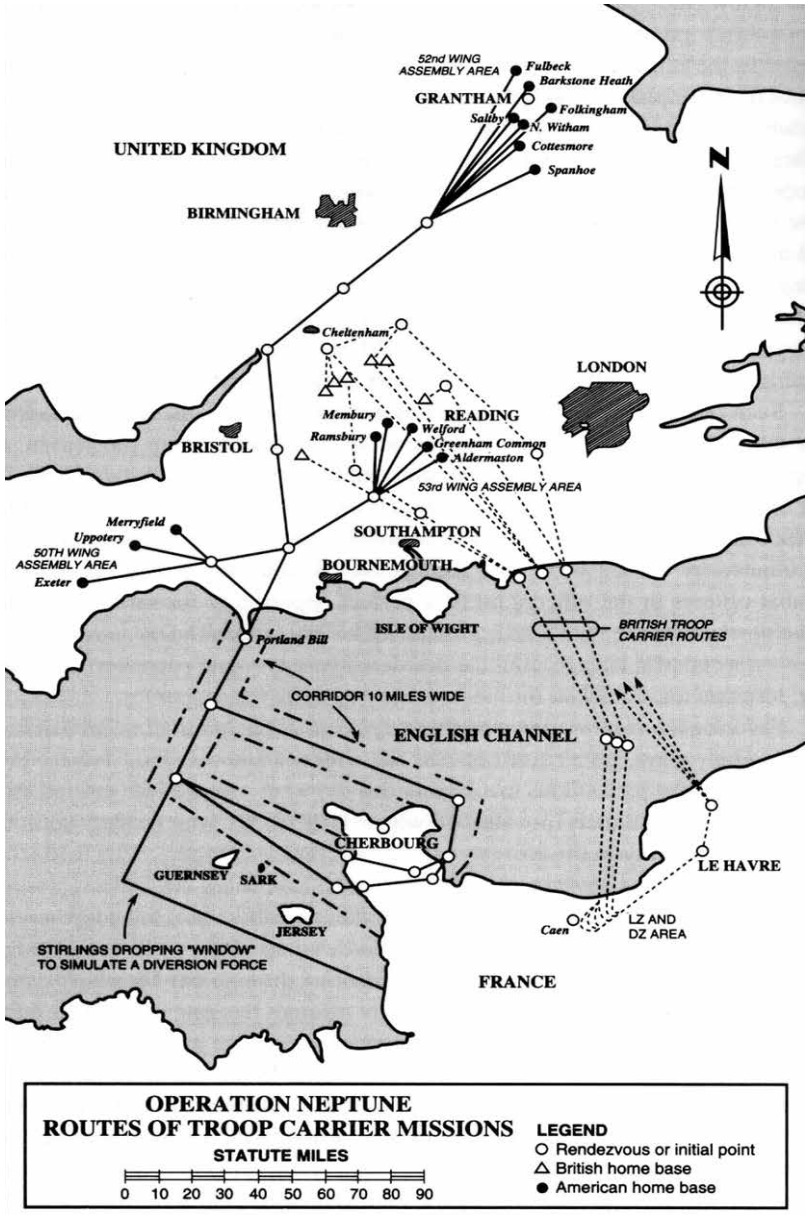


Figure 3. Three routes of troop carrier missions (Operation Neptune). (Courtesy of Air Force Historical Studies Office media gallery. From Martin Wolfe, *Green Light: A Troop Carrier Squadron's War from Normandy to the Rhine* [Washington, DC: Center for Air Force History, 1993, 86].)

Therefore, a military effort to drive a wedge between the German reserves inside France and the line of defense forces in the Atlantic Wall was required. The airborne operations "skipped over" the German line of defense on the channel and managed to isolate the field of battle, meaning that these operations nullified the geostrategic advantage the German defense forces enjoyed. This is another instance of the cancellation of the geographic aspect on the strategic level. Operation Market Garden (September 1944) demonstrates another such example.

In the months that passed from the time of the landing in Normandy to September 1944, the airborne forces operated as infantry forces. Planned parachuting operations were canceled mainly because of rapid American progress in France and Belgium that brought about the collapse of the German army in the west and its retreat towards Germany. In the Allied Command in Western Europe, a dispute began on the preferable strategy for defeating the German army and ending the war. General Patton, commander of the Third Army, argued that an attack should be waged across the entire front and that Germany should be invaded through the Saarland.

General Bradley, now commander of the 12th Army Group, supported this position. As opposed to the "wide front invasion" argument of senior American officers, Montgomery, commander of the 21st Army Group, supported an invasion through the narrow front of Belgium that would turn east into the Ruhr, the center of the heavy German industry. The strategic dispute stemmed from several factors, and the "generals' wars" between Patton and Montgomery should not be overlooked. But Montgomery's plan had an operative logic: an invasion of northern Belgium and the Netherlands would lead to the conquest of two of the world's largest ports, Antwerp and Rotterdam, vital to the Allied forces' logistic effort.

The very fact that Germans launched their V-1 and V-2 rockets from widely different areas in the western Netherlands—wreaking havoc in Britain—also contributed to Montgomery's goal of invading the Netherlands since it would lead to the seizing of launching sites. He formulated this invasion plan with the intention of using the 1st Airborne Army. In the middle of August 1944, five airborne divisions (the 82nd, 101st, and 17th American divisions and the 1st and 6th British divisions) as well as a Polish paratrooper brigade were unified as an airborne army.[62] Logistically, the Allies could not support both efforts (by Patton and Montgomery), and Eisenhower preferred the wide front invasion. An intensive correspondence between

Montgomery and Eisenhower, and pressure from the UK to terminate the missile threat, finally led the commander of the Allied forces in Europe to adopt Montgomery's "narrow front."

Montgomery's plan, based on surprise and maneuverability, was simple. The mission was to reach the city of Arnhem in the Netherlands, which dominates the lower Rhine. Operation Market Garden consisted of two stages. In the first stage, three divisions would be parachuted in to seize several crucial bridges in three cities (from south to north): Eindhoven (the 101st), Nijmegen (the 82nd), and Arnhem (the 1st and the Polish brigade). The last bridge was "one bridge too many" in the opinion of the Army second of command, Lt Gen Sir Frederick Browning.[63] The mission was to prevent their demolition by the Germans. Since only one road crossed through the area, the conquest of the bridges and maintaining their condition were critical to the success of the entire operation. In the second stage, with the beginning of the parachute operation, the British 30th Armored Corps was to start mobilizing to eventually rendezvous with the airborne divisions until they joined the forces in Arnhem.

The campaign was launched on 17 September, and fighting continued until 26 September.[64] Although even in retrospect Montgomery deemed the campaign a success, the consensus among contemporaries and historians is that it actually failed.[65] British armored units could not reach the British and Polish paratroopers in Arnhem, and thousands were killed or taken captive. Among the reasons for the operation's failure were the underestimation of the enemy's motivation to fight and the rejection of intelligence information. The intelligence turned out to be reliable regarding the numbers and strength of the German force in the operation targets in general and in Arnhem in particular. From the operative perspective, another contributing factor was the inability of the two American divisions to achieve their missions by the planned deadlines. Undoubtedly, the very planning of Operation Market Garden and its execution would have been impossible without the use of airborne forces and the creation of the vertical flank. Despite the operation's failure, airborne involvement is another example of the lessened importance of the physical geography (line of operation) in war.

These three test cases show vertical flanking operations where an attempt was made to render irrelevant the geographical difficulties and geostrategic advantages the defender enjoyed along the line of operation. They also demonstrate a tactic seeking to nullify geographical

distance and turn the distance between the base of operations and the destination into an advantage for the attacking forces. This means that the physical line of contact between two armies and progress routes (line of communications) is no longer the sole strategic point of reference, as the thinkers of the late eighteenth century had determined. Airborne operations and the vertical flank option made the physical line of communications only one more—and not the only—factor. Vertical flanking thus counteracts the geographical constraints of a physical line of communications set by the war zone in the classical paradigm and leads towards a shift into a new paradigm.

Air Force Logistics and Geostrategy

In World War II, extensive use was made of airplanes for logistical transport. Airborne logistics adds another dimension to the paradigm shift. The air force enabled the transport of weapons, ammunition, and food and the evacuation of wounded soldiers without requiring land routes as in the traditional line of communications. The use of aerial supply routes was most crucial in the China-Burma-India theater. Japan's conquest of Burma in 1942 led to the cutting off of supply routes from India to China, a great concern for the Allies as the inability to supply the Chinese forces would mean their collapse. The Allies started paving a new road to connect with the famous Burma Road—the Ledo Road, later renamed the Stilwell Road after the American commander who initiated its construction. It was supposed to leave India, move through northern Burma, and link up with the Burma Road near the border with China. The substantial engineering difficulties of construction necessitated finding a quick operational solution for supplying the logistical needs of the Chinese to keep China on the side of the Allies.[66]

In mid-1942, the United States established the Air Transport Command with the mission of transferring supplies from India to China over the Himalayas. Despite great difficulties—including a shortage in reliable aircraft, precise intelligence, and human resource and geographical constraints—the logistical effort was not abandoned.[67] Gradually the command overcame most problems so that the supplies could reach the Chinese military forces.[68] The case study of the Sino-Burmese-Indian theater is anomalous, an exception that does not instruct us on the general rule regarding airborne logistical transfers. However, it does

suggest that the United States considered keeping China on its side in the war as a political goal of foremost importance and therefore made great (sometimes desperate) efforts to achieve this. The only option for transferring vital supplies was by air, and the solution was to "skip over" the Japanese forces in Burma—and over the difficult topography—by basing this effort on the air force.[69]

In Vietnam, again, aerial forces were often relied upon to transfer supplies. In South Vietnam, American forces had several large logistics centers that transferred everything required (including beer and cigarettes) to units deployed throughout Vietnam, even the most remote ones. Moreover, the American military had a number of strongholds reachable only by helicopters.

Supply through aerial force is, however, normally limited in scope. It is appropriate for most scenarios where small forces do not operate heavy weapons (such as tanks) or in the case of besieged forces, as in Bastogne in World War II and Khe Sanh in the Vietnam War. In this way, for example, the impressive advancement of the Third Army under General Patton was halted not because of German resistance but because of a shortage in gasoline for the tanks after the distance from rear supply centers increased.[70] To this day, an aerial force cannot supply all the logistical needs of large, heavy units, although American military thought speaks to reducing the sizes of fighting forces and even of abandoning the armored divisions that require large-scale logistical planning. For smaller combat teams that rely on long-range, high-precision weapons (as in the Afghanistan war in October 2001), supplying all logistical requirements may be possible using aerial forces as they are unconstrained by classic means of communication.

On the other hand, one can argue that although the air force need not depend on the physical geography of the battlefield, there is a geographical aspect just as critical—distance. The air distance from point to point is indeed shorter than the land distance between the same points, but this distance must still be traveled. The aerial route, like the land or naval route, is vulnerable to weather-related conditions or the enemy's antiaircraft defenses. While clearly operational problems, they have not caused the option of airborne logistical supply to be excluded. It should be remembered that we are talking about the beginning of a process that could, at the end of the day, lead to a new paradigm in the field of logistics.

We have looked at three aspects of the air force that express a tactical, operational, and strategic change in the classic paradigm. Their

combination is seen in the analysis of the battle at the Marine base at Khe Sanh during the Vietnam War. After World War II, many of the American airborne divisions were disbanded.[71] It seems that the American military has discarded vertical flanking on the strategic level despite a number of operational parachuting operations in the Korean War.[72] This can be largely attributed to American superiority in nuclear weapons compared with Soviet conventional power and the assumption that nuclear weapons will dissuade any party from starting a third world war. Reliance on nuclear weapons was heightened during Eisenhower's term in office (1952–60) with the development of the "massive retaliation" doctrine.[73]

As President Kennedy entered office, the Soviet Union seemed to have closed the gap in the field of strategic nuclear weapons, and the United States began seeing the role of conventional military power in a new light. One option it saw was to increase the mobility of Army units. Another catalyst was the Soviet Union demonstration of its airborne assault capabilities with a massive use of helicopters. Ordered by Secretary of Defense Robert McNamara, the American military began concentrated staff work on developing helicopter-borne forces. The staff work, experiments, and training ended in June 1965 when McNamara ordered the creation of a helicopter-borne division, and in July several units were unified under one organic command, the 1st Cavalry Division. On 15 August, the division was sent to Vietnam. A few weeks after its arrival, the division's units joined the fighting. Many of the division's operations could be used for analysis and for examining the essence of vertical helicopter-borne flanking. We shall analyze one typical operation: Operation Pegasus.

At the beginning of 1968, Americans were focused on a Marine base in a small village on the South Vietnamese–Laotian border, Khe Sanh. Historical analogies have compared the defensive battle of the Marines with that of the French military units in Dien Bien Phu (February–May 1954). The defeat of the French in the battle was one of the principle causes for the French retreat from Indochina.[74] The siege of the Marine units in Khe Sanh reveals three factors that counteracted the strategic land advantage enjoyed by the regular North Vietnamese units surrounding the base.[75]

The first is that although the base was surrounded, it was not cut off. Throughout the battle, aerial contact with the Marines was maintained: food and ammunition were supplied, reinforcements were brought in, the wounded were evacuated, and Soldiers were even

taken out for leave. Since the Air Force was used as the only logistical route, the need for waging a battle for the land supply routes was alleviated despite the North Vietnamese army controlling the only route leading to the Marine base (Road 9). A second factor is that American aerial might prevented the conquest of the base. Approximately 40,000 tons of bombs were dropped on Khe Sanh—approximately one-fifth of the amount dropped by the United States in the Pacific front during World War II. Khe Sanh became one of the most bombed areas in military history.[76]

The third factor is vertical flanking. Despite the massive use of aerial force and artillery fire, the North Vietnamese continued their siege and gradually advanced towards the base. In early March 1968, the 1st Cavalry Division was ordered to execute an operation to open Road 9 and end the siege on the base. The operation's code name—Pegasus—describes the concept of airborne operation well: a mythical horse that could fly. The operational plan consisted of two parts.[77] The first was a ground diversion maneuver in which naval engineering forces and two Marine battalions were ordered to open the eastern end of Route 9. Believing that the attention of the North Vietnamese would be deflected towards this action, the commander of the 1st Cavalry Division, Lt Gen John Tolson, determined that the main operation would be centered on the flanks of the two North Vietnamese divisions controlling Route 9.[78]

On 1 April, three battalions from the 3rd Brigade of the division landed on the southern and northern sides of the road. The landing sites were approximately halfway to the Marine base under siege in Khe Sanh. The cavalry battalions landed with 105 mm artillery that could be transported by air. The battalions could therefore produce long-range fire towards the west to cover and support additional brigades—and so begin exerting pressure on the flanks of the North Vietnamese division.[79] These flanks were cut off from their supply lines, and the American cavalry—assisted by Marine forces that assaulted from Khe Sanh—gradually destroyed the isolated North Vietnamese units. Operation Pegasus was officially terminated on 15 April, and the remnants of the North Vietnamese forces retreated to Laos. In this case, airborne forces fought against regular soldiers equipped with artillery and antiaircraft weapons. It was not an operation against guerilla forces, and it demonstrated the ability of an airborne force to enter an area where the numbers and deployment are unknown and create good tactical intelligence using aerial recon-

naissance. While 27 helicopters were hit, only three were downed. It was proved that an airborne force would not necessarily suffer serious losses when passing through an environment with extensive anti-aircraft weaponry.

The great mobility of an airborne unit enables it to concentrate quickly on the decisive point and gradually defeat enemy units. In this, the principles of mass and surprise, and of course the principle of offensive, are expressed. Operation Pegasus presents an example of the air mobility of the fighting force. The 1st Cavalry Division took full advantage of that ability in mobilizing its troops and transporting artillery from place to place at great speed without the enemy having the opportunity of understanding the battle situation and preparing for it.[80] Mobility of fire was also evident in the use of gunships that provided CAS wherever necessary.

Operation Pegasus exemplifies the shift from the approach of advancement by paratrooper assault to that of an offensive using vertically parachuted forces. The helicopter-based assault gave US Soldiers mobility on the ground, unlike paratroopers whose mobility and fire capabilities are limited. Helicopter-borne forces are more mobile, and the ability of receiving fire support from attack helicopters enables soldiers not only to protect themselves more effectively but also to be a deadlier offensive force. Using helicopters, it is possible to move power towards another battlefield more quickly. In this manner, for example, 1st Cavalry Division forces were transferred immediately after the Battle of Khe Sanh ended to the A Shau Valley, where another major operation had begun.

After the Vietnam War, the United States continued to perfect the airborne capabilities of its armed forces in two important directions. One was getting armed with advanced UH-60 assault helicopters (Blackhawk). The other was turning the 101st Airborne Division into an air assault division—a division whose operative mechanism is based on utilizing different types of helicopters: reconnaissance, transport, assault, and attack. In the 1980s, the United States launched military operations that included the use of airborne forces in the first stages of the operation.

The most notable example is the invasion of Panama in December 1989 (Operation Just Cause). The first stage of the operation was parachuting in the 75th Ranger Regiment to take over two of Panama's airfields and its bridgeheads to enable the greater part of the force to arrive safely.[81] A few hours later, elements of the 82nd Air-

borne Division were parachuted in, for the first time since World War II, to reinforce the Ranger forces already in combat against the Panamanian armed forces.[82] But the United States presented its most impressive operational capabilities in the use of the 101st Airborne Division in the ground offensive stage of the Gulf War (February 1991).[83]

With the start of the ground offensive for the liberation of Kuwait (24 February 1991), the mission of the 101st Division was to quickly penetrate Iraqi territory along the Euphrates to sever the communication routes of the Iraqi military between Baghdad and Kuwait and at the same time destroy Iraqi forces in the area. The 101st Division worked as part of the XVIII Airborne Corps, whose mission was to wage an offensive attack and defend the western flank of the coalition forces.[84] Therefore, the 101st Division's second mission was to repel any Iraqi counteroffensive against the western flank. In the first stage, the division's 1st Brigade was flown in approximately 150 km towards Iraq.

The brigade's mission was to set up a large logistics center (forward operations base Cobra) and defend it to shorten the lines of supply of XVIII Corps ground units. All movement was performed using assault and transport helicopters, while AH-64 (Apache) and AH-1 (Cobra) attack helicopters secured mobilization and attacked Iraqi targets.[85] After the establishment of the Cobra base, the 3rd Brigade was flown in approximately 280 km, landing near Nasiriyah. It was the deepest airborne flanking and assault offensive in military history.[86] From the base of operations that was set up (area of operations Eagle), the forces of the 3rd Brigade attacked Iraqi targets and blocked the lines of communication for reinforcements and retreat.

On 26 February, the 2nd Brigade was flown approximately 200 km east of Cobra Base, beyond the Euphrates, near Basra. This additional flank, and the base of operations set up by the brigade (area of operations Viper), effectively blocked any attempt by the Republican Guard divisions to advance. The two flanking maneuvers actually captured Iraqi forces that escaped from Kuwait in a huge field of destruction between the XVIII Airborne Corps in the west, the VII Corps in the east (the primary effort), and the Euphrates in the north. The activity of the 101st Division demonstrates that armed forces relying on traditional lines of communications are much more vulnerable than armies that have begun to adopt a new, or at least an additional, operative paradigm.

The Cold War and Geostrategy

Another stage in the shift from the classic paradigm is found in the first three decades of the Cold War (1945–75), at least in Western military thought (especially that of Americans). In this doctrine, war would be decided by the use of nuclear arms, which are not limited or restricted in terms of geography. The following discussion therefore focuses only on the improvement of developing strategic capabilities and platforms intended for bringing the nuclear weapon to its target. Because of the scope of this topic, and in direct connection with the subject of study, American strategic systems are analyzed. Any conversation on nuclear weapons is by nature theoretical since during the entire period of the Cold War, the theories and doctrines were not tested in reality.

Courtesy of US Air Force

Peacekeeper missile

Three types of weapons and launching platforms characterize the negation of the geostrategic aspect in the Cold War. The first is the intercontinental ballistic missile (ICBM). The range of the missiles, which has grown over the years, has in fact bridged front lines so that vast oceans, mountains, and deserts are no longer an obstacle in war. Many of the launching sites are in the United States, eliminating the need for complex political maneuvers with its allies. Consequently, although tactical nuclear arms were deployed in Europe—to the displeasure of many Europeans—the United States did not have to rely on the classic premises of a military presence near enemy territories as a deterring factor. Table 1 details the ranges of the missiles that primarily constituted the American nuclear arsenal in the Cold War.[87]

Table 1. Ranges of American ICBMs

Missile type	Range (in km)	Service
Atlas	14,000	1960–1967
Titan I	9,900	1961–1966
Titan II	14,400	1963–1990s
Minuteman I	9,900	1962–1969
Minuteman II	12,600	1965–1990s
Minuteman III	13,000	1970–2008
Peacekeeper	9,600	1986–

Developed from David Miller, *The Cold War: A Military History* (New York: St. Martin's Press, 1999), 406.

Ballistic missiles were also put in submarines built especially for this purpose.[88] The first ballistic missile submarine was the *George Washington* (SSBN 598), launched in 1961, on which 16 Polaris-type missiles were installed.[89] In the Cold War, more advanced ballistic missile submarines were put into service, the latest of which was the *Ohio*-class missile submarine. The missile submarine provided the option of executing a "second strike" if necessary.

The American strategic premise was that the Soviet Union would attack first and that its first targets for attack would be permanent missile sites and airports used by strategic bombers. As a result, the United States developed the second-strike doctrine, which determined that it must maintain nuclear attack capabilities in case of a Soviet nuclear attack. A second-strike capability was achieved through means of ensuring the survivability of some of the American nuclear strategy capabilities and led to strategic bombers being in the air at any given moment during the entire Cold War.

Another outcome was the development of submarines capable of launching missiles with nuclear warheads. The submarine was the best operative platform for the second-strike doctrine. Its combat efficiency was proven in World War I and even more so during World War II. In the Cold War, the ability to attack strategic land targets was enabled, as noted, with the development of submarine-launched ballistic missiles (SLBM). I argue that the ballistic missile as a weapon launched from a nuclear-powered submarine is a revolutionary combination in terms of naval warfare in the second half of the twentieth century. Table 2 presents the ranges of SLBMs and demonstrates the

absolute nullification of geostrategy, as the submarine may be positioned in any underwater location and launch its nuclear arms against enemy strategic targets.

Table 2. Operational ranges of SLBMs

Missile type	Range (in km)
Polaris A-1	1,800
Polaris A-2	2,600
Polaris A-3	4,500
Polaris B-3	3,600
Poseidon C-3	4,500
Trident I C-4	8,000
Trident II C-5	11,000
Tomahawk[a]	1,250–2,500

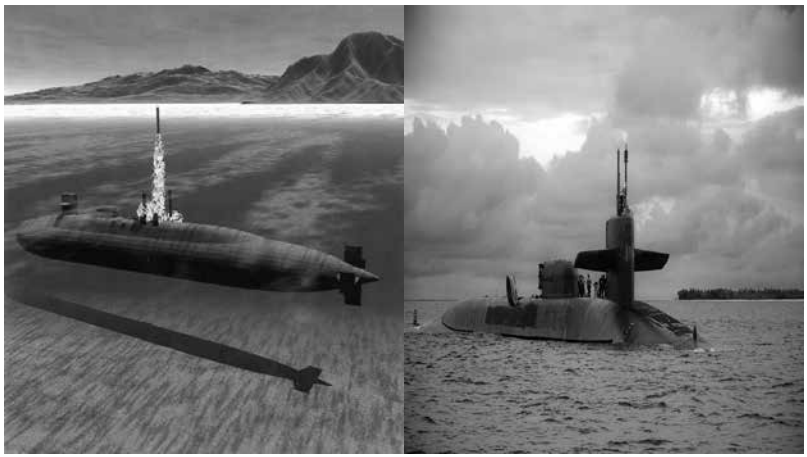
Developed from David Miller, *The Cold War: A Military History* (New York: St. Martin's Press, 1999), 409.

[a]The Tomahawk is a cruise missile; all others are ballistic.

In addition to the great range of the missiles it carries, the submarine may operate from areas not previously accessible to naval warfare. For example, the United States deployed some of its submarine fleet in the Arctic Ocean, from where it threatened Soviet strategic targets. The Soviet Union was now surrounded on all sides by American naval might.[90] This threat led the Soviet Union to hasten the modernization of its fleet, emphasizing the development of a submarine fleet and antisubmarine warfare capabilities.[91]

Of the missiles in Table 2, the Tomahawk is the only one tested in action. The first of these tests was in the early attack on Iraq in January 1991.[92] The missiles were launched from ships and submarines thousands of kilometers from the Iraqi theater against well-defended strategic targets, and the Iraqi forces had no means of intercepting them. This operative use demonstrates the irrelevancy of geography. The launching platforms could be located anywhere—for example, submarines could launch missiles from the Red Sea towards Iraq or from the Indian Ocean and Arabian Sea towards Afghanistan or East Africa. While it may be argued that distance presents a significant limitation, missile ranges have gradually improved to such an extent that we have seen missiles with ranges exceeding 10,000 km. The Tomahawk is built in several versions, one of them with a conventional warhead.

In the future, some nuclear ballistic missiles could be converted to conventional ones, nullifying the distance aspect.



Courtesy of US Navy

Guided missile subs (*left*) USS *Ohio* and (*right*) USS *Georgia*

Courtesy of US Navy

Tomahawk missile. A deep-strike, long-range cruise missile often used for land-attack warfare employed from US Navy surface combatants and submarines.

Another weapon, which perhaps should have been the first chronologically, is the intercontinental bomber. At the conclusion of World War II and during the first decade of the Cold War, the American bomber fleet relied on a series of different types of bombers. Most of them—like the B-29 (Superfortress)—had ranges requiring the US Strategic Air Command to deploy its aircraft from bases in continental Europe and Britain so that they could attack targets in the USSR. Indeed, the American arsenal included the B-36 bomber, with a flight range of approximately 14,000 km, but this was a problematic,

unreliable aircraft, and at the end of the day its presence was merely used for deterrence.[93] The other American bombers had ranges of up to 7,000 km. The strategic doctrine of the American armed forces in the late 1940s and early 1950s was that a conventional Soviet offensive could only be stopped using a strategic air force.[94]

The USSR estimated that its air force was inferior to that of the United States, but the operational radius of American bombers meant that they had to be deployed from European airports—within striking range of the USSR.[95] From the 1950s onward, the American Air Force began receiving B-52 jet bombers. Their radius of action exceeded 7,000 km, but the flight range could be extended since by this stage progress had been made in the field of aerial refueling. Thus, the United States could overcome distance, deploying its strategic bombers in areas where it was in complete control. No longer did it need diplomacy with its allies for permission to place a strategic-nuclear air force in their territories.

The strategic bomber force is operationally flexible. Unlike the ballistic missile propelled from ground launching sites or submarines, an aircraft flying towards its target may change course as the intelligence picture changes. Its primary disadvantage is its vulnerability when approaching the target—especially from enemy antiaircraft fire—and the reliance on airfields, which are also vulnerable.[96] With the development of ICBMs and SLBMs, the American strategic bomber force became secondary in importance but continues to play a vital part in US deterrence capabilities and military force in the second-strike strategy.

In the late days of the Cold War and following it, two additional bombers were put into service—the B-1B (Lancer) and B-2 (Spirit). Their advantages were improved flight velocity and evasion of the enemy's radar system thanks to their low-altitude-flight capabilities. Also, in the case of the B-2, survivability and the ability to penetrate enemy territory were enhanced with stealth technologies. These bombers are deployed only in the United States, and they were active in the Kosovo campaign (1999), Afghanistan campaign (2001), and Second Gulf War (2003). This operational use demonstrates again the negation of the geographical aspect and the need for the United States to execute a front deployment of its strategic forces in global geostrategic sites.

The weapons and platforms put into operational services during and following the Cold War reinforce the hypothesis regarding the widening gaps in the classic paradigm. Moreover, reliance on nuclear

Courtesy of US Air Force

B-52 bomber

Courtesy of US Air Force

B-1 bomber

force—launchable from a variety of platforms—was at the foundation of American strategic plans up to the reforms that its armed forces went through in the late 1970s. Simplistically, the American doctrine of operations for the defense of Western Europe maintained that if the blocking of Warsaw Pact forces with conventional weapons failed, then the United States would use its nuclear capabilities. In an exchange of nuclear strikes, distance and time—two of the most important aspects in past warfare—become unimportant. The transfer of military power to enemy territory ceased to depend on them. But it is still possible to discuss only the beginning of the change process—the process of disintegration. Since the dropping of the two atomic bombs on Japan, there has been no nuclear conflict, and conventional wars are still common. American war doctrine after the Cold War attempts to integrate the theories developed during the Cold War and apply them to conventional doctrines, platforms, and weapons. The success of this application will catalyze the emergence of a new operational paradigm.

Courtesy of US Air Force

B-2 bomber

Weapons and platforms developed in the Cold War also effected a change in the conventional conception of geopolitics. The United States can place its weapons in areas without any complex diplomacy with its allies. Deploying ballistic missiles in the United States and placing nuclear ballistic missile submarines in oceans around the Soviet Union released American foreign policy makers from their reliance on allies.

The Aircraft Carrier: Artificial Geostrategy

Geostrategy is based on physical control points, with the party controlling these points having a strategic advantage. When we analyze the operational doctrine of the aircraft carrier, we can undermine the traditional paradigm even more strongly.[97] The dominance of the aircraft carrier—with its weapons and battle group for aerial, naval, and submarine warfare—turns the aircraft carrier into an artificial geostrategic space. In other words, if the basic assumption of classic geostrategy is that achieving military and political advantage necessitates control of vital geographical areas, then the battle group may be moved almost anywhere in the world. Thus, it is possible even for a political power to control and project power for deterrence and decision against land areas that the United States believes are vital to its national security.

The United States maintains a global outlook requiring its involvement throughout the world. Since it cannot maintain a permanent ground presence everywhere, the aircraft carrier is able to project power without being physically present in a country's territory. The battle group can be placed near a geostrategically vital area, travel quickly in case of a crisis, and secure an advantage even before a military conflict breaks out. The military history of the aircraft carrier since 1945 proves that its presence near conflict centers has prevented the escalation of a conflict simply because the United States demonstrated political determination by the projection of its military power. In addition, after World War II, the aircraft carrier was in many cases the preliminary response in times of war. If we accept Clausewitz's dictum that "war is merely the continuation of politics by other means," we can say that the aircraft carrier is the medium between political and military means. It has been used as a vehicle of political pressure, and when all other political attempts failed and it was necessary to go out to war, it was the first operable military means.[98]

One illustration is the operation of aircraft carriers at the beginning of Operation Enduring Freedom in October 2001. The goal of the operation was to topple the Taliban regime and destroy the al-Qaeda infrastructure in Afghanistan using a series of strategic bombing and air support operations for the Northern Alliance's ground forces. On the eve of the operation, the United States was not able to operate from land airfields. Although it possessed aircraft that could perform long-distance bombing flights, which were indeed used in Afghanistan, the intention of performing intensive day- and night-

bombing raids required a force to be placed near Afghanistan.[99] At the same time that the heavy bombers were used, the USS *Carl Vinson* and the USS *Enterprise* aircraft carriers launched a few dozen F-14s and F/A-18s for attack missions and EA-6Bs that activated an electronic screen against the Taliban's radar and communications systems.[100] In case it was necessary to evacuate a pilot who ejected from an aircraft, evacuation helicopters and their protection airplanes also had to be nearby. In terms of the air fighting in the first three weeks of the operation, most of the sorties were clearly carried out by attack aircraft or bombers taking off from the carriers.

Courtesy of US Department of Defense news photos

USS *Carl Vinson*. The nuclear-powered aircraft carrier plows through the Indian Ocean as aircraft on its flight deck are prepared for flight operations.

The use of the aircraft carrier during and after the Cold War has made it a diplomatic instrument and a means of exerting pressure through the demonstration of military power. The naval deployment of aircraft carriers enables arrival in the conflict area within days. The carrier's very appearance signals the seriousness of US intentions and, if necessary, enables a limited involvement. The operation of a naval force is flexible. There is no need for diplomacy to grant approval for placing ground forces near the conflict area. An air force from land bases may indeed project power, but it cannot remain in

place to create an intensive presence. While ground forces offer the most efficient operational solution, their presence often arouses antipathy among the local population. Also, their vulnerability to guerilla and terror attacks leads to mounting casualties, even in low-intensity conflicts, creating resistance in American public opinion to dispatching American Soldiers to troubled regions. The evacuation of ground forces at the end of the conflict also entails many difficulties and can be misinterpreted as weakness, thereby undermining US deterrence.

In contrast, the aircraft carrier can maintain a position in international waters for extended periods and create deterrence. A naval force retains its combat readiness during peacetime as the very sailing constitutes military activity. As noted, all of these issues are more problematic for ground forces. The continuation of the change processes can be found in post-Vietnam American military thought when American strategists tried to find a way to make military decisions without using nuclear weapons. How they adapted themselves to this new situation, which this work will continue to discuss, actually points to the undermining of the importance of classic geostrategy in the current paradigm.

Notes

1. Jomini, *Art of War*, 30–31.
2. Ibid., 53–54.
3. Doughty et al., *Warfare in the Western World*, 291–94.
4. Clausewitz, *On War*, 128.
5. Clausewitz has come to overshadow Jomini, primarily because the latter focused on a particular period in history (Napoleonic Wars). Nevertheless, Jomini's principles, specifically the emphasis on the attack as the strongest means of battle, influenced several armies including the US Army and the Israel Defense Forces. Jomini's writings should be used as tools for understanding reality instead of as a guide for action. That is to say, he should be studied as a theorist rather than a doctrinarian.
6. JP 1-02, *DOD Dictionary of Military and Associated Terms*, 507; and Jablonsky, "National Power," 34–54.
7. JP 1-02, *DOD Dictionary of Military and Associated Terms*, 358.
8. Ibid., 336.
9. Palka and Galgano, *Military Geography*, 1–6.
10. Peltier and Pearcy, *Military Geography*, 22.
11. Keegan, *History of Warfare*, 68.
12. Hence, Russia adopted "buffer zones" to control adjacent countries and areas, providing it with a protective belt. One example is the occupation of Poland in the eighteenth century; another is the Molotov-Ribbentrop Pact (August 1939) ensuring Soviet control over eastern Poland, the Baltic states, and Finland. Similarly, Eastern

Europe served as a buffer zone for the USSR against potential enemies throughout the Cold War.

13. Peltier and Pearcy, *Military Geography*, 48–51.

14. This refers to Crécy (August 1346), Poitiers (September 1356), and Agincourt (October 1415).

15. Howard, *War in European History*, 11–14.

16. For a summary of the argument and historiographical approaches, see Rogers, "Military Revolution in History and Historiography," 1–8.

17. Roberts, "Military Revolution, 1560–1660," 13–29.

18. For a discussion of Gustavus Adolphus's military reforms, see Roberts, *Gustavus Adolphus*, 169–304.

19. Doughty et al., *Warfare in the Western World*, vol. 1, 10–17.

20. Parker, "Military Revolution, 1560–1660—A Myth?," 37–45.

21. For a survey of early European naval development, see Harding, *Seapower and Naval Warfare*, 59–120; and Glete, *Warfare at Sea*, 165–85.

22. Parker, "Ships of the Line," 118–20.

23. Black, "A Military Revolution?," 95–111.

24. Rogers, "Military Revolutions of the Hundred Years' War," 55–77.

25. Arnold, "War in Sixteenth Century Europe," 23–44.

26. Kennedy, *Rise and Fall of the Great Powers*, 3–30; and Keegan, *History of Warfare*, 32–40.

27. Arnold, "War in Sixteenth Century Europe," 23–44.

28. References to Douhet's book will be to the 1983 English translation. For the development of airpower before World War II, see Addington, *Patterns of War since the Eighteenth Century*, 139–41, 170–74; and Jones, *Art of War in the Western World*, 450–56.

29. Pimlott, "Theory and Practice of Strategic Bombing," 119; and Douhet, *Command of the Air*, 15.

30. Meilinger, *Airwar*, 15.

31. Douhet, *Command of the Air*, 31–32.

32. Brodie, *Strategy in the Missile Age*, 90; and Pimlott, "Theory and Practice of Strategic Bombing," 119–20.

33. MacIsaac, "Voices from the Central Blue," 636–37.

34. For additional aspects of airpower in World War II, see Hallion, "Second World War as a Turning Point," 93–115. Naval air forces, operating off of aircraft carriers, revolutionized naval warfare as naval engagements were effectively decided by carrier-borne aircraft. The two clearest examples are the battles of the Coral Sea (May 1942) and Midway (June 1942), in which contact between the belligerents was restricted to the skies. On the development of naval airpower thought, see Buckley, *Air Power in the Age of Total War*, 90–97.

35. For a summary of the discussion on World War II, see Overy, *Why the Allies Won*, 101–33.

36. Ibid., 126–27; and Buckley, *Air Power in the Age of Total War*, 185–86.

37. Buckley, *Air Power in the Age of Total War*, 194–96.

38. It was estimated that an invasion of Japan would involve up to 500,000 American casualties in contrast to the 300,000 American lives lost hitherto in the war.

39. MacIsaac, "Voices from the Central Blue," 643–47.

40. Tucker, *Vietnam*, 173.

41. Davidson, *Vietnam at War*, 727; and Clodfelter, *Limits of Air Power*, 194–95.

42. Davidson, *Vietnam at War*, 728; Clodfelter, *Limits of Air Power*, 195–96; Tilford, "Linebacker II," 234; and Tucker, *Vietnam*, 173–74.

43. Palmer, *Summons of the Trumpet*, 259.

44. JP 1-02, *DOD Dictionary of Military and Associated Terms*, 12.

45. Paratroops were first used in the German invasion of Norway. See Stokesbury, *Short History of World War II*, 84–88; and Weinberg, *World at Arms*, 113–21.

46. Doughty et al., *Warfare in the Western World*, vol. 2, 680.

47. Kiriakopoulos, *Ten Days to Destiny*, 14–28.

48. Weinberg, *World at Arms*, 228.

49. Keegan, *Second World War*, 161–62.

50. For a thorough review of the Battle of Crete, see ibid., 160–72.

51. Fuller, *Second World War*, 113.

52. Four thousand of the 13,000 paratroopers dropped on the island were killed, leading to the destruction of Germany's best division—the Luftwaffe's 7th Parachute Division. In addition, of the 600 aircraft employed by the Germans, 350 were lost, including 170 cargo planes. Consequently, Hitler opposed further large-scale airborne operations proposed by Gen Kurt Student, commander of the German airborne forces, such as seizing the Suez Canal and Malta or blocking reinforcement routes on the eastern front.

53. Rapport and Northwood, *Rendezvous with Destiny*, 4–39; and Flanagan, *Airborne*, 17–32.

54. Garland and Smyth, *Sicily and the Surrender of Italy*, 115–19.

55. Ambrose, *D-Day*, 91–92.

56. It should be noted that the British Special Air Service (SAS) initially attempted parachuting but, due to various operational problems, opted for long-range mounted raids instead.

57. Eisenhower, *Crusade in Europe*, 240; and Ambrose, *D-Day*, 92.

58. Rommel was appointed to Army Group "B" in the beginning of 1944 and charged with coastal defense in France, Belgium, the Netherlands, and Denmark. Von Rundstedt was the commander of the entire western front.

59. Fuller, *Second World War*, 291–92; Keegan, *Second World War*, 373–74; Weinberg, *World at Arms*, 685–86; and Stokesbury, *Short History of World War II*, 313.

60. One of the first to present this dispute was Basil H. Liddell Hart in *The Other Side of the Hill* (see pp. 242–43), a work based on interviews with German generals captured by the Allies.

61. Of the vast literature available—some of which is mentioned in this work—I wish to single out Stephen Ambrose's *Band of Brothers*, which recounts the story of Easy Company of the 101st Airborne Division. Chapters 4 and 5 detail the divisions' fighting during the first month of the invasion.

62. The three American divisions were unified under General Ridgway's XVIII Airborne Corps.

63. Ryan, *Bridge Too Far*, 66–67.

64. For a general review of the operation, see Weinberg, *A World at Arms*, 701–2.

65. Though the Arnhem Bridge was not seized, Eisenhower argues that the operation was partially successful because it enabled the Allies to secure the port of Antwerp, crucial to the logistic effort (see Eisenhower, *Crusade in Europe*, 310). This position may be a reflection of Eisenhower's acute political sense as he refrains from censuring Montgomery, a British national hero. He expresses a similar opinion in his final report of the fighting in Western Europe, *Report by the Supreme Commander*, 84–85.

66. Romanus and Sunderland, *Stilwell's Command Problems*, 95, 97; and Webster, *Burma Road*, 58–59.

67. Webster, *Burma Road*, 68–69. The flight path passed over the Himalayan peak, stressing the performance envelope in terms of the altitude of most Second World War aircraft (ibid.).

68. Romanus and Sunderland, *Stilwell's Command Problems*, 105.

69. US Army Center of Military History, *American Military History*, 522.

70. Van Creveld, *Supplying War*, 217, 220.

71. Flanagan, *Airborne*, 343–45.

72. For the history of the 101st Airborne Division between World War II and Vietnam, see Rapport and Northwood, *Rendezvous with Destiny*, 780–800. During this period the division was disbanded and reconstituted three times.

73. "Massive retaliation" determined that the United States would deploy its full military might, including nuclear weapons, against any communist aggression.

74. Concerning the battle's ramifications, see Clayton, *Wars of French Decolonization*, 71–72; Young, *Vietnam Wars*, 35–36; and Tucker, *Vietnam*, 76. For US commander Gen William Westmoreland's perception of the historical analogies, see his book *A Soldier Reports*, 337–38.

75. Interestingly, the North Vietnamese units were the same ones that fought in Dien Bien Phu, with some of the soldiers now serving as officers. American intelligence believed that General Giap, commander of the North Vietnamese army who had commanded at Dien Bien Phu, was commanding at Khe Sanh. The struggle became a battle of minds between Giap and Westmoreland.

76. Tucker, *Vietnam*, 141–42.

77. For the official and concise discussion of the operations, see Schulimson et al., *U.S. Marines in Vietnam: 1968*, 283–90.

78. Tolson, *Airmobility*, *1961–1971*, 170.

79. Stanton, *1st Cav in Vietnam*, 138–39.

80. Tolson, *Airmobility*, *1961–1971*, 179.

81. The 75th Ranger Regiment was formed during the post-Vietnam reforms as a result of General Abrams's demand for a unit capable of both special forces and standard operations. Two battalions were formed in 1974 and a third battalion and brigade headquarters in 1984. Scales, *Certain Victory*, 28–29; and Lock, *To Fight with Intrepidity*, 439–41.

82. Flanagan, *Airborne*, 402–3.

83. For a detailed description of the regimental forces, see Summers, *Persian Gulf War Almanac*, 208.

84. In addition to elements of the 82nd Airborne Division, the 24th Infantry Division (Mechanized), and the 6th French Light Armored Division, the XVIII Airborne Corps included armor, artillery, and aircraft for CAS.

85. Scales, *Certain Victory*, 217–19.

86. Summers, *Persian Gulf War Almanac*, 208.

87. The ranges of Soviet ICBMs are similar to their American counterparts.

88. The American Navy (and navies in general) employs assault and ballistic submarines. The former are designed to attack and defend surface fleets. The latter are not designed for naval forces but can defend themselves. The first nuclear-powered assault submarine was the *Nautilus* (1955).

89. Miller, *Cold War*, 113–14.

90. Isenberg, *Shield of the Republic*, vol. 1, *1945–1962*, 681.

91. Ranft and Till, *Sea in Soviet Strategy*, 63, 93.

92. From the Gulf War to the Second Iraq War, 1,100 missiles were launched.

93. Miller, *Cold War*, 125.

94. Cohen, *Fighting World War Three from the Middle East*, 6–7. The strategic air force became independent and gained a seat on the Joints Chiefs of Staff only in 1947. Until that time, it was subordinate to the Army.

95. Armitage and Mason, *Air Power in the Nuclear Age*, 15.

96. Miller, *Cold War*, 132.

97. Carriers are assigned approximately 85 fighter/attack, early deterrence, electronic warfare, and antisubmarine aircraft. The battle group increases the carrier's defense and assault capabilities through cruise missiles, beach target bombing, and marine force contingents. The battle group can neutralize hostile naval forces and land-based strategic and tactical targets, as well as provide close air support to ground forces.

98. Friedman, *Seapower as Strategy*, 257.

99. This refers to the B-52 as well as the newer B-1B and B-2 bombers that took off from US bases for bombing raids lasting over 30 hours.

100. Lambeth, *Air Power against Terror*, 78, 80.

Chapter 3

From Vietnam to Iraq

The Historical Development of US Military Thought, 1973–2003

American doctrine on the line of operation has gradually changed since the Vietnam War. An adaptation to the metamorphosis in the conduct of war, this transition essentially derives from the military application of technology innovations. This shift has, in fact, led to the nullification of that line.

Returning from the Vietnamese jungles and rice paddies, American officers understood that US military doctrine needed sweeping reforms. In the decade of US involvement in Vietnam, the USSR increased its armored force and improved its weapon systems in accordance with its renewed war doctrine. Although the United States had not lost, but had retreated, it was clear that Vietnam had not provided many lessons for the American military, whose primary mission was defending Western Europe. At that time, the Soviet Union showed no signs of a future collapse.

The surge in the conventional militaries of the Warsaw Pact and their decisive superiority in armed forces, artillery, and manpower were a problem for NATO war planners, especially the United States. Western doctrine maintained that in case of attack, NATO forces must first try to block Warsaw Pact forces and then go on the offensive. If conventional defense failed, then tactical nuclear weapons should be used. It was apparent that the use of nuclear weapons would lead to the destruction of western Germany and that further use of strategic nuclear weapons would certainly escalate war, eventually leading to mutual destruction. The traditional American strategy of annihilation based on attrition through firepower was irrelevant against an enemy enjoying superiority in manpower and equipment.[1] Finding the solution required innovative thought and a change in some of NATO's military ideology.

The seeds of transformation began to take root during the service of Gen Creighton Abrams as the US Army chief of staff (1972–74). Abrams adopted far-reaching reforms in the fields of human resources, war

doctrines, and armament.[2] They were continued with even greater vigor during the service of his successor, Gen Frederick Weyand. Changes in US Army doctrine after the Vietnam War are central to this study.

Changes in War Doctrine

The lessons of the Yom Kippur War (1973)—especially from the fighting in the southern Golan Heights—helped to form new US Army doctrine.[3] This large-scale conflict was fought among three militaries equipped with modern weapons used by NATO as well as Warsaw Pact forces. Shimon Naveh argues that the Israeli experience in the Yom Kippur War—which American military strategists generally view as an exemplary case of modern warfare and armored force operations—adversely affected the US analysis of the overall character of modern warfare.[4] This categorization is clearly ungrounded (as are some of his other interpretations)—and even misleading—because this war led American commanders to the realization that the need for changing the organizational structure and doctrine of US armed forces could not be ignored. In addition, although at first American think teams attempted to find techno-tactical solutions for the European front, at the end of the day, the ideas they formed and developed led to the AirLand Battle (ALB) doctrine.[5]

In the years following the Yom Kippur War, American armored corps officers examined its lessons. One of these officers, Gen Donn Starry, was appointed commander of the V Corps in West Germany in 1976. This corps was deployed in the Fulda Gap, the most vulnerable point in Europe, near the city of Kassel, the most likely place for the Soviets to start a war. Starry tried to understand how the Syrians—who had the best Soviet weapons, enjoyed numerical superiority in weapons and manpower, and fought according to the Russian doctrine—failed in their mission to conquer the Golan Heights, especially in the southern front. In fact, Starry tried to apply the lessons of the Golan Heights war to a possible war in central Europe.[6]

At the onset of war, two IDF armored brigades were positioned in the Golan Heights—the 7th Armored Brigade in the north and the 188th Armored Brigade in the south. The 188th Brigade was destroyed approximately one day after the battles began, and the 7th Brigade, in a heroic defensive battle, succeeded in blocking the Syrians.

The 7th Brigade's successful defense enabled reinforcements from the divisions of Maj Gen Dan Lener and Maj Gen Moshe Peled to reach the south. Peled wanted his forces to go on the offensive rather than reinforce weak points. So in the middle of a strategic defense battle, the IDF launched a tactical offensive on reserve Syrian forces south of Quneitra. Surprised by this move, those forces started a general retreat from the Golan Heights. A Pincer maneuver by the Lener and Peled divisions prevented Syrian reserve forces from reaching the front and penetrating Israeli defense lines on the verge of breaking down.[7]

The primary lesson the Americans learned was that the initial balance of power does not decide the final outcome; the fact that the Syrians had rear reserves did not help them at all. The second lesson was that taking a tactical offensive initiative—even in inferior conditions on the strategic level—could achieve victory. Starry became convinced of the need for delaying and disrupting the organized advancement of the next levels of fighting and logistics deep within enemy territory.

Early in 1973, the Training and Doctrine Command (TRADOC) was established. Its purpose was to organize training systems, instruct Army forces, develop organizational models (including force structure and building), define weapons demands, and develop war doctrines. The first TRADOC commander, Gen William DePuy, drew three main conclusions from the Yom Kippur War: (1) the battlefield has become deadlier; (2) modern warfare requires tighter combined and joint operations; and (3) tactical training could make the difference between success and failure in that the outcome of wars depends on the quality of soldiers and not necessarily the quality of weapons.[8] DePuy drew the third conclusion after the American military determined that the two sides were technologically equal and that their combat platforms had similar capabilities. With these premises, DePuy, as the commander of TRADOC, and Starry, as the commander of V Corps, began creating new war doctrines to answer the new character of the battlefield (according to the Yom Kippur War model) and to enable victory—or at least the blocking of Soviet forces in Europe—without nuclear arms.

In 1976 TRADOC published a new military doctrine—active defense.[9] A Clausewitz-type doctrine in character, it was based on the German military model advocating the principles of the defensive battle. The active defense doctrine—created after the Soviet operational concept founded on a coordinated system of armored attacks—was understood in NATO. According to this war doctrine, the defense

force must be maintained, and the enemy should be attacked in the rear of his ranks, thus creating a tactical surprise. The general goal of the active defense doctrine was to block the advance of the Soviet force while destroying as much of the armored forces as possible, thus enabling the defending force to reorganize before the next wave of attack. However, American armed forces were strongly criticized for employing this doctrine, derided as more of a tactic for avoiding defeat than for achieving total victory.

On this basis, the American military turned to conceiving approaches of achieving victory. One of those most involved in innovating doctrine was General Starry, who had started thinking about new options after taking command of V Corps. Against the American corps were four Warsaw Pact armored armies deployed in three large waves. In Starry's opinion, the active defense doctrine could block the first attack wave, but American forces did not have enough depth to continue with the blocking battle or go on an offensive against the next two waves. Starry determined that he should find a way of attacking the armored forces in the rear ranks, preventing them from reaching the front. He continued to formulate his ideas when he was appointed the commander of TRADOC in 1977.[10]

With the introduction of new weapons and platforms, practical aspects were added to Starry's theoretical doctrine. It was Abrams who initiated this development program at the end of his service as the US Army chief of staff. Although this initiative was nicknamed the "Big Five," seven new weapons resulted from it: a new main battle tank (M-1 Abrams), an infantry fighting vehicle to join main battle tanks (M-2/M-3 Bradley), an attack helicopter (AH-64 Apache), an assault helicopter (UH-60 Blackhawk), an antiaircraft missile (HIM-104 Patriot), an antitank attack aircraft (A-10 Thunderbolt), and the multiple launch rocket system (MLRS). This variety of weapons supplied the operational components for the new war doctrine that Starry developed.

The analysis of armored battles in the Golan Heights also led Starry to conclude that the unquantifiable characteristics of combat efficiency—including leadership, endurance, and determination—had tipped the scales in favor of the IDF. Starry endeavored to understand how soldiers fight rather than focus only on war doctrines and methods. The 1982 version of the American operations doctrine, Field Manual (FM) 100-5, *Operations*, therefore avoids discussing the balance of power and focuses rather on prominent intangible elements. This

manual considers factors such as leadership, initiative, motivation, and training equal to firepower and maneuverability. The new war doctrine was defined as integrated AirLand Battle. The idea was to find a way of destroying the second and third attack waves before they reached the contact line. The new weapons were integrated into this strategy.

The "Big Five." Seven new weapons actually resulted from this initiative. *Top left*: M-1A1 Abrams Marine Corps battle tank at Twentynine Palms in a combined arms exercise (courtesy USMC); *top right*: M2A2 Bradley leaving for a mission (courtesy USAF); *center left*: AH-64 Apache arrives at Kunsan AB as part of Key Resolve/Foal Eagle exercise (courtesy USAF); *center*: UH-60 Blackhawk in flight during Operation Desert Shield (courtesy USA); *center right*: Patriot missile during a training certification event (courtesy USAF); *bottom left*: training demonstration of MLRS missile (courtesy USA); and *bottom right*: A-10C Thunderbolt II during close air support training (courtesy ANG).

FM 100-5 proposes two offensive methods of operation. The first is high-accuracy, long-range fire (MLRS) and massive use of electronic warfare to harm front enemy forces. This strategy includes employing attack helicopters (AH-64) and attack airplanes (A-10) as well as light attacks in rear enemy ranks using elite infantry, airborne forces, and assault helicopters (UH-60). In 1974 the military began forming elite infantry battalions—the Rangers. In high-intensity confrontation, these battalions had to execute specialized missions in the

enemy's rear ranks and especially attack strategic targets (command, control, and communications [C3]), logistic systems, facilities, and means of transportation.[11] The mission was to create openings in enemy ranks and to form a basis for an armored counteroffensive (M-1/M-2).

The second method is to recognize, as quickly as possible, any gaps in enemy ranks and to launch a heavy armored attack (M-1) supported by tactical air forces (A-10) and attack helicopters (AH-64) with long-range fire support (MLRS). The need for attacking rear enemy ranks required a more comprehensive outlook beyond the perspective of the corps commander or the tactical frontline level. As only the Air Force possessed this ability, TRADOC doctrine planners started looking into ways of integrating the air forces in attacks. This endeavor led to the joint operations/jointness doctrine.[12]

In 1979 TRADOC established a think tank with Tactical Air Command and began developing a joint doctrine for destroying enemy antiaircraft systems, enabling the Air Force to work in (relative) freedom and destroy the second and third Soviet ranks. Although the updated FM 100-5 edition was published in 1982 before the Joint Staff conclusions were formed, the work continued, and in 1984 rules for Air Force and Army cooperation were formulated according to ALB principles. The Air Force became an inseparable part of the land battle and was integrated in attacks on targets beyond the corps range. Air Force doctrine in ALB is termed *battlefield air interdiction*.[13] The primary missions of the Air Force were (and still are) to isolate enemy forces at the front line, prevent the arrival of reinforcements, and destroy enemy forces on their way to the front. The implication of adding depth to the battlefield using the Air Force is that the battle is fought against all enemy ranks and not just the first wave, including the enemy's command and control (C2) and logistics systems. The addition of depth to the battlefield required the use of precision-guided munitions (PGM) to destroy reserve forces as well as new technologies enabling attacks on targets previously marked for nuclear weapons. The ALB approach can thus be seen as the beginning of a military revolution.

New weapons, interservice joint operations, refined training systems, and organizational changes were in the opinion of American doctrine planners the formula for blocking the Soviets, with no need for using nuclear arms. The updating of FM 100-5 from 1982 to 1993 is in fact the second stage in the process of transformation in the American armed forces. In 1991 the doctrine was updated again, and

the military's formal war doctrine became ALB, emphasizing the need for the services to operate jointly, coordinate attacks, and execute control in real time.

The FM 100-5 1993 edition stresses the armed forces' ability to operate everywhere and move quickly from one type of conflict to another. This edition adapts to the political and geostrategical post–Cold War reality. For instance, it addresses the shift in focus from European to global and towards US-based task forces able to quickly reach any location in the world, versus maintaining forces whose base of departure is as close as possible to the conflict area.[14] Civilian theoreticians also influenced this doctrine in their emphasis of the role of information in the new business and economic management mechanism. These trends characterize the transformation development process occurring today.

The failed attempt at releasing the American hostages in Iran (Operation Eagle Claw, 25 April 1980) led Congress to opine on the poor state of the American armed forces. But this failed attempt instigated another process—joint operations, or jointness. The forces participating in Operation Eagle Claw were Navy (helicopters taking off from aircraft carriers), Marine (helicopter pilots), Army (raid and evacuation Ranger and Delta forces), and Air Force (Hercules aircraft). After the operation, Congress looked into the decision-making process of the command hierarchy—the Joint Chiefs of Staff (JCS) and the chairman of the JCS (CJCS). In addition, the committee looked into the American officer training system. The conclusions were anchored in legislation named after the committee heads: the Goldwater-Nichols Act.[15] It expanded CJCS authority and regional commander in chief (CINC) responsibilities. Comprehensive reform was also carried out in the structure of the special forces; they were subordinated to one functional command—Special Operations Command (SOCOM).

Under the regional commander were forces from all the services, and he activated them according to the operational needs in the battlefield. The CINC is responsible for his forces and functions independently of the power or prestige struggles of the JCS. Almost overnight, the act has made the position of the CINC a desirable and important one for the future promotion of a senior officer. The command and staff academies of every branch of the US armed forces began including courses on joint operations in their syllabi. By then the Cold War had just concluded, and an old-new threat complex was created.

Post–Cold War Threats against the United States

What has happened to the classic approach emphasizing the physical aspect of geostrategy can be explained within the context of the complex of threats against the United States—as defined by Washington. The following scenarios serve as the basis for understanding the building of US military power after the Cold War. They also help us to recognize why a new conception is required in the field of military thought, doctrine, and force creation. The reference scenario defines the system of threats on the United States and the range of conflicts in which it may find itself. This review combines the classic approach regarding the threat-oriented concept with a new approach—as defined by the 2001 *Quadrennial Defense Review* (*QDR*)—regarding a capability-oriented concept.

In the Cold War, the United States defined the Soviet Union as the chief—and perhaps sole—threat to the American way of life derived from the principles of liberal democracy formed in the eighteenth century, even before the United States became independent. Although the dissolution of the Soviet Union in the late 1980s removed the Communist-Soviet threat, a line of new threats sprang up on the ruins of Communism. These include (1) states who might use unconventional capabilities against the United States and its allies, including the production and distribution of weapons of mass destruction (WMD); (2) state-sponsored terrorism; (3) terror groups; (4) drug trafficking and distribution; and (5) international organized crime.[16] The last three threats are amorphous and do not depend solely on geographical-political aspects. The mobile nature of these threats also makes them hard to target. The American government is particularly worried about the burgeoning strength of radical countries with a nonconventional arsenal and attempts to prevent the distribution of these weapons. American society is concerned with the drug problem, which infiltrates all social classes, and of course the problem of terror. Drugs are the primary cause for various criminal activities—such as prostitution, corruption, burglaries, and murder—that also pose a threat to society.[17] This mostly domestic problem is of great concern to the government, which invests vast resources in its resolution.

The prevention of the distribution of WMDs is a problem of foreign policy. The threat-system complex creates the overall risk of cooperation between terrorist organizations and international organized crime organizations that may acquire WMDs through drug

trafficking. Terror organizations have strong links with international organized crime syndicates in eastern Europe and Russia with the ability to "upgrade" terror activities by acquiring sophisticated conventional weapons such as shoulder-mounted antiaircraft missiles and even WMDs.[18] Terrorist groups—especially Islamic ones—can also acquire WMDs from terrorist-supporting countries such as Iran and North Korea.

An assessment of the threat complex against the United States presents us with the rationale behind American foreign policy in the post–Cold War era in which the United States has become the world's only superpower and taken upon itself, even more strongly, to police the world. This position required the creation of a new system that, after determining the threats, would form the methods of response and action. The threat complex, as reviewed above, is defined as putting the American way of life at risk and, according to national policy, should be fought against with all means at the disposal of the United States, including military means.

The delineation of threats in fact led to the formation of a foreign policy based on the US system of economic and geostrategic interests. If, in the past, US foreign policy had to face the aggressive ambition of Communism to achieve global hegemony, the enemy was now the internationalism of terror and drugs. The contemporary threat complex has driven Americans to create a new world order in which the United States can exert its full political, economic, and military power. Indeed, international terrorism and drugs harmed the United States before the 1990s, but these problems were minor compared to the might of the Soviet "evil empire." The Communist threat after 1945 was the basis for the formulation of American foreign policy. Moreover, the West, headed by the United States, argued that international terrorism is supported by the Soviet Union. It observed the Soviets directly assisting various terrorist groups by training them in camps in their country and, indirectly, by providing them with weapons and funding through their proxies, especially eastern European countries.[19]

One may surmise that the operation of terrorist organizations against various Western democracies (Italy, Japan, West Germany, the UK, France, and Israel) was perceived as a weapon that might endanger the political, social, and economic stability of those countries and thus be a kind of war by proxy for the USSR. Thus, although the West considered international terrorism a threat, it was linked to

the USSR as part of the global Communist threat. The threat was clear, its location and capabilities were clear (on some intelligence level), and so were the policies and strategies derived from it. The practical expressions of the American containment policy, formulated by President Truman, enabled the United States to become politically, economically, and militaristically involved in any place where it recognized what it termed Communist insidiousness. On this simplistic level, it is possible to analyze and explain the Korean and Vietnam Wars as well as dozens of other involvements on different scales throughout the world. The position that the United States adopted of "policing the world" enabled it to operate as the only superpower.

With the fall of Soviet Communism, a new system was required to preserve global American hegemony. The drug threat thus turned from being a secondary threat into constituting a "clear and immediate danger." There is no doubt that the drug problem is one of the most serious social issues the United States has had to deal with. The associated domestic problems have impelled the United States to declare a war on the production and trafficking of drugs and to intervene in the domestic affairs of countries throughout the world, especially key areas for the production of drugs, such as Latin America and Southeast Asia. In this way, the United States uses its influence to maintain its hegemony. For example, the war on drugs led not only to massive economic assistance to Latin American countries but also to the provision of weapons and military advisors to train law enforcement units.[20] Changes in the definitions of *terror* and *drugs* by various American governmental agencies have caused the public opinion that these two problems jeopardize American national security. Further, the consensus is that international law allows the United States to defend itself even through military means, including invasion, to target the threat before it enters the country, especially in the Middle East (terrorism) and Latin America (drugs). The State Department even has a blacklist of drug-producing countries. In this context, it is interesting to note that the Clinton administration cleared Iran's name from the list as part of an attempt at rehabilitating relationships between the two countries.[21] The "drugs–terrorism–weapons of mass destruction" triangle makes US influence and involvement almost global and assists it in maintaining its status as a superpower.

FM 100-5, *Operations*, 1993–2001

After the preparation of the 1993 edition of FM 100-5 and the establishment of ALB as the official US military doctrine, the armed forces continued to improve the new war doctrine. However, the 1993 edition can be seen as the basis for future operational principles. *Joint Vision 2020* and the 2001 *QDR* particularly encapsulate those precepts.

The main impetus for revising FM 100-5 was the significant political change in the world as evidenced by the end of the Cold War and the dissolution of the Soviet Union. The establishment of a new world order changed the political-strategic context in which US armed forces will operate in the future. The scenario of a large-scale attack in central Europe by Warsaw Pact forces and a NATO defense has been replaced by an array of scenarios in which the United States has to be capable of involvement anywhere in the world.

The new strategy emphasizes a range of conflicts in a variety of military operations, particularly military intervention not as part of a war. Another innovation of the 1993 edition is the examination of the new war arena. It considers air and land dimensions as part of the strategic and tactical maneuver but also extends the battlefield to all physical aspects, including space and electromagnetic space. The 1993 edition is the first to examine the essence of information warfare and to try and define how information operations should be integrated with the AirLand Battle doctrine. Technology that the military can utilize is translated in the document as a power multiplier, and some argue that the doctrine should reflect new technologies and their future potential. Another power multiplier is the integration of weapons and technologies as one system.[22]

Even in the 1993 edition, it was clear to American policy makers that the United States faced ambiguous threats. The doctrine update determines that the United States must prepare for a broad spectrum of threats and prepare the military, especially the Army, to operate anywhere against any kind of threat as part of a multiservice force or an international coalition. The update further states that this concept is the basis for the military concept of the employment of task forces. During most of the Cold War, the United States had only one division for rapid deployment on the strategic level (the 82nd Airborne Division), but now the military had to prepare for rapid deployment in operational areas chosen at the political level.

Two parallel developments have influenced this approach. The first is budget cutbacks that reduced front deployment forces. The other is the global perspective of the United States regarding having a military that can operate not only in regions where it has bases that have come under attack but also where it has no front deployment bases.

These are the central points of the 1993 edition dealing with the strategic level. Three main concepts undergird this transformation: joint operations, the shift to expeditionary forces, and network-centric warfare (NCW). How are these expressed in FM 100-5?

Joint Operations

The 1993 edition determines that the Army shall work as part of a joint team. The enemy, which will try to avoid the actions of one arm, would then be exposed to attack by another arm.[23] This was demonstrated in Operation Iraqi Freedom when armored Republican Guard forces left their positions to avoid contact with US ground forces that had halted due to weather conditions and to let the logistics ranks rendezvous with them. But when they left their positions, they were exposed to the deadly power of the US Air Force. This demonstrates the essence of ALB: ground forces disrupt enemy response capabilities by coordinating direct and indirect fire from ground weapons and aerial platforms. The strategic Air Force has the role of prevention, meaning it must hit the enemy's C2 systems and logistics forces and block the route for reinforcements.[24] In the immediate battlefield area, on the tactical and operational levels, air forces can provide close air support. These missions will usually be given to air forces and especially to attack helicopters.[25] At the same time, technological developments—particularly the development of PGMs—have also lead to the use of the strategic air forces for CAS. Thus, the giant bombers—the B-52, B-2, and B-1—are also used in Afghanistan and Iraq for CAS missions.[26]

FM 100-5 also defines cooperation between Army and Navy forces. The sea provides another dimension for alliances by sending forces at strategic and operational levels as well as by launching aerial and ground operations from the sea.[27] Indeed, a cooperative system has been created that includes all main services of the American armed forces. Additionally, the manual has guidelines for collaboration in space and the use of special forces.

Shift to Expeditionary Forces

The 1993 edition deals with the large-scale deployment of task forces anywhere and at any time as part of a joint operation. The basis of the expeditionary forces is light infantry units—the lion's share of the task force in quick retaliation operations thanks to their fast strategic deployment capability.[28] In Operation Desert Storm, this was the 82nd Airborne Division. The division's first brigade arrived in Saudi Arabia on 8 August 1990, only a few days after Iraq invaded Kuwait. The entire division was ready for defense on 14 August—less than two weeks after the invasion—and the light infantry divisions could be sent to the battlefield by such means as parachuting, helicopters, and landing. The Second Iraq War is a good example of this operational approach.

Following Turkey's refusal to allow the United States to open a second front on Iraq's northern and western borders, the 173rd Airborne Brigade parachuted into that area and took control of it. The successful operation of the "Sky Soldiers," who arrived directly from their base in Italy, was facilitated by close and efficient cooperation with the Air Force and other special forces in the area.[29]

These units can be organized at an early stage, take control of vital ground positions, and hold them until heavier armed forces arrive. Joint operation is also involved as early as the rapid deployment stage, for example, in air support from aircraft on carriers (as was the case in Afghanistan) and strategic bombers. Light forces are later reinforced with armored forces and heavier mechanized forces arriving via sealift. Indeed, airlift operations enable rapid arrival at the fighting area, but the supply and equipment conveyance capability is limited. Sealift operations, albeit slower, enable the conveyance of large quantities of supplies, heavy equipment, and any other required weapons system and thus complement airlift.[30]

Network-Centric Warfare

The 1993 edition of FM 100-5 deals with NCW in relation to surveillance and reconnaissance. This concept was at the beginning a product of naval thought. Only in the late 1990s and early 2000s—especially with the publication of the *QDR* in 2001—did it become widespread in all services. The information collection process is performed with all types of sensors used by the United States in airborne platforms, in space, above ground, and underground (especially the

submarine space). Collection and surveillance missions can be used for appraising an adversary's intentions even in times of peace and may serve to find targets and attack objectives in war. Surveillance and reconnaissance missions are performed at all levels of strategy. At the tactical and operational levels, the findings are transferred as quickly as possible to the relevant forces, which will be given the mission of attacking the chosen targets and, later on, the task of evaluating the damage.[31] This is in fact NCW in its early phases, and the attempt to improve the system following the lessons of the First Gulf War is evident. We will later discuss NCW as embodying the essence of the change in geostrategy.

The 1993 edition finally turned AirLand Battle into the official doctrine of the US armed forces. This is true not only for the Army but for all services of the American armed forces, creating a formidable war machine that can operate in any dimension. The three principal fields at the basis of the transformation can also be found in the 1993 edition. The most important point is joint operations. The American armed forces have come a long way from the failed operation for rescuing the American hostages in Iran to the First Gulf War. The destruction of Iraq's air defense system on the first night of the campaign is an excellent example of joint operations. Aircraft from all services, including the aerial forces of SOCOM, participated in the attacks. Special operations forces require close coordination among aerial, naval, and ground forces, and the 1993 edition emphasizes its significance.

It could be said that the ALB doctrine is the real revolution the US armed forces have undergone and are still undergoing in the theoretical aspect. Throughout most of American military history—starting with the Civil War—the military's basic strategy was attrition through massive firepower.[32] The United States has always relied on its superiority in numbers and firepower for defeating its enemies. The Union military defeated the Confederacy using this deadly method. It was American firepower and mass that defeated Germany and Japan in World War II. In the Korean War, this approach was nicknamed the "meat grinder." The soldiers knew this system, often used at heavy cost to the fighting ranks. FM 100-5, in its different editions (until the 1993 edition), praises maneuvering over attrition since US and NATO forces did not enjoy superiority in either manpower or firepower over the Warsaw Pact armies.

The Technological Military Revolution

It was argued above that technology was the basis of military revolutions throughout history. Next we examine how technological developments in the late twentieth century have affected American military thought and led to the creation of a new combat doctrine. At the heart of discussion on the military technological revolution is information technology. This discussion also encompasses the view of military theoreticians: technology supports military operations that cancel out the classic line of communications.

The first to notice this change were the Russians. Even in the early 1980s, they regarded the diminishing political-military utility of nuclear arms and the improvement of conventional military capabilities through new weapon technologies as a military revolution. They emphasized three technological developments that only the United States possessed, which in their opinion were at the foundation of the military revolution. These are the high concealing ability of fighting platforms (stealth), cruise missiles, and PGMs.[33]

The principal message of Russian military thought was that modern technologies would revolutionize military doctrine in operational concepts, training, force makeup, defense industries, and research and development priorities. In fact, the Russian military considered the military revolution as the core of the future war, which will center on technology, military accuracy, and information systems. The new Russian doctrine—approved in 1993 after the study of the lessons of the Gulf War—calls for a focus on research and development efforts to promote new weapons for depth attacks, advanced command and control and intelligence systems, and the means for electronic warfare.

In Russian military thought, there have so far been five generations of war. The first generation was dominated by infantry and cavalry, but with no firearms. The second generation came after the arrival of gunpowder and smoothbore firearms, replaced in the third generation by rifled firearms and barrel artillery. With technological development and the industrial revolution, the fourth generation included automatic weapons, tanks, airplanes, radio equipment, and powerful means of transportation. The fifth generation, in the mid-twentieth century, saw the arrival of nuclear arms and the platforms for their deployment.

Past wars were based on large ground forces fielded to destroy enemy forces and their economic potential and political system by causing the

enemy to suffer many casualties and by taking control over and holding large areas of enemy territory (the World War II scenario). Now, due to continued technological advancement, sixth-generation warfare has come into existence: space-air war. This future war will begin with a system of mutual attacks in the air and space dimensions. In this scenario, there is no front, with space being an independent area of operations rather than part of the aerial dimension. Since, even at the beginning of a war, certain strategic targets would be achieved using massive attacks from air and space, winning a war will be possible without conquering any territories. This is, in fact, the end of the age of maneuvers and the enhancement of firepower operations.

The sixth generation of war will also be characterized by information operations in which smart conventional weapons would be used for accurately destroying pinpointed targets with limited losses and military defeat would be caused with no need for maneuvers. Military operations will be based on war waged in air, space, and virtual space, together with a dramatic expansion of C2 systems, electronic warfare, air defense (including antiballistic missiles), and computer data communication and intelligence collection capabilities—with information technologies being a power multiplier—according to the following formula: (C^4I + EW + SW + ABM) x IW = future warfare/operations.[34]

If in past wars, according to Russian military thought, the vertical dimension had only a support role, in future wars, efforts will be focused on air, space, and virtual space while land warfare would have a supportive and secondary role. Electronic warfare and intelligence collection shall undergo a fundamental change—from a support to a decisive weapon—and will be of equal value in achieving superiority in war. The Russians spoke of strike intelligence, meaning information collection for acquiring targets, and of real-time attacks, which require initiating attack operations against the enemy's reconnaissance and intelligence systems, also through information operations.

Information operations are actions taken to affect information and the enemy's information systems and to defend those of friendly forces. The revolutionary character of the Gulf War, in the opinion of Russian theoreticians, was expressed by the birth of a new form of fighting concerned with electronic means, battles through remote control, air assaults, and mobile depth operations. The electronic warfare of the Gulf War was groundbreaking because electronic attacks were as effective as air and naval firepower attacks and missiles. The Gulf War was, therefore, an operation integrating electronic and

firepower attacks. The war began with a surprise air attack rather than a ground maneuver attack. Despite Russian doctrine emphasizing the RMA, American military thought is not unanimous about the revolutionary character of the First Gulf War.[35]

The end of the Cold War and the great geopolitical and geostrategic changes following the dissolution of the Soviet Union brought about uncertainty in regard to research and development and equipment and training needs. As there is still no scientific method for telling the future, setting guidelines for long-term development of weapons is critical. The first guideline should consider techno-scientific directions of advancement (e.g., automation and artificial intelligence) to develop future combat systems. The second guideline should integrate the techno-military aspect of the doctrine and advance its implementation to achieve political goals. According to the Russians, the United States alone can implement the RMA and combine all elements of this system into one whole. At the same time, other countries can acquire some aspects of the RMA. In the opinion of the Russians themselves, the economic crisis in Russia does indeed cause their systems to be behind in terms of research and development of military technologies. In their view, however, they can copy Western systems and thus overcome the West in the development of new conceptions and operational organizations.

The relevance of Russian military thought regarding the military revolution can be summed up by saying that the development of weapons—particularly PGMs—will lead to absolute changes in the nature of war that will affect the structure of the military and its methods of operation. In the new age, the power of conventional weapons will equal that of tactical nuclear weapons, making it possible to destroy large armored forces hundreds of kilometers away over short periods of time. The United States, unlike the Russians who focus on the techno-military aspects, claims that this capability is not merely a military revolution but a revolutionary change at high levels in political, economic, social, and cultural systems.

Finally, pertinent to our discussion are the principles of technological military revolution as expressed in a study prepared for the DOD in 1993.[36] This research serves as a basis for thinking on the subject of military revolution after the Cold War and the lessons of the First Gulf War. The basic question the study tries to answer is which technologies, doctrines, and forces developed in the US armed forces will have a crucial influence on the fighting capability of the United

States. In the opinion of the researchers, the military technological revolution is a combination of innovative technologies, doctrines, and military organizations that change the character of war. The military technological revolution will improve the combat efficiency of US military forces and dramatically enhance the speed at which they can manage and decide conflicts of any kind. In fact, these technologies may assist in blocking any future enemy since American forces will present warfare capabilities that no enemy can face.

This research first points out the importance and superiority of NCW. This construct is based on a variety of C2 elements, information warfare, and weapons systems based on stealth and PGMs, together with well-trained, highly motivated manpower working in new organizational frameworks and according to a new doctrine that demands the greatest utilization of the new technologies and capabilities. These technologies are very useful for the creation of small ground forces in the form of autonomous multiservice combat teams that use stealth platforms and PGMs. This structure combines absolute control of information, C2 and advanced weapons systems, PGMs, efficient doctrines, and skilled, enterprising troops.[37] This combination of NCW elements blurs the boundaries between services. The four services must cooperate in an increased manner—indeed, not to be merged as one service but to work closely and efficiently to produce maximum utility from the technological revolution. In other words, the ultimate expression of the technological revolution is the integration of NCW and joint operations.

In terms of the development of the transformation process, it seems that the military thought of the late twentieth and early twenty-first centuries was not the whimsy of this or that person in the American military hierarchy. Certainly, former secretary of defense Donald Rumsfeld was a strong personality with a great effect on the military system, but it could be said that his ideas continued a process that had already begun in the early 1970s. Rumsfeld himself has stated that the military is not experiencing a revolution but rather a continuing process, the conclusion of which will not be determined at any one point.[38] In this respect, the case can be made that the 1993 edition is still relevant. Its update in 2001 (FM 3-0, *Operations*) does not exhibit any significant breakthrough.

This review of the military revolution processes suggests that American planners are trying to negate the difficulty involved in the mobilization of armies from the destination point to the target—the

line of operation. The way to do this is by making forces more mobile, in fact, to provide them with the ability of acting as task forces through joint operations. All of these actions rely on the command, control, communications, and intelligence (C3I) that enable the transfer of relevant information in real time. The practical expression of this capability is NCW.

Notes

1. Originating in the war against Mexico (1846–48), the strategy of attrition remains the basis of US doctrine ever since. In the Korean War, Gen Matthew Ridgway (and his successor Gen Mark Clark) implemented the "meat grinder" strategy, which hurled land-, sea-, and air-based firepower against the numerous Chinese. As for the First Gulf War, while some have argued that the US plan of operations represented a military revolution, Gen Norman Schwarzkopf's strategy did not actually stray from US tradition. For five weeks the coalition air forces pounded Iraqi forces as in a war of annihilation, enabled by the United States' substantial material superiority. But after World War II, the United States faced the Soviet Union, which also possessed unlimited resources. See Paschall, "Development of an American Military Philosophy," 108–9.

2. For an evaluation of Abrams's tenure as the US Army chief of staff, see Summers, "Army after Vietnam," 361–62.

3. Toffler and Toffler, *War and Anti-War*, 48–50.

4. Naveh, *In Pursuit of Military Excellence*, 254–55.

5. Toffler and Toffler, *War and Anti-War*, 48–50.

6. Newell, "Development of Operational Art," 1244.

7. Rabinovich, *Yom Kippur War*, 188–216; Aker, *October 1973*, 72–76; and Allen, *Yom Kippur War*, 87–98.

8. Summers, "Army after Vietnam," 363.

9. FM 100-5, *Operations*, 1976.

10. Romjue, *American Army Doctrine for the Post–Cold War*, 16.

11. Lock, *To Fight with Intrepidity*, 439.

12. For example, a Marine may request air support from Air Force aircraft, and an Army officer can coordinate and direct a cruise missile attack from a naval platform located hundreds of miles away. According to Joint Publication 1-02, *Department of Defense Dictionary* (p. 139), "joint" refers to actions, operations, organizations, etc., involving two or more services (e.g., the Army and Navy).

13. Scales, *Certain Victory*, 26–27.

14. FM 100-5, *Operations*, 1993, 1-1–1-5.

15. Newell, "Development of Operational Art," 1244–45.

16. Director, CIA, selected speeches before the Senate Intelligence Committee, 1996–2006, CIA website.

17. Duke and Gross, *America's Longest War*, 103–21; and Blakesley, *Terrorism*, 300–303.

18. Barnett, "Islamist Groups Take Root in the Balkans," 21; and Clutterbuck, *Terrorism and Guerrilla Warfare*, 44–46.

19. Kupperman and Trent, *Terrorism*, 5, 30–31, 33; and Ledeen, "Soviet Sponsorship," 87–92.
20. Salisbury, "SEALs, DEA Break New Ground in Colombia," 7.
21. Litwak, *Rogue States and U.S. Foreign Policy*, 191–92.
22. FM 100-5, *Operations*, 1993, 2-3.
23. Ibid., 2-2.
24. Ibid., 2-19.
25. Ibid., 2-23.
26. Boot, "New American Way of War," 53.
27. FM 100-5, *Operations*, 1993, 2-19.
28. Ibid., 2-22.
29. Murray and Scales, *Iraq War*, 193–94.
30. FM 100-5, *Operations*, 1993, 2-20.
31. Ibid., 2-19–2-20.
32. Hart, *America Can Win*, 32.
33. Murray and Knox, "Thinking about Revolution in Warfare," 3.
34. C4I—command, control, communications, computers and intelligence; EW—electronic warfare; SW—space warfare; ABM—antiballistic missile defense; IW—information warfare.
35. Keaney and Cohen, *Revolution in Warfare?*, 213–26; and Press, "Myth of Air Power in the Persian Gulf War," 5−44.
36. Mazarr, Shaffer, and Ederington, *Military Technical Revolution*.
37. C2 systems integrate advanced computerization and communication networks, all linked to one system. This capability facilitates a better understanding of the battlefield and continuous contact with superiors and subordinates (down to the platoon commander level).
38. Rumsfeld, "Transforming the Military," 27.

Chapter 4

Theoretical and Practical Aspects in American Military Thought

To help the US armed forces assimilate transformation processes, Defense Secretary Rumsfeld initiated the Office of Force Transformation (OFT) in the Office of the Secretary of Defense in 2001. One of the OFT's functions, until it was disestablished in 2006 and its roles dispersed among other DOD offices, was to implement network-centric warfare as the doctrine of the information age. The NCW dimension is the theoretical foundation for understanding the nature of the entire transformation. The information age and the very concept of information are the basis of the theory, and NCW is the mechanism for the practical transformation process.

Indeed, DOD and CJCS guidelines (2001 *QDR* and *Joint Vision 2020*, respectively) use terms such as "the information age," "information technology," the "shift from the industrial age to the information age," and other expressions testifying to the political, social, and technological changes in the post–Cold War era.[1] The "three waves" concept of sociologist and futurist Alvin Toffler is one of the most influential theories for NCW and the American military's approach to warfare. We therefore examine it in the context of American military thought to affirm this study's argument that the physical line of operation is being rendered irrelevant.

Third-Wave Theory: The Information Age

In his works, Toffler argues that a new type of human society is being developed—the result of the "third revolution" or "wave" in the history of the human species.[2] The first revolution (the first wave) relates to the establishment of permanent settlements that enabled agrarian societies to produce and store economic surpluses, which justified fighting for their possession. The greatest damage to a society in the wars waged during this period was the destruction of its agriculture. The industrial revolution created the second wave, with mass production forming the economic basis of industrialized countries. The basic principle of the wars of the industrial age was mass destruction,

deriving from the gradual industrialization of warfare. The military parallel of mass production was mass conscription, as carried out by France in 1793 (levée en masse).

Second-wave wars centered on the desire to acquire raw materials and the means of production. A key principle in the second wave—uniform standard—was also applied in war in the form of weapons, training, organization, and doctrine, with the overall staff analogous to civil bureaucracy. Mass production—leading to mass education, mass media, and mass consumption—also introduced mass destruction and weapons of mass destruction. World War II was in fact the pinnacle of the second wave. Since the mid-twentieth century, range, speed, and destructive power have reached their maximum potential.

In terms of range, no place on the globe is unreachable for ICBMs, submarines, aircraft carriers, and long-range bombers. The development of ABMs based on laser beams has led to their speed of action being equal to that of light. While nuclear arms are an exceedingly destructive force, even nonnuclear weapons are 100,000 times as powerful, on average, as weapons commonly used at the beginning of the industrial age.

Second-wave wars were won by the parties that had accumulated great industrial force and succeeded in enlisting recruits and promoting their mental capacities. The development of modern warfare—the industrial age war—has reached its final state of self-contradiction. Therefore, a revolution in military thought was required to reflect the economic and technological forces of the third wave.

In third-wave society, information has become the primary means of production, replacing the earth (first wave) and machines (second wave) as the means of production. The third wave divides the world into three cultures or societies in unavoidable conflict. The new society—the information society—fights for global superiority, just as the second-wave society sought global hegemony against the premodern society of the first wave. First-age societies will continue to wage a war of survival, and second-wave societies will fight to maintain the hegemony that has been theirs for hundreds of years. Such conflicts relate not only to physical wars among armies but also to economic wars among giant corporations trying to survive when faced by high-tech companies with a flexible hierarchical structure.

With the shift from the industrial to the information age, a country's ability to exist depends not only on production but also on how its society processes and produces information. On the basis of this

assumption, the probability of a violent clash between third-wave societies and second-wave societies desiring to move on to the third wave increases due to the availability of information or the intentional harming of an information-based infrastructure.

Influence of the Civil Sector

US workers in service and liberal professions outnumbered production workers for the first time in 1956. This shift marked the beginning of the diminishing importance of the second-wave and the birth of the third-wave economy. Another benchmark for the United States was a century earlier, when in 1860 agricultural production exceeded industrial output for the last time. The Civil War that immediately followed (1861) symbolizes the victory of the second-wave (the Union) over the first-wave economy (the Confederacy). Table 3 sums up the characteristics of wave economies.

Table 3. Wave economy characteristics

	First-wave economy	Second-wave economy	Third-wave economy
Characteristic	Agriculture	Industry	Information
Principal resource	Land	Machines	Knowledge

A number of economists with an original outlook began tracking the growth of information power in the American economy to predict its long-term effects. In the 1960s, giant corporations such as IBM and AT&T commissioned those economists to conduct a study for the improvement of their organizational systems. Groundbreaking studies called upon giant corporations to implement radical organizational changes and even to split into smaller subsidiary companies.[3] The principle effect of the civil sector on the transformation is its conviction that war has similarly moved from the industrial to the information age—the third wave. The civil sector emphasizes that the DOD not only recognizes this transition but also operates from the context that current methods of managing and organizing the military are no longer relevant.[4]

Wars in the Third-Wave Age

Nonconservative American officers were convinced by Toffler's views in *The Third Wave*. It became clear that just as the world moves from a "physical force" economy to a "brain force" economy, wars are also beginning to be managed through third-wave means. The practical expression is the destruction of the enemy's command, control, and communication facilities through the use of joint military operations. It is crucial to know what the enemy is doing and to prevent him from knowing what you are doing.

From a military standpoint, the information revolution is expressed on three levels: (1) the increasing dependence of Western societies on an information-based infrastructure and the vulnerability of those systems, (2) the military's adoption of the information revolution's technological breakthroughs for its development, and (3) the use of information warfare on the battlefield from the strategic to the techno-tactical levels (information operations). Information warfare gives the military the capacity to construct an accurate, up-to-date picture of the battle that is communicated in real time to the relevant ranks in order to paralyze enemy systems and neutralize his ability to conduct NCW.

The information element may improve the fighting potential of military platforms. In equal conditions in terms of conventional and nuclear weapons, superiority in information (C2, intelligence, and electronic warfare) constitutes a power multiplier, and its effect on military operations in all levels of fighting is decisive. Moreover, the two Gulf Wars have demonstrated that the side with an advantage in the quantity of conventional weapons (Iraq) lost to the side with the ability to conduct information warfare (United States), meaning that the third-wave army defeated the second-wave army. If the effect of information warfare is to be translated into transformation processes, superiority in information could be said to enhance command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capabilities. This competency leads to changes in maneuvers, strikes, and protection of the fighting space and thus heightens the ability to control the entire campaign. These developments necessitate a new operational approach—a spiral process as the very use of information warfare began with a change in operational approach.

Together with the nonmassiveness of war, there is also nonmassiveness in the nature of the threat. In fact, the nonmassive threat

returns warfare to the first-wave phase as the great threat of a mass war between superpowers (such as the Napoleonic Wars and the world wars) was replaced with an almost endless variety of niche wars, as defined by Toffler, or "fault line" wars, as defined by Samuel Huntington.[5] We now see a variety of niche wars, violence based on ethnicity and religion, revolutions, border conflicts at different levels, civil wars, and terror attacks. Although wars of these types occurred after World War II, they were always (according to the American geostrategic outlook) part of the Cold War conflict between blocs. Against such threats, defined as "military operations other than war," nonmassive forces—such as special forces—should be used.

The following discussion strives to locate the transformation process in the theoretical framework resulting from Toffler's work. The defense system of the United States—particularly the DOD and military—does not work in an intellectual vacuum. The academic-theoretical and American defense systems have strong ties. Additionally, military academies in the United States and elsewhere in the Western world teach the works of civilian researchers in an atmosphere of academic freedom, constructive for the promotion of their positions and studies. There is no doubt that the transformation is affected by the third-wave theory and its social, economic, and intellectual implications.

As pointed out, the shift from a primarily industrial society to a virtual information society has resulted in the military's gradual abandonment of the classical conceptions of physical geostrategy. Doctrines and weapons of the late twentieth and early twenty-first centuries demonstrate the increasing reliance on information technologies. The geographical aspect is becoming less and less relevant due to the use of platforms and weapons independent of classical geography. We should now examine the transformation process itself and how theoretical thinking is widely expressed in the practical processes that the American military began implementing after the Vietnam War.

From Theory to Practice: Network-Centric Warfare

The purpose of NCW is to accelerate operations management and the ability of all military services to effectively identify, attack, and destroy enemy targets. The term first appeared in the American Navy in the 1980s as part of the discussion on the military revolution derived

from Russian military thought. The first NCW theoretician, Arthur Cebrowski, headed the OFT.[6]

The approach was simple, and it emphasized the advantages of the information revolution: networking many sensors to secure superiority in information and interconnecting firing systems to pound the enemy until his collapse. This approach was termed "shock and awe." Naval NCW linked four technological fields to create one new operational approach: sensor and engagement networks integrated with a high-quality information center and rapid C2 processes. This method enables forces to increase the decision-making rate and choose the most effective way of attacking the enemy. The improvement in the speed of C3I systems is based on the constant improvement of C4ISR architecture. NCW could be said to be the military version of the business sector's move towards digital and network-based processes. The constantly repeated argument is that the United States should manage its wars just as it does its business and economic systems.

In the late 1990s, the Army and Air Force also adopted this doctrine. NCW enables fast maneuvering and exact blows, with the potential of causing a rapid collapse of enemy forces. The United States intended to use its technological superiority and create an asymmetrical war to attack the enemy from directions and dimensions (including the virtual dimension) to which it could not respond. That is, American forces will dictate the terms and rate of the campaign. This essentially suggests a gradual abandonment of armored maneuvers on the basis of physical routes and their replacement by long-distance attacks with the massive use of long-range PGMs. Indeed, forces will be present on the ground, but their role will be to guide PGMs to their targets.

Network-centric warfare recognizes the centrality of information and its potential as a source of power for creating new operational forms and conduct. This prospect directly derives from the mutual relations developing among individuals, organizations, and processes in the new post–Cold War political, economic, and cultural reality and globalization climate.[7] NCW—the epitome of American superiority in the field of information—led to the creation of an integrated system of sensors, C3I systems, and fire systems for identification and deterrence, accelerating both the decision-making process and rate of operations. This integration creates a deadly system and increases force survivability.

As an interim summary, transformation in the military services on the operational and tactical levels is characterized by NCW, jointness,

and the shift towards task forces. Change agents for the military system understood that the armed forces could no longer rely on well-protected, well-organized front bases and that optimizing military might required integrating all services into one war machine. Each of the services has made strides in the context of the military's currently ongoing transformation processes.[8]

The shift to task forces is derived from two basic assumptions. The first is that the United States might operate in the future in areas where it has no front deployment bases. The second is that it may find itself at war without sufficient advance warning. A prominent example of this assumption is a surprise attack by North Korea against South Korea. The North Korean military needs to perform only a limited number of overt actions to prepare itself for attack. A derivative of the second assumption is that front US bases would be under attack and therefore inoperable. Areas with no access make stealth aircraft the most vital combat platform. The issue of stealth is being intensively studied for naval and ground platforms as well.

For the Air Force, the success of the transformation depends on four conditions: exact guidance, effective sensors, stealth capability, and C4ISR architecture. These will provide the Air Force with control over all air activities in a given battlefield, better survivability and reconnaissance abilities, and air-destruction capability against strategic targets and objectives and military units.[9] Jointness is also expressed in the Air Force's ability to provide CAS through strategic bombers using precision-guided munitions like the Joint Direct Attack Munition (JDAM). As stated, in Operation Enduring Freedom, Air Force bombers (and especially the fabled B-52) provided CAS for special forces operating in Afghanistan. All Air Force attack aircraft and bombers can carry JDAMs and serve as platforms for strategic and tactical missions.

Stealth and PGMs characterize the shift of aerial forces towards a task force orientation. The operative Air Force definition for this concept, *effects-based operations*, refers to the creation of a combat system that could destroy the link between the enemy's foundational political and economic systems and its fighting ranks. Therefore, despite the problems involved in the development of the F-22 Raptor, it remains the central pillar of the Air Force transformation plan. The F-117A Nighthawk arsenal is also being upgraded so that stealth bombers will be able to take more advanced weapons and operate them in daytime as well.

Unmanned aerial vehicles (UAV) such as the Global Hawk and the Predators are also considered combat platforms, but the Air Force remains focused on manned combat aircraft. UAVs are intended mainly for reconnaissance missions, with the option of aggressive reconnaissance missions. In Operation Enduring Freedom, UAVs (Predator type) armed with AGM-114 (Hellfire) missiles attacked targets in Afghanistan, but these were Central Intelligence Agency UAVs. At the same time, continued UAV development leads to more varied missions being given to these types of aircraft. The UAV is gradually becoming a combat and attack weapon with the ability to launch PGMs of different types rather than just a passive platform chiefly used for intelligence and surveillance.

The Navy is also undergoing developments with enormous strategic and tactical implications. From the dawn of history in the United States, the Navy has been its first line of defense. For this purpose, it has developed the deep-seas or blue-water strategy for assuring control of the sea. This strategy also dominated the Cold War.[10] The deep-seas strategy led to the construction of battleships in the late nineteenth century and of aircraft carriers and nuclear submarines with the start of the Cold War. Some claim that the aircraft carrier's role as a crucial weapons platform is over, mainly because of the rising importance of missile-armed destroyers and the greater vulnerability of the carrier.[11] In the 1990s, many called for ending the glorious career of the aircraft carrier in favor of the "arsenal ship" armed with approximately 500 cruise missiles and a crew that need not exceed 100 members.[12] In comparison with traditional Navy vessels, this is almost an unmanned ship. The crew of a *Nimitz*-class carrier is approximately 5,600 (including squadron personnel).

The shift to task forces signifies that the aircraft carrier has yet to say its last word. Military conflicts in which the United States was involved have proven the US Navy to be a crucial asset. The Navy intends to concentrate on attacks on beaches and land targets (littoral orientation); large naval platforms are the most appropriate vehicle for such attacks as they serve as an arms arsenal to launch large numbers of cruise missiles. In addition, no country can harm the American Navy in deep seas. The defensive capabilities of the battle group, thanks to the improved Aegis, greatly enhance the protection and survivability of naval platforms. There is also jointness in the American Navy's littoral orientation strategy since ground forces (not necessarily

Marines) can request fire support from combat vessels and guide cruise missiles fired from naval platforms.[13]

The Afghanistan case demonstrates the new operative approaches implemented in the Navy and the Air Force. Before the operation, the United States could not prepare itself on the ground as it lacked bases in the countries around Afghanistan (China, Pakistan, Iran, Turkmenistan, Uzbekistan, and Tajikistan) from which attack aircraft and bombers could take off. In the first air raids, B-1 and B-2 bombers took off from US bases and B-52s from Diego Garcia in the Indian Ocean. Aircraft using aircraft carriers as their base of operation (F/A-18, F-14) also participated, and helicopters were put on alert on aircraft carriers for combat search and rescue missions. Additionally, American forces launched various types of cruise missiles (BGM-109 Tomahawk, AGM-84 Harpoon) against Taliban targets from naval platforms, including submarines.[14] Later stages of the operation also demonstrated joint operations between special forces and Northern Alliance forces and naval and Air Force aircraft.

As for the Marines, they have always had a task force orientation, and the Corps focuses on two goals. The first is upgrading ship-to-shore maneuverability through the development of three new platforms: a Marine hovercraft; an amphibian assault vehicle; and the V-22 Osprey, an aircraft with improved flight range and vertical/short takeoff and landing capabilities. Some argue that these projects should be abandoned in favor of expanding the capabilities of heavy and medium transport helicopters.

The second goal, shared by the Marines and the Army, is training seaborne maneuvering forces for quick penetration. The Marine Corps has developed the "operational maneuver from the sea" tactic. Its practical use is engaging from the ship to alter amphibian operations and avoid the need for taking control of and organizing beachheads by bringing distant forces directly to the targets in enemy territory.[15]

The Army is also undergoing a significant revolution. Indeed, it has emphasized the digitalization of heavy divisions. However, with the realization of expected requirements for a strategic task force, the Army was pressured to equip itself with rapid deployment platforms. Its current objective is to position platforms anywhere in the world within days, not months. The Iraqi War (2003) demonstrated the importance of task forces when Turkey and Saudi Arabia refused to allow American forces to operate from their territories.[16] American and British forces prepared in Kuwait, but this was a questionable base because it

was vulnerable to possible attacks by Iraqi forces. Diplomacy is crucial to creating a front operations base, but the Army must prepare itself for the possible scenario of diplomatic failure—one that was borne out on the eve of the Second Iraqi War—and a situation in which the Army has no front bases.

Army forces now take a threefold approach to the transformation process.[17] The first is the continual upgrading of the network capabilities of traditional forces—the armored and mechanized divisions based on the M1A1 Abrams tank and the M2/M3 Bradley. In 2001 the 4th Infantry Division (Mechanized) became the first digitized division of the US Army. However, the digitization of "traditional" armored forces is not sufficient for the Army to stay relevant in the post–Cold War era, especially in light of the new operational approach according to which task forces can decide a war. The prevailing geostrategic situation requires the Army to be able to operate anywhere in the world, in any type of conflict. It should be more mobile by being based on smaller platforms (in comparison to the Abrams and Bradley) and function in a changing tactical and operational environment.

The Army presently has only the airborne and light infantry divisions used as rapid-deployment strategic forces. Because of their very nature, these forces lack the firepower of the heavy divisions. Therefore, the Army is building a system with greater firepower and higher survivability, able to deploy a brigade within 96 hours, a division within 120 hours, and a corps (five divisions) within 30 days.[18] To comply with transformation requirements, the Army operates along two parallel courses to put Army task forces into operative service.

The central pillar of the second course is the interim force, consisting of Stryker brigade combat teams (SBCT). These medium-sized units are rapidly deployable, have greater firepower than light or airborne infantry brigades, and do not require the logistics of armored or mechanized divisions. Operating in Iraq since late 2003, Stryker teams are completely digitalized and have full jointness capabilities. NCW in Stryker units is expressed in the Force XXI Battle Command Brigade and Below (FBCB2) system.[19] It should be stated that elements in the heavy divisions, and especially the 4th Infantry Division, are equipped with the FBCB2 system. This is in fact a C3I system using the Global Positioning System (GPS), installed on all vehicles and aircraft in the given battlefield to track them. This information—combined with field and enemy position data—enables the creation of a clear battlefield picture, or in the words of William Ow-

ens's same-titled book, "lifting the fog of war." The battle picture is transferred to other fighting forces and to higher command ranks.

The 3rd Infantry Division used this system in Iraq, enabling brigade commanders and the corps and division headquarters to control all of their combat activities across approximately 500 km of deployment. Each division knew the successes and problems faced by other forces, including those outside that division. The shift to NCW in the Army will take it from the industrial age (Toffler's second wave) to the information age (the third wave).[20] The basic operative doctrine of brigade combat crews prepares them for any conflict—especially urban warfare, defined as the primary form of war in the future.

SBCTs are the bridge to the third course—the "objective force"—intended to merge SBCT high mobility and deployment capabilities together with the destruction and survival abilities of heavy divisions. The US Army fighting force is comprised of armored, mechanized, light infantry, and airborne (in aircraft and helicopters) units—all of which were active in Iraq.[21] One of the Army's intentions is to change this heterogeneous constitution into a homogenous one. At the same time, the Army intends to keep the 82nd and 101st Airborne Divisions as separate divisions, operationally unique. One can assume that these elite units will be retained as rapid strategic response forces—as they have been used up to now—with a deployment capability of under 96 hours for immediate operative response in extreme scenarios, such as North Korea attacking South Korea.

At this juncture, the objective force is only on the theoretical doctrine level, although the research and development plans of the proposed platforms are already in development stages. Therefore, the Army is focused on upgrading heavy systems and introducing Stryker-based armored combat crews into operational service. The main advantage of the Stryker is its portability; it can be transported by C-130 Hercules airplanes, able to take off and land in improvised airports or in airports with short takeoff and landing runways. Moreover, there are many Stryker models—personal carrier; antiaircraft and antitank configurations; nuclear, biological, and chemical detection; and C2. Each Stryker is equipped with a GPS that gives it its location relative to other units and with the FBCB2 command and control system. A change from the tendency of developing a heavy ground-combat vehicle (such as the Abrams) will require basing the survivability of the objective force not on armor but on locating the

enemy at long-distance ranges and using accurate, deadly strikes enabled with a growing assimilation of jointness and NCW.

Courtesy of US Army

Stryker vehicle in Korea during Key Resolve/Foal Eagle 2008

It could be said that the Army is the branch experiencing the most extreme changes to stay relevant as an operative service in the future battlefield. All characteristics of the transformation are found in it regarding its developments in general and the creation of the objective force specifically. Of principal concern is the attempt at predicting the future battlefield. Within the constraints of the uncertainty involved in this kind of forecasting, the Army makes three assumptions about the future land battlefield. These are the massive use of different types of missiles, especially in attacks; the enemy's attempt to avoid outright battles against the superior power of the United States; and the conduct of NCW and separate operations using US command, control, and supervision abilities.

The traditional battlefield has therefore sustained far-reaching changes following new technological advancements. These reformations turn the front line into a forward area in which C4ISR systems will assist the more dispersed operation of fighting units. Information technologies will allow ground forces to break one of the most important rules of war—the principle of the centralization of force, at the heart of Napoleon's tremendous successes.

Analysis of the wars in Afghanistan and Iraq points to characteristics of the future battlefield and trends in the transformation process. In the opinion of some experts, American military interventions in the late twentieth and early twenty-first centuries were revolutionary. However, they made some general, unfounded statements, for example, that Douhet's theory has been proven correct and that the age of army maneuvers has come to an end. Many of this group did not analyze Douhet's words in light of American theories or the transformation premises. The strategic argument between Gen Tommy Franks, commander of United States Central Command, and Defense Secretary Rumsfeld on the structure and preparation of the forces sent to the war against Iraq supports the view that the Army is not yet operatively ready for the battlefield of tomorrow—despite its intensive transformation processes. General Franks wanted a two-front integrated attack but only after the concentration of an overwhelming force to achieve clear determination of the war. This is, in fact, the traditional American annihilation doctrine in which the American armed forces seek to express their firepower.

Franks's approach is not revolutionary even if massive use is made of PGMs. Contrary to the position of the Central Command, the defense secretary's "shock and awe" doctrine was proposed. Besides the inclusion of civilian bodies in the operative planning, Rumsfeld's approach argued for the maximal use of PGMs—mostly from aerial and naval platforms—and maneuvers by small armored forces to achieve rapid and decisive victory. The plan was based on the lessons of the First Gulf War, the Kosovo air campaign, and the Afghanistan war.[22]

Preparations for war started out as a combination of the two proposals, but planning went wrong because of faulty diplomatic preparation and Turkey's refusal to allow an invasion of Iraq from its territories. Consequently, the war moves were similar to those in Rumsfeld's original plan. At the same time it is possible, considering the way the war in Iraq was managed, to find signposts pointing to changes in the battlefields. The Army's two premises about the future battlefield were manifested in Operation Iraqi Freedom. The first is that ground operations would include increased joint operations with the Navy and strategic Air Force. The second is that the range of conflicts would become blurred due to the merging of diverse forms of fighting, requiring the ground force to maneuver with unprecedented flexibility.

The operational and tactical advance of V Corps suggests no uniqueness in terms of the transformation despite the use of modern C2 systems. Furthermore, during the second week of the war, when American air forces rendezvoused with supply convoys and re-equipped themselves, they sought to methodically annihilate Republican Guard forces stationed on the way to Baghdad. Operative annihilation from the air was in fact the continuance of the classical American method of systematic destruction of enemy forces, but the advance of the V Corps demonstrates the blurring of the conflict range. While fighting a high-intensity war, British-American forces participated in low-intensity fighting and even conducted humanitarian and peacekeeping operations for the Iraqi civilian population.

The transformation on the operative level can be seen on the northern front, where special forces and the 173rd Airborne Brigade operated. There were few forces on the ground, which, with the cooperation of air forces, prevented the Iraqis from action. Unprecedented jointness—at the heart of the transformation—was demonstrated between the ground and air forces. In northern and western Iraq, the American military determined the war by its ability to control a huge area using relatively few forces. This front was secured even though the principle of the concentration of force was ignored. The advanced technological capabilities of the United States together with NCW, enabling high joint operations between ground and air forces, are the very essence of the transformation. The parachuting operation of the 173rd Airborne Brigade also warrants mention in its demonstration of one of the aspects of expeditionary forces.

The Americans did not rest on their laurels after victory in Iraq (regular war phase), as impressive as that victory was. It should be remembered that the United States used the technological might of the early twenty-first century against a country with the technologies and weapons of the early 1980s and that, for over a decade, it has prevented the rearmament of Iraq. Even prior to the war, it already possessed superiority in the air on the strategic, operational, and—to a large extent—tactical levels.

The United States faces three more primary fighting zones at present: Iran, North Korea, and China. The Army consequently continues to put the objective force into operative service and to upgrade SBCT capabilities.[23] These three militaries are not as weak as the Iraqi army was on the eve of war. The first two countries have proven nuclear capabilities, and Iran could become equipped with nuclear arms in

the near future. According to future plans, the American military will strive to thwart the enemy by making it expose all of its forces to combined air and ground attacks instead of targeting each part of it separately. The United States relies on its information superiority to attack the enemy from extended ranges, circulate enemy movements quickly thanks to NCW, and coordinate long-range strikes.

Department of Defense Guidelines: 2006 *QDR*

In February 2006, the DOD published the update of the 2001 *QDR*. In many respects a reiteration of the central points of the previous report, the revision outlines a comprehensive review of US military strategy. At the same time, the 2006 review was written after the wars in Afghanistan and Iraq and emphasizes that the United States should prepare itself for a long war against terror. So, for example, while the 2001 report determines that the United States should be prepared to act in four main regions (Europe, the Middle East, East Asia, and Northeast Asia), the 2006 version concludes that it should be ready for action anywhere in the world, with short advance warning or no warning at all.

The report defines a wide variety of missions against an irregular threat, including humanitarian operations, peacekeeping missions, nonconventional warfare, and war against terror and insurgency. It conveys that the United States must continue to show itself a credible and powerful partner to its allies in protecting its own and their interests. The intention is to deter potential enemies from acting militaristically and, in case this deterrent fails, to defeat any enemy anywhere in the world.

The 2006 *QDR* identifies four challenges. The first—the most tangible due to recent American involvement in Afghanistan and Iraq—is defeating terrorist organizations and terrorist networks, which means long-term irregular fighting. The second is overall defense of the United States to prevent an event like 9/11 from reoccurring. The third challenge is deterring countries from taking military actions, especially China, Russia, and North Korea and some Middle East nations. The fourth challenge derives from the third, and it is to prevent threats as a result of the proliferation, purchase, or use of unconventional weapons.

Several conclusions and understandings stem from these four challenges and the experience accumulated in the conflicts in Afghanistan

and Iraq. First, the unexpected character of conflicts—such as their timing and position—requires enhancing the freedom and range of action of American armed forces as well as improving operational readiness, global operations and stealth capabilities, and intelligence tracking systems. Second, by functioning as part of a coalition, operational pressure on American forces would decrease, creating a cooperative system of ideological struggle and delegitimization against extreme terrorist groups. Third, stable, democratic regimes should be created and humanitarian and diplomatic actions taken to present an alternative to terror. Lastly, it is important to develop capabilities that prevent problems from developing into crises and conflicts and to use the strategy of "exacting a price" even towards a noncountry party (e.g., a terrorist organization or an international crime organization) while maintaining US conventional military deterrence to maintain global superiority.

The rest of the 2006 *QDR* defines the essence and character of the special capabilities required for dealing with the threat complex. A review of their character points towards the future force construction process of all services of the American armed forces—without significantly addressing the geographical aspects of the future battlefield. The primary challenge is defeating local and global terrorist networks through the improvement of the human intelligence field and the use of special forces in military missions, as well as in missions to train, equip, and advise local forces.

According to the document, the special forces will be enlarged and the ability of regular forces to support them extended. Regular forces with strategic capabilities (long-range bombers, cruise-missile-launching submarines) will be able to provide firepower support to special forces in areas seemingly inaccessible. The first example of this operative capability can be found in the Afghanistan war, where elements of the special forces fired at targets from a great distance and received CAS from long-range bombers, thanks to PGMs.

In the field of conventional warfare as well, the report emphasizes the creation of long-range attack capabilities through a variety of weapons launched from diverse platforms, especially long-range bombers and submarines. These two types of platforms almost completely negate the geostrategic element. Their bases of departures are in the United States itself and thus require no front deployment locations (especially nuclear-powered submarines). An examination of the construction processes of ground forces (including the Marines)

reveals a focus on increasing long-range attack and deep-penetration capabilities against mobile and stationary targets, abrogating the need to take control of land bridgeheads or prepare front bases of departure. The integration of new platforms such as the Stryker and V-22 creates the tactical level of the new operational paradigm.

Notes

1. CJCS, *Joint Vision 2020*, 4; and DOD, *Transformation Planning Guidance*, 3.
2. Toffler, *Third Wave*; and Toffler and Toffler, *War and Anti-War*.
3. Graham, "Learning from Transforming the Commercial Sector," 88–92.
4. Ibid., 89.
5. Toffler and Toffler, *War and Anti-War*, 89–90; and Huntington, *Clash of Civilizations*, 252–54.
6. Cebrowski and Garstka, "Network Centric Warfare."
7. Albert, Garseka, and Stein, *Network Centric Warfare*, 87.
8. Roxborough, "From Revolution to Transformation," 73.
9. Ochamanek, "Air Force: The Next Round," 164–70.
10. Huntington, *Common Defense*, 14–24.
11. Hart, *America Can Win*, 83–89.
12. Dunnigan, *Digital Soldiers*, 86–91.
13. O'Neil, "Naval Service," 125–57.
14. "Operation Enduring Freedom—Operations," GlobalSecurity.org.
15. Roxborough, "From Revolution to Transformation," 73.
16. Wilson, Gordon, and Johnson, "Alternative Future Force," 22.
17. Toomey, "Army Digitization," 40.
18. Nardulli and McNaugher, "Army: Toward the Objective Force," 103–4.
19. Toomey, "Army Digitization," 48–49.
20. Ibid., 41.
21. Wilson, Gordon, and Johnson, "Alternative Future Force," 19, 27–28.
22. Cordesman, *Lessons of the Iraq War*, 118–20.
23. Wilson, Gordon, and Johnson, "Alternative Future Force," 22–23.

Epilogue

This study examined how the concept of the physical line of operation has changed due to major technological advances of the last hundred years. These developments led to the gradual contraction of this line, bringing about its near extinction or virtualization. The first chapter described several geopolitical and geostrategic theories to provide a framework for the discussion and to place military developments in a wider historical view. The other chapters comprise a two-dimensional historical discussion. The first dimension is an exploration of a series of technological developments and new operational patterns, such as vertical envelopment, that in turn formed new doctrines and weapons systems. The second is a discussion of selected twentieth- and early twenty-first-century battles and how technological developments, new operational patterns, and advancements in warfare were incorporated into them.

Case studies illustrated that the process of operational change is at some times revolutionary and at others only appears as such. The discussion emphasized the dynamic development of American military thought originating after the Vietnam War and continuing to the American campaigns in Afghanistan and Iraq. It expressed the ongoing and dynamic nature of this process, theoretically and practically. In fact, by analyzing the actions of the different military branches, one can surmise that the process of operational change is continuous and multidimensional. The American military system is constantly evolving through the application of insights gained from both operational successes and failures.

The author's intent was to demonstrate that all American military branches share in the process of operational change. Through developing doctrines and warfare strategies, they promote creation of a newer paradigm and, above all, remain relevant in a changing political, strategic, and technological reality. It is an evolution that began after World War II as nuclear weapons entered the arena, not only increasing the importance of the strategic air force but also requiring other branches to find action patterns befitting of the nuclear age. This reinvention continued with President Kennedy's declaration of Communist subversion as the greatest threat to the free world. As a result, the branches formed military forces and developed counterinsurgency doctrines that would stand up to the requirements of the commander

in chief. Thus, we can observe a process in which the military system builds its strength in light of global political changes—such as the end of the Cold War—as well as according to orders from the political echelon. This process is also a result of technological advances, monetary considerations, and the changing face of war.

Tremendous technological advances stand at the heart of the formation of a new paradigm. The technology of the information age that allows domination of a territory with firepower while downplaying the need for maneuverability marks the shift from the classic geostrategic paradigm to a new one, which may be called virtual geostrategy. The Afghanistan and Iraq campaigns clearly demonstrate these processes. In its conventional campaigns, the United States emphasized precision in firepower—most notably during Operation Enduring Freedom and, to some extent, in Iraq as well. Although the road ahead is long, the insistence of the American military system on forming new concept-of-war patterns may eventually, after a complex process, lead us to a new paradigm. A question arises that requires further exploration: will the creation of—or drift towards—a new paradigm change the American way of war?[1]

The fight against irregular organizations, mainly Islamic militias, raises another question: can these militias really be fought using the same technologies and means of war defined by this study as gradually cancelling out the classic paradigm? The Second Lebanese War of 2006, the operations against Hamas in Gaza, and the ongoing confrontations in Iraq, Afghanistan, and other places across the world—mainly by American forces—prove the controversy of this issue. The will to reduce losses from ground action is great, yet employing different and versatile firepower (mostly aerial) does not necessarily bring about the desired outcome or a clear military revolution. Further studies are required to examine whether the classic paradigm is gradually becoming irrelevant and the new paradigm can truly stand, in the military sense, in the face of irregular forces.

In this respect, one should note that more studies are necessary for a more in-depth examination of processes throughout the US military both at the branch and joint levels, such as the integration of an Army process into a similar one in the Navy or Air Force. The purpose is to increase the fighting efficiency of the US armed forces and achieve greater operational synergy. Moreover, research is needed on the development of operational processes of other military forces worldwide—especially those preparing for or in the midst of war.

Such analysis can expose the influence of the American system and its compatibility with the relevant strategic and tactical reality for each military branch. Most importantly, however, it can reveal whether the US military's operational changes—based on its view of the line of operation—have been universally adopted, thus indicating a paradigm shift.

This study concludes that the American military began forming a fresh paradigm regarding the concept of the geostrategic essence of the line of operation. While the physical aspect of this line has not become completely obsolete, military strategists of the last few decades have been creating a new pattern of operations that downplays the physical importance of geography and geostrategy. Many platforms—operational or in development—demonstrate the intent of the United States to operate from within its borders. This trend has already determined new operating patterns that created new war doctrines. To maintain this approach, weapons and platforms must be purchased, in turn requiring consideration of manpower recruitment and training.

Kuhn claims that an innovative theory can emerge only from the persistent failure in solving an issue via the theories of the ruling paradigm.[2] A crisis of perception is created when—contrary to expectations—problems arise that were already perceived as solved or semi-solved and then unforeseen difficulties are discovered.[3] American military thought in the wake of the Vietnam War has recognized that military doctrines developed in the context of the Warsaw Treaty are impractical or irrelevant given the conventional force of the Soviet Union. An innovative military approach was needed. Progressive versions of Field Manual 100-5, *Operations*, are one manifestation of the end of an intense and thorough thinking process—a new military paradigm based on combining platforms and war doctrines.

This process went on long after the Soviet Union collapsed, and another critical step in doctrinal evolution was born of the American military involvements following the 9/11 terrorist attacks. All American military arms must prepare for this paradigm and the resulting transformation and joint operations. The transformation is a theoretical framework understood by all arms in hopes of forming joint operation patterns and doctrines.

At the same time, there is no doubt that the geographical aspect will maintain its role as affecting the running of wars, especially in the actual arena. At the end of the day, the physical battle is held in a

specific geographic sphere affecting both tactics and strategy. This is especially true in fighting a war against irregular organizations in geographical conditions—human or physical—that benefit them.

Notes

1. In this regard, see Boot, "New American Way of War," 41–58.
2. Kuhn, *Structure of Scientific Revolutions*, 61.
3. Ibid., 64.

Abbreviations

ABM	antiballistic missile
ALB	AirLand Battle
C2	command and control
C3	command, control, and communications
C3I	command, control, communications, and intelligence
C4I	command, control, communications, computers, and intelligence
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CAS	close air support
CINC	commander in chief
CJCS	chairman of the Joint Chiefs of Staff
EW	electronic warfare
FBCB2	Force XXI Battle Command Brigade and Below
FM	field manual
GPS	Global Positioning System
ICBM	intercontinental ballistic missile
IDF	Israeli Defense Forces
IW	information warfare
JCS	Joint Chiefs of Staff
JDAM	Joint Direct Attack Munition
JP	joint publication
MLRS	multiple launch rocket system
NATO	North Atlantic Treaty Organization
NCW	network-centric warfare
OFT	Office of Force Transformation
PGM	precision-guided munition
QDR	*Quadrennial Defense Review*
RMA	revolution in military affairs
SBCT	Stryker brigade combat team
SLBM	submarine-launched ballistic missile
SOCOM	Special Operations Command
SW	space warfare
TRADOC	Training and Doctrine Command
UAV	unmanned aerial vehicle
WMD	weapon of mass destruction

Bibliography

Addington, Larry H. *The Patterns of War since the Eighteenth Century*. Bloomington: Indiana University Press, 1984.

Agnew, John. *Geopolitics: Re-visioning World Politics*. London: Routledge, 2003.

Aker, Frank. *October 1973: The Arab-Israeli War*. Hamden: Archon Books, 1985.

Albert, David. S., John J. Garseka, and Frederick P. Stein. *Network Centric Warfare: Developing and Leveraging Information Superiority*. Washington, DC: CCRP Publication Service, 2000.

Allen, Peter. *The Yom Kippur War*. New York: Charles Scribner's Sons, 1982.

Ambrose, Stephan E. *D-Day, June 6, 1944: The Climactic Battle of World War II*. New York: Simon & Schuster, 1994.

Armitage, Michael J., and Richard A. Mason. *Air Power in the Nuclear Age*. Urbana: University of Illinois Press, 1983.

Arnold, Thomas F. "War in Sixteenth Century Europe: Revolution and Renaissance." In *European Warfare 1453–1815*, edited by Jeremy Black, 23–44. New York: St. Martin's Press, 1999.

Bagrow, Leo. *History of Cartography*. Chicago: Precedent, 1985.

Barnett, Neil. "Islamist Groups Take Root in the Balkans." *Jane's Intelligence Review* 14, no. 1 (January 2002): 21–22.

Bartlett, Christopher J. *The Global Conflict: The International Rivalry of the Great Powers, 1880–1990*. London: Longman, 1994.

Benns, Lee F. *Europe 1870–1914*. New York: Appleton-Century-Crofts, 1965.

Binnendijk, Hans, ed. *Transforming America's Military*. Washington, DC: National Defense University, 2002.

Black, Jeremy. *The British Seaborne Empire*. New Haven, CT: Yale University Press, 2004.

———. *European Warfare, 1494–1660*. London: Routledge, 2002.

———. "A Military Revolution? A 1660–1792 Perspective." In Rogers, *Military Revolution Debate*, 95–114.

Blakesley, Christopher L. *Terrorism, Drugs, International Law, and the Protection of Human Liberty*. Ardsley-on-Hudson, NY: Transnational, 1992.

Blanning, Tim C. W. *The Nineteenth Century*. Oxford: Oxford University Press, 2000.

Boot, Max. "The New American Way of War." *Foreign Affairs* 82, no. 4 (July/August 2003): 41–58.

Braden, Kathleen E., and Fred M. Shelley. *Engaging Geopolitics*. Harlow, UK: Pearson Education, 2000.

Brodie, Bernard. *Strategy in the Missile Age*. Princeton, NJ: Princeton University Press, 1965.

Buckley, John. *Air Power in the Age of Total War*. Bloomington: Indiana University Press, 1999.

Burbach, Roger, and Jim Tarbell. *Imperial Overstretch*. New York: Zed Books, 2004.

Cable, James. *The Political Influence of Naval Force in History*. London: Macmillan Press, 1998.

Cebrowski, Arthur K., and John J. Garstka. "Network Centric Warfare: Its Origins and Future." *Proceedings* 124, no. 1 (1998). http://all.net/books/iw/iwarstuff/www.usni.org/Proceedings/Articles98/PROcebrowski.htm.

Chairman of the Joint Chiefs of Staff. *Joint Vision 2020*. Washington, DC: Government Printing Office (GPO), 2000.

Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1984.

Clayton, Anthony. *The Wars of French Decolonization*. London: Longman, 1994.

Clodfelter, Mark. *The Limits of Air Power: The American Bombing of North Vietnam*. New York: Free Press, 1989.

Clutterbuck, Richard. *Terrorism and Guerrilla Warfare*. London: Routledge, 1990.

Cohen, Michael J. *Fighting World War Three from the Middle East: Allied Contingency Plans, 1945–1954*. London: Frank Cass, 1997.

Cohen, Saul B. *Geopolitics of the World System*. New York: Rowman & Littlefield, 2003.

Cordesman, Anthony H. *The Lessons of the Iraq War*. Washington, DC: The Center for Strategic and International Studies (CSIS) Press, 2003.

Crowl, Philip A. "Alfred Thayer Mahan: The Naval Historian." In Paret, *Makers of Modern Strategy*, 444–77.

Davidson, Phillip B. *Vietnam at War: The History, 1946–1975*. New York: Oxford University Press, 1988.

Department of Defense. *Transformation Planning Guidance*. Washington, DC: Department of Defense, 2003.

———. *2001 Quadrennial Defense Review Report*. Washington, DC: GPO, 2001.

———. *2006 Quadrennial Defense Review Report*. Washington, DC: GPO, 2006.

Director of the CIA. Selected speeches before the Senate Select Committee on Intelligence, 1996–2006. CIA website. https://www.cia.gov/news-information/speeches-testimony/1996/index.html.

Doughty, Robert, Ira Gruber, Roy Flint, Mark Grimsley, George Herring, Donald Horward, John Lynn, and Williamson Murray. *Warfare in the Western World*. Vol. 1, *Military Operations from 1600 to 1871*. Lexington, MA: D. C. Heath, 1996.

———.*Warfare in the Western World*. Vol. 2, *Military Operations since 1871*. Lexington, MA: D. C. Heath, 1996.

Douhet, Giulio. *The Command of the Air*. Translated by Dino Ferrari. Washington, DC: Office of Air Force History, 1983.

Duke, Steven B., and Albert C. Gross. *America's Longest War: Rethinking Our Tragic Crusade against Drugs*. New York: G. P. Putnam's Sons, 1994.

Dunnigan, James F. *Digital Soldiers*. New York: St. Martin's Press, 1996.

Eisenhower, Dwight D. *Crusade in Europe*. Garden City, NY: Doubleday, 1948.

———. *Report by the Supreme Commander to the Combined Chiefs of Staff on the Operations in Europe of the Allied Expeditionary Force, 6 June 1944 to 8 May 1945*. London: His Majesty's Stationery Office, 1946.

Fairgrieve, James. *Geography and World Power*. London: University of London Press, 1924.

Field Manual 100-5. *Operations*, 1976.

Field Manual 100-5. *Operations*, 1993.

Field Manual 100-5. *Operations: Blueprint for Air-Land Battle*, 1991.

Flanagan, Edward M. *Airborne: A Combat History of American Airborne Troops*. New York: Presidio, 2002.

Flint, Colin. "Changing Times, Changing Scales: World Politics and Political Geography since 1890." In *Reordering the World: Geopolitical Perspectives on the 21st Century*, edited by George J. Demko and William B. Wood, 19–39. Boulder, CO: Westview Press, 1998.

Friedman, Norman. *Seapower as Strategy: Navies and National Interests*. Annapolis, MD: Naval Institute Press, 2001.

Fuller, John F. C. *The Second World War, 1939–45: A Strategical and Tactical History*. London: Eyre & Spottiswoode, 1954.

Garland, Albert N., and Howard M. Smyth. *Sicily and the Surrender of Italy*. Washington, DC: GPO, 1965.

Gat, Azar. *A History of Military Thought: From the Enlightenment to the Cold War*. Oxford: Oxford University Press, 2001.

Glete, Jan. *Warfare at Sea, 1500–1650*. New York: Routledge, 2000.

Graham, Janice M. "Learning from Transforming the Commercial Sector." *Joint Force Quarterly* 32 (2002): 88–92.

Gray, Colin S., and Geoffrey Sloan, eds. *Geopolitics: Geography and Strategy*. London: Frank Cass, 1999.

Hallion, Richard P. "The Second World War as a Turning Point in Air Power." In *Air Power History: Turning Points from Kitty Hawk to Kosovo*, edited by Sebastian Cox and Peter Gray, 93–124. London: Frank Cass, 2002.

Harding, Richard. *Seapower and Naval Warfare, 1650–1830*. London: UCL Press, 1999.

Hart, Gary. *America Can Win: The Case for Military Reform*. Bethesda, MD: Adler and Adler, 1986.

Herwig, Holger H. "*Geopolitik*: Haushofer, Hitler and Lebensraum." In Gray and Sloan, *Geopolitics*, 218–41.

Holdar, Sven. "The Ideal State and the Power of Geography: The Life-Work of Rudolf Kjellén." *Political Geography* 11, no. 3 (1992): 307–23.

Howard, Michel. *War in European History*. Oxford: Oxford University Press, 1976.

Huntington, Samuel P. *The Clash of Civilizations and the Remaking of World History*. New York: Simon & Schuster, 1996.

———. *The Common Defense: Strategy Programs in National Politics*. New York: Columbia University Press, 1961.

Isenberg, Michael T. *Shield of the Republic: The United States Navy in an Era of Cold War and Violent Peace*. Vol. 1, *1945–1962*. New York: St. Martin's Press, 1993.

Jablonsky, David. "National Power." *Parameters* 27, no. 1 (1997): 34–54.

Jessup, John E., and Louise B. Ketz, eds. *Encyclopedia of the American Military: Studies of the History, Traditions, Policies, Institutions, and Roles of the Armed Forces in War and Peace*. New York: Charles Scribner's Sons, 1994.

Joint Publication 1-02. *Department of Defense Dictionary of Military and Associated Terms*, 12 April 2001 (As Amended through 17 December 2003).

Joll, James. *Europe since 1870*. London: Penguin, 1990.

Jomini, Anri H. *The Art of War*. Special ed. El Paso, TX: El Paso Norte Press, 2005.

Jones, Archer. *The Art of War in the Western World*. Oxford: Oxford University Press, 1987.

Jones, Martin, Rhys Jones, and Michael Woods. *An Introduction to Political Geography: Space, Place and Politics*. London: Routledge, 2004.

Keaney, Thomas A., and Eliot A. Cohen. *Revolution in Warfare? Air Power in the Persian Gulf*. Annapolis, MD: Naval Institute Press, 1995.

Kearns, Gerry. "Imperial Geopolitics: Geopolitical Visions at the Dawn of the American Century." In *A Companion to Political Geography*, edited by John Agnew, Katharyne Mitchell, and Gerard Toal Malden, 173–85. Oxford: Blackwell, 2003.

Keegan John. *A History of Warfare*. New York: Alfred A. Knopf, 1993.

———. *The Second World War*. New York: Penguin, 1990.

Kennedy, Paul. *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000*. London: Unwin Hyman, 1998.

Kiriakopoulos, George C. *Ten Days to Destiny: The Battle for Crete, 1941*. Brookline, MA: Hellenic College Press, 1997.

Kristof, Ladis K. D. "The Origins and Evolution of Geopolitics." *Journal of Conflict and Resolution* 4, no. 1 (1960): 15–51.

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1996.

Kupperman, Robert H., and Darrell M. Trent. *Terrorism: Threat, Reality, Response*. Stanford: Hoover Institution Press, 1979.

Lambeth, Benjamin S. *Air Power against Terror: America's Conduct of Operation Enduring Freedom*. Santa Monica, CA: RAND, 2005.

Ledeen, M. A. "Soviet Sponsorship: The Will to Disbelieve." In *Terrorism: How the West Can Win*, edited by B. Netanyahu, 87–92. London: Weidenfeld and Nicolson, 1986.

Liddell Hart, Basil H. *The Other Side of the Hill: Germany's Generals, Their Rise and Fall, with Their Own Account of Military Events, 1939–1945*. London: Cassell, 1948.

Litwak, Robert. *Rogue States and U.S. Foreign Policy*. Washington, DC: Woodrow Wilson Center Press, 2000.

Lock, John D. *To Fight with Intrepidity: The Complete History of the U.S. Army Rangers, 1622 to Present*. New York: Pocket Books, 1998.

Macartney, Maxwell H. H., and Paul Cremona. *Italy's Foreign and Colonial Policy, 1914–1937*. New York: Howard Fertig, 1972.

MacIsaac, Davit. "Voices from the Central Blue: The Air Power Theories." In Paret, *Makers of Modern Strategy*, 624–47.

Mackinder, Halford J. *Democratic Ideals and Realities*. New York: W. W. Norton, 1962.

———. "The Geographical Pivot of History." *Geographical Journal* 23, no. 4 (1904): 421–37.

———. "The Round World and the Winning of the Peace." *Foreign Affairs* 21 (1943): 595–605.

Mahan, Alfred T. *The Influence of Sea Power upon History, 1660–1783*. Boston: Little, Brown, 1890.

Marriman, John. *A History of Modern Europe*. New York: W. W. Norton, 1996.

Martin, Geoffrey J. *All Possible Worlds: A History of Geographical Ideas*. Oxford: Oxford University Press, 2005.

Mazarr, Michael J., Jeffrey Shaffer, and Benjamin Ederington. *The Military Technical Revolution: A Structural Framework: Final Report of the CSIS Study Group on the MTR*. Washington, DC: CSIS, 1993.

Meilinger, Phillip S. *Airwar: Theory and Practice*. London: Frank Cass, 2003.

Miller, David. *The Cold War: A Military History*. New York: St. Martin's Press, 1999.

Murphy, David T. *The Heroic Earth: Geopolitical Thought in Weimar Germany, 1918–1933*. Kent, OH: Kent State University Press, 1997.

Murray, Williamson, and MacGregor Knox. "Thinking about Revolution in Warfare." In *The Dynamics of Military Revolution, 1300–2050*, edited by MacGregor Knox and Williamson Murray, 1–14. Cambridge: Cambridge University Press, 2001.

Murray, Williamson, and Robert Scales. *The Iraq War*. Cambridge, MA: Harvard University Press, 2003.

Nardulli, Bruce R., and Thomas L. McNaugher. "The Army: Toward the Objective Force." In Binnendijk, *Transforming America's Military*, 101–28.

Natter, Wolfgang. "Geopolitics in Germany, 1919–45." In *A Companion to Political Geography*, edited by John Agnew, Katharyne Mitchell, and Gerard Toal Malden, 187–203. Oxford: Blackwell, 2003.

Naveh, Shimon. *In Pursuit of Military Excellence: The Evolution of Operational Theory*. London: Frank Cass, 1997.

Newell, Clayton R. "The Development of Operational Art." In Jessup and Ketz, *Encyclopedia of the American Military*, 1221–46.

Ochamanek, David A. "The Air Force: The Next Round." In Binnendijk, *Transforming America's Military*, 159–90.

O'Neil, William D. "The Naval Service: Network Centric Warfare." In Binnendijk, *Transforming America's Military*, 129–58.

"Operation Enduring Freedom—Operations." http://www.globalsecurity.org/military/ops/enduring-freedom-ops.htm.

O'Sullivan, Patrick, and Jesse W. Miller. *The Geography of Warfare*. London: Croom Helm, 1983.

Overy, Richard. *Why the Allies Won*. London: Pimlico, 1996.

Owens, William. *Lifting the Fog of War*. Baltimore: Johns Hopkins University Press, 2001.

Painter, Joe. *Politics, Geography and "Political Geography": A Critical Perspective*. London: Arnold, 1995.

Palka, Eugene J., and Francis A. Galgano. *Military Geography: From Peace to War*. Boston: McGraw Hill, 2005.

Palmer, Dave R. *Summons of the Trumpet: U. S.–Vietnam in Perspective*. Novato, CA: Presidio, 1978.

Palmer, Robert R. "Frederick the Great, Guibert, Bülow: From Dynastic to National War." In Paret, *Makers of Modern Strategy*, 91–119.

Paret, Peter, ed. *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*. Princeton, NJ: Princeton University Press, 1986.

Parker, Geoffrey. "The Military Revolution, 1560–1660—A Myth?" In Rogers, *Military Revolution Debate*, 37–53.

———. "Ships of the Line." In *The Cambridge History of Warfare*, edited by Geoffrey Parker, 117–30. Cambridge: Cambridge University Press, 2005.

———. *Western Geopolitical Thought in the Twentieth Century*. London: Croom Helm, 1985.

Paschall, Rod. "The Development of an American Military Philosophy." In Jessup and Ketz, *Encyclopedia of the American Military*, 105–13.

Peltier, Louis C., and G. Etzel Pearcy. *Military Geography*. Princeton, NJ: D. Van Nostrand, 1966.

Pimlott, John. "The Theory and Practice of Strategic Bombing." In *Warfare in the Twentieth Century: Theory and Practice*, edited by Colin McInnes and G. D. Sheffield, 113–37. London: Unwin Hyman, 1988.

Pratt, Julius W. *A History of United States Foreign Policy*. Englewood Cliffs, NJ: Prentice-Hall, 1965.

Press, Daryl G. "The Myth of Air Power in the Persian Gulf War and the Future of Warfare." *National Security* 26, no. 2 (2001): 5–44.

Rabinovich, Abraham. *The Yom Kippur War*. New York: Schocken Books, 2004.

Ranft, Bryen, and Geoffrey Till. *The Sea in Soviet Strategy*. Annapolis, MD: Naval Institute Press, 1984.

Rapport, Leonard, and Arthur Northwood. *Rendezvous with Destiny: A History of the 101st Airborne Division*. Old Saybrook, CT: Konecky & Konecky, 2001.

Ray, James L. *Global Politics*. Boston: Houghton Mifflin, 1995.

Renouvin, Pierre, and Jean-Baptiste Duroselle. *Introduction to the History of International Relations*. Oxford: Pall Mall Press, 1968.

Retaillé, Denis. "Geopolitics in History." In *From Geopolitics to Global Politics: The French Connection*, edited by Jacques Levy, 35–51. London: Frank Cass, 2001.

Reynolds, Clark G. *History and the Sea: Essays on Maritime Strategies*. Columbia: University of South Carolina Press, 1989.

Roberts, Michael. *Gustavus Adolphus: A History of Sweden, 1611–1632*. London: Longman, 1992.

———. "The Military Revolution, 1560–1660." In Rogers, *Military Revolution Debate*, 13–29.

Rogers, Clifford J., ed. *The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe*. Boulder, CO: Westview Press, 1995.

———. "The Military Revolution in History and Historiography." In Rogers, *Military Revolution Debate*, 1–10.

———. "The Military Revolutions of the Hundred Years' War." In Rogers, *Military Revolution Debate*, 55–93.

Romanus, Charles F., and Riley Sunderland. *Stilwell's Command Problems*. Washington, DC: GPO, 1956.

Romjue, John L. *American Army Doctrine for the Post–Cold War*. Fort Monroe, VA: Military History Office, United States Army Training and Doctrine Command, 1996.

Roxborough, Ian. "From Revolution to Transformation: The State of the Field." *Joint Force Quarterly* 32 (2002): 68–75.

Rumsfeld, Donald H. "Transforming the Military." *Foreign Affairs* 81, no. 3 (May/June 2002): 20–32.

Ryan, Cornelius. *A Bridge Too Far*. London: Hamish Hamilton, 1974.

Salisbury, Steve. "SEALs, DEA Break New Ground in Colombia." *Jane's Intelligence Review* 12, no. 1 (January 2000): 7.

Scales, Gen Robert H. *Certain Victory: The US Army in the Gulf War*. Washington, DC: United States Army, 1993.

Shulimson, Lt Col Jack, Leonard Blasiol, Charles R. Smith, and Capt David A. Dawson. *U.S. Marines in Vietnam: The Defining Year, 1968*. Washington, DC: History and Museums Division, Headquarters, United States Marine Corps, 1997.

Sloan, Geoffrey, and Colin S. Gray. "Why Geopolitics?" In Gray and Sloan, *Geopolitics*, 1–11.

Sloan, Geoffrey R. *Geopolitics in United States Strategic Policy, 1890–1987*. Brighton, UK: Wheatsheaf Books, 1988.

Smith, Woodruff D. *The Ideological Origins of Nazi Imperialism*. Oxford: Oxford University Press, 1986.

Sprout, Margaret T. "Mahan: Evangelist of Sea Power." In *Makers of Modern Strategy: From Machiavelli to Hitler*, edited by Edward M. Earle, 415–45. Princeton, NJ: Princeton University Press, 1943.

Stanton, Shelby. *The 1st Cav in Vietnam: Anatomy of a Division*. Novato, CA: Presidio, 1999.

Starkey, Armstrong. *War in the Age of Enlightenment, 1700–1789*. Westport, CT: Praeger, 2003.

Stokesbury, James L. *A Short History of World War II*. New York: Perennial, 2001.

Strausz-Hupé, Robert. *Geopolitics: The Struggle for Space and Power*. New York: Arno Press, 1972.

Sumida, Jon T. "Alfred Thayer Mahan, Geopolitician." In Gray and Sloan, *Geopolitics*, 39–62.

Summers, Harry G. "The Army after Vietnam." In *Against All Enemies*, edited by K. J. Hagan and W. R. Robert, 361–73. New York: Greenwood Press, 1986.

———. *Persian Gulf War Almanac*. New York: Facts on File, 1995.

Tangredi, Sam J. "Assessing New Missions." In Binnendijk, *Transforming America's Military*, 3–30.

Thomson, David. "Social and Political Thought." In *The New Cambridge Modern History*, vol. 11, *Material Progress and World-Wide Problems, 1870–1898*, edited by Francis H. Hinsley, 101–20. Cambridge: Cambridge University Press, 1962.

Tilford, Earl H. "Linebacker II." In *The Encyclopedia of the Vietnam War: A Political, Social and Military History*, edited by Spencer C. Tucker, 233–35. Oxford: Oxford University Press, 2000.

Till, Geoffrey. *Maritime Strategy and the Nuclear Age*. London: Macmillan, 1984.

Toffler, Alvin. *The Third Wave*. Toronto: Bantam Books, 1982.

Toffler, Alvin, and Heidi Toffler. *War and Anti-War*. Boston: Little, Brown, 1993.

Tolson, John J. *Airmobility, 1961–1971*. Washington, DC: Department of the Army, 1989.

Toomey, Christopher J. "Army Digitization: Making It Ready for Prime Time." *Parameters* 33, no. 4 (2003–4): 40–53.

Tuathail, Gearóid Ó., Simon Dalby, and Paul Routledge, eds. *The Geopolitics Reader*. London: Routledge, 1998.

Tucker, Spencer C. *Vietnam*. Lexington: University Press of Kentucky, 1999.

US Army Center of Military History. *American Military History*. Washington, DC: GPO, 1989.

Van Creveld, Martin. *Supplying War: Logistics from Wallenstein to Patton*. Cambridge: Cambridge University Press, 1977.

Venier, Pascal. "The Diplomatic Context: Britain and International Relations in 1904." In *Global Geostrategy: Mackinder and the Defence of the West*, edited by Brian W. Blouet, 55–63. London: Frank Cass, 2005.

Webster, Donovan. *The Burma Road: The Epic Story of the China-Burma-India Theater in World War II*. New York: Farrar, Straus and Giroux, 2003.

Weinberg, Gerhard L. *A World at Arms: A Global History of World War II*. Cambridge: Cambridge University Press, 1994.

Westmoreland, William C. *A Soldier Reports*. Garden City, NY: Doubleday, 1976.

Wilson, Peter A., John Gordon, and David E. Johnson. "An Alternative Future Force: Building a Better Army." *Parameters* 33, no. 4 (2003–4): 19–39.

Wright, Quincy. *The Study of International Relations*. New York: Appleton-Century-Crofts, 1955.

Young, Marilyn B. *The Vietnam Wars, 1945–1990*. New York: Harper Perennial, 1991.

Index

Military history is rife with examples of operational successes and failures stemming from a nation's geography. However, the concept of the physical line of operations has been completely transformed over the last one hundred years. Technological developments have led to the gradual contraction of this line. The notion that lines of communication might be made irrelevant to modern warfare revolutionized the concept of geostrategy and has led to many modern American military practices.

Are twenty-first-century military operations contingent on the geographical-physical dimension? Or have unprecedented technological processes created a fresh paradigm of war that has changed all of the precepts of classic geostrategy?

Dr. Tovy's work promises an interesting examination of whether the principles of geostrategy—which have governed human conflict for millennia—might have receded in importance or even ceased to matter at all.

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Tal Tovy is an associate professor at Bar-Ilan University in Israel. He holds a PhD in history from the University of Haifa. A veteran of the Israel Defence Forces, Dr. Tovy has published extensively on a variety of military history topics, including the influence of counterinsurgency theory upon American combat operations. His other fields of interest include Western military thought, US foreign policy, and US military history. In 2007 Dr. Tovy won the Yitzhak Sadeh Prize for excellence in writing military history. He is the author of two previous books: *Like Eating Soup with a Knife: The American Experience in Vietnam, 1959–1973*, and *Guerrilla and the War against It: The Military Heritage of Mao*, both in Hebrew. Among the journals he has contributed articles to are *Armed Forces and Society*, the *Journal of Military and Strategic Studies*, the *European Journal of American Studies*, and *War in History*.

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