WHEN FAILURE THRIVES

INSTITUTIONS AND THE EVOLUTION OF POSTWAR AIRBORNE FORCES

THE ARMY PRESS
U.S.ARMY
FORT LEAVENWORTH, KANSAS

MARC R. DEVORE

Soldiers from the 173rd Airborne Brigade Combat Team exit a C-130 Hercules transport, 16 October 2006, (Department of Defense photo by Arthur McQueen) http://www.eucom.mil/media-library/photo/18281/eucom-photo.

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Library of Congress Cataloging-in-Publication Data

DeVore, Marc R.
When failure thrives : institutions and the evolution of postwar airborne forces / Marc R. DeVore.
pages cm. -- (Occasional paper ; 38)
ISBN 978-0-9891372-9-4 (alk. paper)
1. Airborne troops--History. 2. Airmobile operations (Military science)--History. I. Title. II. Title: Institutions and the evolution of postwar airborne forces.

UD480.D48 2015
356'.166--dc23

2015016880

First Printing June 2015
Layout and Design by
Elizabeth J. Brown
Combat Studies Institute Press

Foreword

When Failure Thrives is the inaugural publication by the Army Press, and its subject matter makes it a particularly fitting work to mark the launch of the new press. In authorizing creation of an Army Press, senior US Army leaders envisioned it as a venue for professional discussion that would examine experiences and challenge conventions and assumptions. Dr. Marc DeVore's study of the post-1945 evolution of airborne forces in three very different militaries certainly accomplishes this objective by questioning whether parachute-enabled forced-entry operations have ever accomplished their objectives at an acceptable cost. To establish context DeVore first outlines airborne operations in World War II, determining their levels of success. The study then charts the development of airborne forces in the United States, the United Kingdom, and the Soviet Union.

Ultimately, what Dr. DeVore argues is that the fate of airborne formations within those three states' national military institutions depended far less on an established and verifiable record of successful parachute assaults than on institutionalization-how those forces were situated doctrinally and "politically" within their armies. In the US and USSR, airborne forces managed to gain footholds as elite institutions and thrived as a result. In the UK, the opposite dynamic led to the atrophy of the British airborne force.

The final section of *When Failure Thrives* examines the implications of this historical trend. Specifically, DeVore challenges conventional thought about the size and missions of the US Army's airborne forces. Not all readers will agree with the author's conclusions, but the resulting discussion and debate will certainly meet the original intent for the Army Press and its offerings.

Colonel Thomas E. Hanson
Director
Combat Studies Institute

Contents

page

Foreward iii
Chapter 1 Introduction 1
Institutional Design and Military Innovation 3
Institutional Design and Organizational Inertia 7
Chapter 2 The History of Airborne Forces 19
The Origins of Vertical Envelopment 19
The False Promise of Vertical Envelopment 21
Towards the Periphery of International Conflict 25
Why Failed Innovations Survive 29
Chapter 3 The Soviet Union 39
Chapter 4 The United Kingdom 47
Chapter 5 The United States 55
Chapter 6 Conclusions and Implications for the US Army 67
Institutional Design and Military Performance 67
The Failure of Rationality 68
Insights for Policymakers 70
Implications for Current US Army Airborne Forces 72
About the Author 81

Figures

page

Figure 1. Large Airborne Operations of World War II. 25
Figure 2. Small Airborne Operations of World War II. 27
Figure 3. Soviet, British, and American Airborne Operations. 30
Figure 4. Soviet Airborne Operations of World War II. 40
Figure 5. British Airborne Operations of World War II. 48
Figure 6. American Airborne Operations of World War II. 56

Chapter 1

Introduction

Few issues are more important to military professionals or scholars of national security than understanding the factors that either lead armed forces to continuously innovate or succumb to the forces of organizational inertia. When armed forces successfully innovate, developing new capabilities such as large-scale armored formations and carrier battle groups, they can even overcome opponents possessing vastly superior resources. Contrarily, whenever military establishments have become too attached to specific tactics or organizational formats, their battlefield performance tends to suffer once those tactics and organizations became obsolete. Such a fate befell the Ottoman janissary corps in the 18th century and the horse cavalry in the 20th century. Consequently, an enduring theme for students of military history is the performance of states with more innovative armed forces overcoming ones beset with inertia. Because of the issue's importance, this study will explore the institutional factors that either lead a nation and/or its armed forces to innovate or to retain obsolete force structures.

The concepts of organizational inertia and military innovation are closely interconnected. Regardless of how revolutionary they are at the time of their introduction, all military innovations gradually lose their utility as they are overtaken by further technical and societal developments. For example, while the Prussian drill regulations and tactical *ordre oblique* introduced by Frederick II (the "the Great") of Prussia in the mid-18 Century were revolutionary for his time, they became a liability a mere generation after Frederick's death when battlefield developments during the French Revolutionary and Napoleonic Wars led to the diffusion of new models of military organization. However, Prussia proved too slow in responding to these new developments until, after an existential defeat in 1806, policymakers finally discarded the institutions and practices they had inherited from Frederick.

This case and others like it demonstrate the validity of Joseph Schumpeter's axiom that innovation is a process of "creative destruction."[1] Because resources—both human and material—are finite within any organization, it is difficult to develop new capabilities without first eliminating existing ones. Consequently, any organization's ability to innovate is contingent upon its willingness to dismantle or otherwise abandon elements of its existing structure and operational procedures. For this reason, military innovators oftentimes advocate abolishing organizations

considered impediments to reform. For example, Soviet Marshal Nikolai Ogarkov, an early advocate of a Military Technical Revolution, passionately (yet unsuccessfully) lobbied for his government to shift resources from armored forces to digital command-and-control networks and long-range precision-guided munitions. In Ogarkov's case, and many others, a military organization's unwillingness to divert personnel and resources from obsolescent structures to more promising ones condemned a promising military idea to failure.[2]

Although the persistence of obsolete military structures and branches stifles military innovation, few authors have examined why obsolete military structures persist. To fill this gap, this study will examine why airborne forces have survived—to different degrees—in three great powers. Airborne forces are an ideal case for exploring the survival and evolution of a military capability of decreasing utility because of both the nearly-universal creation of such forces by the great powers between 1928 and 1941, and their subsequent development along disparate lines in different states.

In this context, although the spread of integrated air defenses, armored vehicles and surface-to-air missiles gradually reduced the utility of airborne forces, states adapted to these developments in different ways. In the Soviet Army airborne forces continued to claim a relatively large portion of defense outlays despite their declining utility. In doing so, they expended substantial resources in a futile effort to counteract ineluctable technical trends. In the United States, airborne forces remained an important component within the army, but their size fluctuated as the airborne community sought new roles and missions. Finally, in the United Kingdom airborne forces declined in size and importance—and as a share of the national defense budget—to purely symbolic proportions, preserving the traditions of the venerable Parachute Regiment without investing much in that unit's supposedly unique mission.

Given such a range of outcomes, this study will try to answer two important questions: why have airborne forces survived despite the declining feasibility of large-scale paratroop operations? And why have airborne forces evolved along such different lines in the three states under consideration?

To preview the study's conclusion, the answer to why obsolete military structures survive must be sought in the institutional processes whereby new military capabilities are created and sustained. As both scholars and military professionals have long understood, military innovations occur when armed forces establish autonomous or semi-autonomous organizational structures (either a separate service, branch or unit) to explore new

technologies and doctrines. However, the same qualities of organizational autonomy and institutional power that promote innovation in new organizations foster organizational inertia as an institutions' favored tactics and technologies become obsolete. In this manner, obsolescent military structures can best resist the forces of change when they possess a high degree of institutional autonomy and strength, and when their partisans are dispersed among the other subordinate organizations of the total military force. Thus, it is ironically the same structural and institutional-culture attributes that enable armed forces to pursue new innovative capabilities that also lead them to retain outmoded capabilities long after they should have abandoned them.

Such a "degrees of institutionalization" argument provides a powerful explanation for the varied evolution of airborne forces after the Second World War. Indeed, the degree to which airborne forces survived and prospered in the post-war era depended on the degree of autonomy they were granted upon their creation prior to or during the Second World War. In effect, airborne forces suffered cutbacks in countries, such as the United Kingdom, where they did not enjoy a high level of institutional strength or autonomy to begin with. Contrarily, they proved largely immune to cutbacks in the Soviet Union, where they were originally endowed with a great deal of organizational clout and independence before the war. Finally, airborne forces remained large, but were obliged to engage in frequent and sustained efforts to reinvent themselves in the United States, where the airborne community's institutional strength was substantial, yet not so great as to enable airborne forces to entirely neglect the implications of technical and tactical developments.

Institutional Design and Military Innovation

To understand the persistence of certain military tactics and organizations' even after technological changes have rendered them obsolescent it is necessary to examine how different patterns of institutionalization shape the development of military capabilities. In one of the most important studies of private sector innovation, Clayton Christensen demonstrated that new capabilities are best developed when they are embodied in specially-created organizations, rather than embedded in existing structures.[3] Such is the case because existing organizations tend to focus on performing their current tasks optimally, rather than developing entirely new approaches to achieving objectives. Therefore, Christensen argues that corporations must create specialized autonomous or semi-autonomous branches in order to exploit major technological developments.

While Christensen's work focuses on private sector innovation, his conclusions also hold true for military organizations. Indeed, military history is replete with cases when new organizations were more successful at harnessing the revolutionary potential of new technologies than existing ones. The case of armored warfare provides a powerful example. The invention of tanks in 1916 and subsequent improvements to their performance created opportunities for land warfare to be waged in radically new ways. Indeed, military theorists across the globe were quick to recognize tanks' potential and most of the great powers had their own armored theorists, including Heinz Guderian (Germany), V.K. Triandafillov (Soviet Union), B.H. Liddell-Hart (United Kingdom), Charles de Gaulle (France) and Alberto Pariani (Italy).[4]

However, while recognition of the tank's tactical value was universal, the creation of armored forces was a much more uneven process. In many great powers, including Britain, France and the United States, the responsibility for employing tanks was assigned to two traditional service branches—the infantry and the cavalry.[5] Contrary to certain misconceptions, both of these branches viewed tanks as potentially very useful. Nevertheless, they narrowly defined the tank's role and technical requirements in terms of supporting preexisting infantry and cavalry missions. This meant that the infantry demanded tanks and armored units that were heavily armored, slow moving and optimized for supporting infantry assaults. Meanwhile, the cavalry developed tanks and armored units designed to substitute for the traditional horse cavalry missions of scouting and reconnaissance. In the American case, the cavalry even insisted on combining tanks and horses in hybrid units.[6]

Unfortunately, entrusting the infantry and cavalry branches with tank development squandered their revolutionary potential. This became apparent when Germany launched its blitzkrieg campaigns in 1939-41. Rather than subordinating tanks to existing branches, the Germans created a dedicated armored branch, the *Panzerwaffe*, to exploit the new technology. In sharp contrast to the approach taken by existing branches, these special-purpose organizations exploited the full potential of armored vehicles for deep maneuvers and causing chaos in opponents' rear areas.[7] Consequently, although Germany's armored forces were actually numerically inferior to those of their opponents in 1940 and 1941, they nevertheless dominated the battlefield and won remarkable victories.[8]

Thus, as Christensen's work theorized and the example of armored warfare demonstrates, new special-purpose organizations are often better at exploiting revolutionary new technologies than existing organizations. Therefore, when statesmen and military leaders perceive that a new tech-

nology or tactic will have far-reaching implications, the best course of action available to them is to create an autonomous organization dedicated to exploiting the technology or tactic to the fullest. In principle, such an organization will be more innovative because the new technology/tactic will constitute the "organizational essence" of the newly created institution.[9] Further, the institution will be able to offer desirable career prospects to officers who specialize in applying that particular technology/tactic.[10] However, even when policymakers recognize the need to create new military organizations, they still face difficult choices in terms of how to institutionalize the capabilities they hope to develop.

In simple terms, the question of institutionalization can be reduced to one of whether to create a new service, branch, or unit. When the new capabilities sought are either technologically most revolutionary or vital for national security, policymakers can decide to institutionalize the innovation in the strongest possible fashion—by creating an entirely new military service, complete with its own technological and educational establishments. The rapid development of military aircraft in the early 20thth Century sparked just such a development of independent air services, beginning with the British Royal Air Force's creation in 1918.[11] However, because the creation of new armed services is costly owing to their many support and administrative services, policymakers frequently prefer to create new branches within existing services. Interwar Germany's creation of an armored branch within its land forces is a case in point of this type of innovative strategy.

When new technologies and tactics are not judged as warranting their own service or branch, they can be institutionalized at the level of individual combat units themselves. For example, when the French Army wanted in the 1980s to create a heliborne infantry force specialized in employing anti-tank missiles, they created a regiment dedicated to this mission (the 1st Infantry Regiment).[12] Many other examples of such "boutique" capabilities exist, including Italy's naval landing forces (the San Marco Regiment) and the United Kingdom's naval saboteurs (the Special Boat Service).

While the question of how to institutionalize military innovations can be conceptualized as a choice between creating a separate service, branch or unit, many variations exist on these organizational ideal types. For example, the United States Special Operations Command (SOCOM) has possessed attributes of two forms of organization since its creation in 1986. In several respects, SOCOM resembles an independent service. The command is led by a four-star officer, manages a substantial budget (approximately $10 billion per year), and possesses a sizeable headquar-

ters for developing techniques and equipment.[13] However, SOCOM falls short of being a service in other respects such as lacking its own military academy and depending on the existing services for its units and some of its training.[14]

Consequently, when decision-makers perceive technical or tactical developments as offering new vistas for military innovation, they must decide what sort of institutions to create. In general, the degree of institutionalization employed should correspond to how revolutionary and distinct the new technology/tactic is judged to be. However, misjudging how a military capability should be institutionalized, by providing either more or fewer resources than optimal will result in military inefficiencies and misspent resources. The reason for this is that, on the one hand, an under-resourced organization is unable to develop tactics and technologies to their full potential; while, on the other hand, an over-resourced organization often produces costly redundancies.

How too little institutionalization can impede innovation is illustrated by the case of United States special operations forces prior to the creation of the Special Operations Command. Before 1986 special operations forces existed as discrete units within each of the services. Because they neither possessed large staffs nor could offer appealing career prospects, special operations forces failed to attract officers of the needed quality, were neglected in national-level debates, and were unable to develop specialized equipment for their missions.[15] As a result, American special operations forces did not provide the strategic value that had been anticipated at the time of their creation—a fact illustrated in the dramatic failure of the 1980 Iranian hostage rescue operation, Desert One. It was in light of these shortcomings that policymakers eventually created an institutionally-robust Special Operations Command.[16]

While the case of special operations forces illustrates the perils of under-institutionalizing a capability, the example of Soviet/Russian National Air Defense Forces (the PVO-Strany) illustrates the inverse error of over-institutionalizing a capability. Impressed by the technological promise of integrated air defense networks—combining radars, aircraft, anti-aircraft guns and surface-to-air missiles—Soviet leaders established the National Air Defense Forces in 1948 as an independent armed service on a par with the nation's ground, air and naval forces.[17] This entailed endowing the National Air Defense Forces with a sizeable bureaucracy, educational institutions (a military academy and staff colleges), and training facilities that replicated many of the functions already performed by the other armed services.[18] To make matters worse, the National Air Defense Forces procured costly aircraft and surface-to-air missiles that were similar to, yet

different from those procured by the air force and army.[19] Over time, this unnecessary duplication of effort came to be seen as an excessive drain on the state's scarce resources, leading to the National Air Defense Forces' abolition as an independent service in 1998.[20]

In sum, policymakers face a complex challenge when it comes to institutionalizing a new military capability. Since too low a degree of institutionalization impedes innovation and too high a degree wastes resources, the policymaker's task of developing ideal institutions is akin to the mythological one that faced Odysseus as he navigated the narrow channel between the monsters Scylla and Charybdis. However, since it is rarely possible to assess ex ante what degree of institutionalization should be adopted, different states adopt a variety of institutional designs when confronted with the same technological developments. Thus, the advent of a technology or tactic will likely generate diverse institutional outcomes in different countries.

Institutional Design and Organizational Inertia

While examining institutionalization is critical to understanding military innovation, it is also essential for comprehending the organizational inertia that later overtakes many military institutions. Consequently, although a high degree of institutionalization provides a military organization with the freedom to innovate, it also simultaneously provides the clout and resources needed to resist necessary reforms. In fact, the greater the autonomy and resources a military organization possesses, the better it will be at preserving itself when threatened by tactical / technical developments. Such is the case because both conscious and unconscious biases as well as individual self-interest leads military professionals to defend their organizations in times of adversity. Consequently, military leaders either pursue innovations that preserve their organizations' existing missions, adapt to fulfill alternative roles, or rely on reputation and elite status alone to preserve their organizations. However, the nature of the survival strategies that organizations adopt is heavily conditioned by the institutional resources they possess, with more institutionalized organizations better able to preserve their autonomy and original essence.

Because warfare is a matter of life and death for individual combatants—and national survival for states—it is mistakenly assumed that military professionals are ruthless and unsentimental when it comes to discarding old technologies and tactics. However, one tends to find more examples of clearly obsolescent tactics and technologies in military organizations than in many other fields of human behavior.[21] In one extraordinary case, horse cavalry survived in even the world's most industrial-

ized states until the 1950s, a half-century after they ought to have been abolished. There are, however, many more examples of this kind of obsolescence. The Swiss military maintained carrier pigeons into the early 1990s, long after the advent of electronic communications. The United States Army has retained a sizeable Chemical Corps since the First World War despite the declining importance of chemical warfare. Military forces in states such as France (the *Spahis*), Spain (the *Regulares*) and the United Kingdom (the *Gurkhas*) all retain regiments whose traditions and recruitment reflect the exigencies of long-vanished colonial empires.

Why then do obsolescent tactics and technologies persist within military organization? The equivalent of such holdovers in the commercial sector—such as a large firm refusing to use container ships or the internet—is virtually unknown and would swiftly lead to bankruptcy. One reason for greater inertia in military organizations lies in the incomplete and intermittent nature of how military organizations are tested. Indeed, there is no certain method to ascertain how effective armed forces are short of forcing them to conduct a wide-range of military operations against a wide variety of live opponents. Moreover, even the so-called lessons of recent wars are notoriously difficult to interpret because wars are comparatively rare and the nature of the opponents and geography encountered in the last conflict are unlikely to provide adequate proxies for the challenges that will characterize the next one.[22]

Consequently, contemporary conflicts rarely provide conclusive proof that a technology or tactic should be abandoned. It is, therefore, almost always possible for military organizations to ignore unpleasant truths by arguing that the circumstances of future wars will be more favorable to their preferred tactics and technologies. For example, in one particularly brash example of a military professional drawing biased conclusions from contemporary conflicts, British General John French summarily dismissed the need for reevaluating the cavalry's role after their poor performance in the Boer War. To this end, French wrote, "It passes comprehension that some critics in England should gravely assure us that the war in South Africa should be our chief source of inspiration and guidance...we should be very foolish if we did not recognise at this late hour that very few of the conditions of South Africa are likely to recur."[23] However, as commander of the British Expeditionary Force at the outbreak of the First World War, French soon learned to his chagrin that the Boer War was a more accurate reflection of modern warfare than he anticipated.[24]

Given the indeterminacy of recent wars for showing how armed forces should be constituted, there is considerable scope for biases to shape how military professionals respond to developments. Military profession-

als' biases are, in turn, imparted upon them by the institutions that educate them and within which they pursue their careers. Driven by necessity, military organizations emphasize tradition, continuity and the value of received tactics as a means of instilling the confidence needed to perform difficult tasks amidst the chaos of battle. Put another way, Edward Katzenbach argued in a classic study that, "Romanticism, while perhaps stultifying realistic thought, gives a man that belief in the value of the system he is operating that is so necessary to his willingness to use it in battle....But faith [in a weapons system or tactic] breeds distrust of change."[25] Thus, a degree of bias and resistance to change is a natural by-product of military organizations' efforts to develop *élan* and *esprit de corps.*

In addition to these unconscious biases, military professionals also develop conscious biases as a result of career incentives. Because officers are promoted within well-defined military organizations, they have a natural interest in seeing those organizations prosper.[26] Moreover, even senior leaders, for whom future promotions are not an issue, generally feel a sense of responsibility for securing the careers of their protégés and perpetuating the organizations they have served.[27] As a result, military professionals naturally rally to the defense of their organizations on occasions when technological and tactical developments lead outsiders to criticize them. In recent times, no better example of this phenomenon can be found than the US Marine Corps' steadfast defense of the V-22 Osprey program. Because Marine leaders considered the V-22 Osprey essential to the service's amphibious assault mission, Marines (and former Marines) successfully lobbied to save the program in the face of grave technical problems, sustained cost overruns, and politicians' repeated efforts to cancel the program.[28]

While military professionals endeavor to protect their organizations from adverse tactical and technical changes, they cannot simply deny reality when such changes occur. Instead, they must innovate, reform, or otherwise redefine their organizations' missions in a manner that guarantees their continued relevance. Within this context, military organizations typically adopt one of three distinct "survival strategies" when faced with existential threats.

One strategy, the preferred one of military organizations under pressure, is to invest in technological innovations that promise to restore the validity of the organizations' core missions. If technical and tactical developments are the reason that a military organization's existence is being questioned, then it stands to reason that further technical and tactical developments may restore that organization's credibility. An excellent example of this phenomenon can be found in the United States Air Force's

responses to technical/tactical challenges. Having obtained its status as a separate service in 1947 by arguing that air power could independently win wars, the Air Force has repeatedly faced criticism when it either failed to destroy targets considered essential or failed to achieve the anticipated strategic objectives. However, such shortcomings have never prompted the Air Force to fundamentally question the dogma of strategic air power.[29]

Rather, the Air Force has consistently sought to develop new tactics and technologies capable of reinvigorating its preferred strategic mission.[30] Such was the case, for example, when the Air Force encountered grave difficulties during the Vietnam War as a result of both North Vietnam's sophisticated Soviet-provided air defense system and the Air Force's own difficulties destroying precision targets. However, rather than renounce the strategic air campaign against North Vietnam, the Air Force instead concentrated its efforts at developing new technologies and tactics. Within this context, the Air Force developed a host of electronic warfare equipment, precision-guided munitions, drones, and airborne early warning systems.[31] Tactically, the Air Force also implemented revolutionary new training and exercise methods (eventually culminating in the "Red Flag" exercises) shortly after the war. These costly efforts at resolving the Air Force's tactical and technical problems bore fruit later in the Vietnam War and in subsequent conflicts.[33] Nevertheless, the service's goal of achieving victory through airpower alone has proven elusive.[34]

Besides seeking innovative remedies for the technical and tactical challenges ailing them, another strategy military organizations under pressure can adopt is to seek new roles and missions. In effect, even if developments render a military organization's original mission impossible or irrelevant, the organization can nevertheless survive if it identifies and fulfills another mission vital to national security. A good example of this phenomenon can be found in the United States Marine Corps' conversion from imperial policing to amphibious warfare in the 1930s. Because the Marine Corps had hitherto justified its size and autonomy by spearheading the United States' frequent interventions in Latin America, many openly questioned whether there was any reason to preserve the service once President Franklin Roosevelt promulgated the "Good Neighbor Policy" in 1933, which curtailed the interventions (the "Banana Wars") that previously constituted the Corps' *raison d'être*.[35]

However, rather than accept the demise of an independent Marine Corps, Marine leaders identified an alternative mission for the organization. Because of Japan's emergence as a security threat, Marine leaders anticipated that a future war would entail seizing fortified islands in the Pacific. Consequently, Marine leaders reasoned that the development of an

amphibious capability could provide the Marines with the leverage needed to protect the organization's size and resources. Assistant Commandant John Russell, therefore, urgently initiated reforms to transform the Marines from an imperial policing organization to an amphibious assault force as soon as the "Good Neighbor Policy" was announced. In short order, the Marines constituted the embryo of an amphibious force—the Fleet Marine Force—in late 1933 and suspended teaching at the Corps' schools in 1933-34 to allow the schools' personnel to devote their undivided attention to crafting amphibious doctrine.[36] These developments, combined with the Corps' activism in creating amphibious vessels, laid the basis for the Corps' subsequent survival and growth.[37]

In addition to innovating to preserve an existing role or adapting to accomplish a new mission, military organizations can also protect themselves by arguing that past contributions to national defense constitute an argument for future survival. Within this context, the past victories and accolades won by military units are frequently advanced as a reason for not disbanding them, even when units' original roles have become obsolete. The logic of such an approach is not entirely emotional however. Instead, it is usually argued that a unit's traditions socialize recruits with values such as discipline, audacity, and self-reliance that contribute to esprit de corps and effectiveness.[38] Moreover, it is frequently asserted that such organizations possess a collective institutional memory that transcends the span of individual careers. Because of the purported value of such immaterial factors, some of the world's most renowned infantry units—including the British Green Jackets and Italian Bersaglieri—survived the disappearance of the long-forgotten niche tactical roles they were originally created to fulfill.

Within this context, the Green Jackets were founded in 1800 as a unit of skirmishers and long-range marksmen and the Bersaglieri were formed in 1836 to execute the gymnastic and high-mobility infantry tactics that were favored by certain tacticians at that time.[39] However, the distinctive missions of both units were eventually overtaken by further technological and tactical developments, leading Green Jacket and Bersaglieri tactics and equipment to become indistinguishable from those of other infantry formations. Nevertheless, by that time the Green Jackets and Bersaglieri had distinguished themselves in numerous battles and won elite reputations. Consequently, the leaders of both formations were able to secure their existence, despite the obsolescence of the tactical concepts that provided their original *raison d'être*. Moreover, the units were able to perpetuate their elite status because their reputations drew their countries' best officer cadets and most qualified recruits to join them, enhancing these

units' effectiveness relative to functionally identical "ordinary" infantry formations.[40]

In short, three broad strategies are available to military organizations whose ability to fulfill their missions is threatened by adverse technical/tactical developments. Organizations can: pursue innovations that preserve their existing missions; adapt to fulfill alternative roles that are also essential to national security; or rely on reputation and elite status alone to preserve the organization. While all three of these strategies can preserve an organization, they are neither equally desirable nor feasible.

In terms of desirability, organizations prefer outcomes that preserve their organizational essence and autonomy to those that do not. Consequently, leaders favor whenever possible those innovations that reinvigorate an organization's existing mission because such a policy preserves both the body's essence and autonomy. Contrarily, leaders are least enthusiastic about strategies that sacrifice their organizations' distinctive functions and decision-making autonomy, which is the case when reputation and elite status are the only justifications for institutional survival. Finally, adapting to execute an alternative mission is a strategy whose desirability falls between these two extremes as it preserves an institution's autonomy at the price of sacrificing its original essence.[41]

While the desirability of alternative strategies varies widely, so too does their feasibility. Indeed, different degrees of institutional power are required to pursue each of the abovementioned strategies. Within this context, the most difficult strategies to execute are those that rely on innovations to counteract developments that would otherwise consign a military organization to obsolescence. To execute such a strategy, a military organization needs technical departments capable of steering the development of sophisticated new weapons systems, financial resources substantial enough to procure large amounts of new equipment, doctrinal and educational establishments that are able to articulate and diffuse new tactical concepts, and facilities for testing and practicing new tactics under realistic conditions. The scale of the institutional resources needed for such a strategy can be seen in the United States Air Force's massive investments in exotic technologies and its lengthy perfection of new tactics to defeat North Vietnam's air defenses.[42]

Tailoring an organization for an alternative mission also requires substantial institutional resources, albeit fewer than are generally needed to preserve their original mission. The reason for this is that although new tactics and equipment will be required for the new mission, that mission will presumably be selected as the organization's new focus based on its being more feasible than the previous one. This can be seen in the Marines'

transition to amphibious warfare. Although the Corps committed itself wholeheartedly to its new mission, its actual development of an amphibious capability occurred fairly quickly, comparatively inexpensively, and with surprisingly little difficulty.[43] Indeed, having begun in 1933, Marine Corps General Alexander Vandegrift stated that the Corps had by 1935 formulated the "basic amphibious doctrines which carried allied troops over every beachhead of World War II."[44]

Finally, military organizations require the least institutional resources if they intend to rely on reputation and elite status alone to preserve their existence. In this case, neither new equipment nor doctrine is required. Rather, all an organization's leaders need to do is mobilize public opinion and the organization's symbolic capital in favor of its preservation. For example, the Green Jackets and Bersaglieri waged effective public relations campaigns for their preservation, but adopted the equipment and doctrine of standard infantry battalions when their once distinctive ones became obsolete. As a consequence, no specific tactics or equipment were developed for these formations, whose only distinguishing features remain unique parade uniforms and an exalted social status.

In sum, military professionals seek to preserve their organizations when these are later threatened by tactical/technical developments. Indeed, both emotion and self-interest leads officers to rally around their organizations in times of adversity. Consequently, such organizations rarely acquiesce to the threat of obsolescence, but instead seek to demonstrate their continued relevance to national security. They do this by pursuing innovations that preserve their existing missions, adapt to fulfill alternative roles, or rely on reputation and elite status alone to preserve the organization. However, the nature of the survival strategy adopted is likely to be a function of the institutional resources the organization possesses, with leaders seeking to preserve as much of the organization's autonomy and original essence as possible.

As articulated above, the central argument of this study is that the fate of military organizations is powerfully shaped by their institutional design. When military organizations are first created, institutional resources—including their degree of autonomy and scope of their bureaucracies—determine how successful such organizations will be at exploiting new tactical and technical developments. Within this context, an organization's ability to innovate is a function of its degree of institutionalization. Later, when further technical and tactical developments undermine an organization's ability to execute its missions, institutional resources determine the options available to that organization's leaders.

While military professionals universally seek to preserve their organizations, their ability to do so is a function of how those organizations are designed. Powerful organizations will seek to salvage their existing missions by pursuing technical and tactical innovations that can revitalize those missions. Weaker organizations may seek alternative roles and missions that will be easier to achieve. Finally, the weakest organizations are likely to rely on their reputation and status to survive, even when doing so relinquishes the organizations' hitherto distinctive roles. Thus, the degrees of institutionalization originally conferred upon organizations at the time of their creation shapes their durability in the face of adversity.

The remainder of this study will demonstrate the role of institutions both in promoting military innovation and in cultivating organizational inertia. To this end, the fate of airborne forces in three great power militaries will be examined. Airborne forces are an ideal focus for such a study because the perceived potential of paratroop assaults convinced all major powers to create airborne units. However, each followed a unique path to achieve this goal, endowing different airborne forces with different institutional designs. These different institutional designs have, in turn, shaped how airborne forces evolved in different states once technical and tactical developments rendered large-scale paratroop assaults obsolete.

To lay the basis for this analysis, the next section, Chapter 2, will provide an overview of how airborne forces evolved across the world and how they have been used in conflicts. The following section, Chapter 3, examines the development of the Soviet Union's airborne forces, where a high degree of institutionalization enabled the organization to seek innovations that preserved its original mission of launching large-scale paratroop assaults. Chapter 4 then examines the United Kingdom's airborne forces, whose extremely low degree of institutionalization left elite status as the only resource that could be mobilized to preserve the organization. In Chapter 5, the case of the United States' airborne forces will be scrutinized to ascertain how an organization with medium-level institutionalization evolved. Finally, Chapter 6 draws conclusions from these cases to provide new insights on institutional dynamics within military organizations.

Notes

1. Joseph Schumpeter, *Capitalism, Socialism and Democracy* (New York: Harper, 1975 [orig. pub. 1942]), *passim*.

2. Marc DeVore, "A Dangerous Utopia: the Military Revolution from the Cold War to the War on Terror" in George Lawson, Chris Armbruster and Michael Cox, eds., *The Global 1989: Continuity and Change in World Politics* (Cambridge: Cambridge University Press, 2010), 221-27.

3. Clayton Christensen, *The Innovator's Dilemma* (New York: HarperCollins, 2000), 42-48.

4. This list of theorists is by no means exhaustive and each state possessed multiple partisans of armored warfare. See J.P. Harris, *Men, Ideas and Tanks: British military thought and armoured forces, 1903-1939* (Manchester: Manchester University Press, 1995), 195-272; V.K. Triadafillov, *The Nature of Operations of Modern Armies* (London: Routledge, 1994 [orig. 1929]), *passim*; Stéphan Ferrard, *Engins blindés français: Cent ans d'histoire* (Paris: EPA, 1996), 33-7; John Sweet, *Iron Arm: The Mechanization of Mussolini's Army* (Mechanicsburg: Stackpole, 2007 [orig. 1980]), 69-100.

5. David Johnson, *Fast Tanks and Heavy Bombers: Innovation in the US Army, 1917-1945* (Ithaca: Cornell University Press, 1998), 124-40; Peter Bale, *Death by Design: British Tank Development in the Second World War* (Stroud, Gloucestershire: History Press, 1998), passim; and Gérard Saint-Martin, *L'Arme blindée française, Tome 1: Mai-juin 1940! Les blindés français dans la tourmente* (Paris: Economica, 1998), 79-134.

6. Johnson, *Fast Tanks and Heavy Bombers*, 129.

7. Mary Habeck, *Storm of Steel: The Development of Armor Doctrine in Germany and the Soviet Union, 1919-1939* (Ithaca: Cornell University Press, 2003), 206-09.

8. One recent study has calculated that the Germans deployed 2,574 tanks to the Western Front in 1940 and that the French possessed 3,851 modern tanks at that time. Recent estimates of balance of forces in Eastern Europe in June 1941 suggest that the Soviet Union possessed between 10,394 and 14,200 tanks in the region while Germany possessed only 3,648. See: Jonathan House, *Combined Arms Warfare in the Twentieth Century* (Lawrence: Kansas University Press), 90-117; Jeffrey Gunsburg, *Divided and Conquered: The French High Command and the Defeat of the West* (Westport, Connecticut: Greenwood, 1979), 102-03; Ferrad, 67-71; and Anders Frankson "Summer 1941," *The Journal of Slavic Military Studies*, 13/3 (2000), 131-144.

9. According to Morton Halperin's classic work on bureaucratic politics, "The organization's *essence* is the view held by the dominant group in the organization of what the missions and capabilities should be. Related to this are considerations about what kinds of people with what expertise, experience and knowledge should be members of the organization [italics in original]." Morton Halperin, *Bureaucratic Politics & Foreign Policy* (Washington D.C.: Brookings, 1974), 28.

10. Stephen Rosen has demonstrated the importance of promotional pathways to military innovation. Rosen argues that, "Control over the promotion of officers is the source of power in the military....The organizational struggle that leads to innovation may thus require the creation of a new promotion pathway to the senior ranks, so that young officers learning and practicing the new way of war can rise to the top.... The new pathway may be necessary to ensure that new skills are not relegated to professional oblivion." Stephen Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca: Cornell University Press, 1991), 20-21.

11. Indeed, some scholars have argued that an insufficient degree of institutionalization was a key reason certain air forces were less effective than others during the Second World War. Pascal Vennesson powerfully made this case with respect to the French air force. See Pascal Vennesson, "Institution and airpower: The making of the French air force," *Journal of Strategic Studies* 18/1 (1995), 36-67.

12 Jérôme de Lespinois, *L'Armée de terre français: de la défense à la projection, vol. 2* (Paris: L'Harmattan, 2001), 455-60.

13. Andrew Feickert and Thomas Livingston, *CRS Report for Congress—US Special Operations Forsces (SOF): Background and Issues for Congress* (Washington D.C.: CRS, 2011), *passim.*

14. Susan Marquis, *Unconventional Warfare: Rebuilding US Special Operations Forces* (Washington D.C.: Brookings, 1997), 148-226.

15. Marquis, *Unconventional Warfare,* 6-78.

16. On the greater innovative success of the more institutionalized special operations command, see Jon Lindsay "Reinventing the Revolution: Technological Visions, Counterinsurgent Criticism, and the Rise of Special Operations," *Journal of Strategic Studies* (upcoming, 2013) at: http://dx.doi.org/10.1080/01402390.2012.734252.

17. BDM Corporation, *History of Strategic Air and Ballistic Missile Defense Volume I: 1945-1955* (Washington D.C.: Center for Military History, United States Army, 2009 [orig. 1975]), 69-84.

18. Virtually all of the National Air Defense Forces' training facilities replicated functions already performed by the other services. For example, the Ground Forces trained personnel to operate surface-to-air missiles, missile radars and anti-aircraft artillery. The Air Force trained fighter pilots and ground-controlled interception radar operators.

19. The Soviet Union mass produced a range of high performance fighter aircraft (these included the following models: Su-11, Su-15, MiG-31 and Tu-128) that were exclusively used by the National Air Defense Forces and never deployed with the Air Force. Certain missile systems, such as the SA-5, SA-10 and ABM-1 were also developed exclusively for the National Air Defense Forces. See John Lepingwell, *Organizational and Bureaucratic Politics in Soviet Defense Decisionmaking: A Case Study of the Soviet Air Defense Forces* (Ph.D.dissertation, Department of Political Science, Massachusetts Institute of Technology, 1988), *passim*; and James Quinlivan, *Soviet Strategic Air Defense: A Long Past and an Uncertain Future* (Santa Monica: RAND, 1989), *passim*.

20. For an extremely critical look at the National Air Defense Forces' effectiveness, see James Oberg, *Uncovering Soviet Disasters* (New York: Random House, 1988), 32-49

21. Other complex organizations that are rarely subjected to the audit of external competition exhibit a similar propensity for adhering to outmoded tactics and technologies. Government bureaucracies and universities furnish a number of examples.

22. For a particularly insightful analysis on how armed forces can draw different and erroneous lessons from recent conflicts, see: Gary P. Cox, "Of Aphorisms, Lessons, and Paradigms: Comparing the British and German Official Histories of the Russo-Japanese War," *The Journal of Military History*, 56/3 (1992), 389-402.

23. John French, "Preface to English Edition" in Friedrich von Bernhardi, *Cavalry* (New York: George H. Doran, 1914), 9.

24. Certain civilian authors drew more prescient conclusions when examining the Boer War's implications. See T. H. E. Travers, "Technology, Tactics, and Morale: Jean de Bloch, the Boer War, and British Military Theory, 1900-1914," *The Journal of Modern History*, 51/2 (1979), 264-286.

25. Edward Katzenbach, J.R.. "The Horse Cavalry in the Twentieth Century," in Robert Art and Kenneth Waltz, eds., *The Use of Force* (Boston: Little, Brown and Company, 1988), 171.

26. Carl Builder, The Masks of War: American Military Styles in Strategy and Analysis (Baltimore: Johns Hopkins University Press, 1989), *passim.*

27. On the role of senior officers in providing promotion opportunities to valued protégés, see: Stephen Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca: Cornell University Press, 1991), *passim.*

28. Richard Whittle, *The Dream Machine: The Untold History of the Notorious V-22 Osprey* (New York: Simon and Schuster, 2010), *passim.*

29. Robert Pape, *Bombing To Win: Air Power and Coercion in War* (Ithaca: Cornell University Press, 1996), *passim*.

30. Michael Brown, *Flying Blind: The Politics of the US Strategic Bomber Program* (Ithaca: Cornell University Press, 1992), *passim*.

31. Gerald Stiles, *The Wild Weasel Development Program: One Run, One Hit, One Error* (Santa Monica: RAND, 1990), *passim;* William Hewitt, *Planting the Seeds of SEAD: The Wild Weasel in Vietnam* (MA Thesis, Air University, Maxwell Air Force Base, 1992), 16-34; and Thomas Ehrhard, *Air Force UAVs: The Secret History* (Mitchell Institute, 2010), 22-35.

32. The Air Force's training revolution lagged behind its technical efforts, only really beginning around 1970. On the training revolution, see: Marshall Michel III, *The Revolt of the Majors: How the Air Force Changed After Vietnam* (Ph.D. Dissertation, Department of History, Auburn University, 2006), *passim.*

33. For example, the North Vietnamese destroyed approximately one aircraft for every 15 surface-to-air missiles fired in 1965, but only one for 48 missiles in 1968, and finally one for 50 missiles in 1973. The Air Force also began using laser-guided bombs to destroy extremely well-protected targets in 1972, such as the Paul Doumer and Thanh Hoa bridges. See Hewitt, 28-29.

34. Robert Pape, Jr, "Coercive Air Power in the Vietnam War," *International Security,* 15/2 (1990), 103-146; and Raymond W. Leonard, "Learning from History: Linebacker II and US Air Force Doctrine," *The Journal of Military History,* 58/2 (1994), 267-303

35. Ronald Schaffer, "The 1940 Small Wars Manual and the 'Lessons of History'" *Military Affairs,* 36/2 (1972), 46-51; and David Keithly and Paul Melshen, "Past as prologue: USMC small wars doctrine, Small Wars & Insurgencies," 8/2 (1997), 87-108.2

36. Keith Bickel, *Mars Learning: The Marine Corps' Development of Small Wars Doctrine,* 1915-1940, 211-13.

37. On the Marine's role in selecting the Higgins Boat, see: John Heitmann, "The Man Who Won the War: Andrew Jackson Higgins," *Louisiana History: The Journal of the Louisiana Historical Association,* 34/1(1993), 38-40.

38. For example, British Lieutenant General Alistair Irwin argues, "We soldiers of the twenty-first century are the inheritors of a generally proud and stirring record of military endeavor associated with regimental names that are themselves stirring and inspiring. To one degree or another the past provides a powerful motive for performing well in the present." Alister Irwin, "What is Best in the Regimental System?" *The RUSI Journal* 149/5 (2004), 34. For more on the role of until tradition as a force of cohesion, see Philip Smith, "Meaning and military power: moving on from Foucault," *Journal of Power* 1/3 (2008), 284.

39. Arthur Bryant, *Jackets of green: a study of the history, philosophy and character of the Rifle Brigade* (London: Collins, 1972), passim; and John Whittam, *The Politics of the Italian Army* (London: Croom Helm, 1977), 30-53.

40. On the *Bersaglieri's* later influence, see Sweet, 70-80.

41. Since an organization's essence is based on its leaders' self-perception of what its missions and capabilities should be, changing an organization's mission therefore changes much of what an organization is about. Halperin, 32.

42. The following specialized equipment was developed for the Air Force's campaign in Vietnam: four distinct air defense suppression "Wild Weasel" aircraft; signals intelligence aircraft (i.e. Rivet Top); laser-guided bombs; and reconnaissance drones (modified Ryan Firebees). See Hewitt; and Ehrhard.

43. For example, the basic landing craft that was used by the Marines (and Army) during the war—the so-called Higgins Boat—was largely procured thanks to the Marine Corps lobbying for and suggesting modifications to a prototype purchased for $5,200 in 1937. Indeed, the entire appropriation for developing amphibious equipment was only $40,000 in 1935 and $400,000 in 1940, which constituted 2% of the Navy/Marine Corps R&D budget in 1935 and 4% of that budget in 1940. See Neushul, 144-46; and George Dyer, *The Amphibians Came to Conquer: Volume I* (Washington D.C.: Marine Corps, 1970), 201-15.

44. The fundamental amphibious doctrine that the Marine Corps would employing in the Second World War was developed in approximately one year, being first printed in 1934 as the *Tentative Manual for Landing Operations.* Vandegrift cited in Neushul, 141.

Chapter 2

The History of Airborne Forces

The Origins of Vertical Envelopment

The concept of airborne operations was one of many innovative ideas to emerge during the First World War. Because of the growing size of aircraft and the invention of reliable parachutes, it became possible to imagine aircraft dropping paratroopers behind an enemy's impenetrable front lines. Two visionary thinkers, Winston Churchill and William ("Billy") Mitchell, made forceful appeals for the creation of airborne forces before the end of the First World War. In late 1917, Churchill proposed landing raiders behind German lines to destroy bridges, factories and other critical objectives.[1] The next year, Colonel Mitchell proposed dropping a division of parachute-equipped infantry to seize the city of Metz.[2]

Although neither proposal was acted on, similar ideas germinated during the inter-war period. In 1928, the United States and the Soviet Union began exploring the feasibility of airborne operations, with the United States Army experimentally dropping 12 paratroops and Soviet military theorist Mikhail Tukhachevsky writing a treatise on airborne warfare.[3] Two years later, the publication of (now Major-General) Mitchell's memoir publicized his 1918 airborne proposal to a global audience.[4]

While the United States did not develop airborne operations after this initial experiment, the Red Army pursued the idea methodically. Inspired by the mobile nature of the Russian Civil War and the modernizing zeal of the Red Army's leaders, paratroops joined tanks and motorized infantry to form the triumvirate of forces that would produce decisive results in future wars. Between 1930 and 1938, airborne exercises and doctrine evolved rapidly. In 1934, the Soviet Union staged a spectacular airborne display, with 1,000 paratroopers jumping from aircraft and then joining air-landed infantry and cavalry in complex maneuvers. In 1936 and 1937, even larger exercises, involving 5,000 paratroops, followed.[5]

These Soviet exercises provided most states with their first inkling that airborne operations might be decisive in future wars.[6] Inspired by accounts of the Soviet maneuvers, famed British theorist B.H. Liddell-Hart expounded on the value of airborne forces and coined the term "vertical envelopment" to describe how paratroopers dropped behind the enemy's lines could impose an unbearable psychological strain on frontline infantry.[7]

Despite the growing interest in airborne operations, few states took the decisive step of forming paratroop units. Although France and Italy formed small units, only Germany followed the Soviet Union's lead in creating large airborne formations.[8] In Germany's case, the state's offensive military doctrine predisposed officers to embrace airborne operations and establish paratroop division and air-landing divisions in 1938.[9]

Germany also became the first state to drop paratroopers into battle when it invaded Denmark and Norway in April 1940. These Nazi fallschirmjäger achieved remarkable results against surprised neutral countries. While one company seized bridges connecting the Danish mainland to Copenhagen, two captured Oslo's airport.[10] Scarcely a month later, German airborne forces launched much larger attacks on the Low Countries. One unit assaulted the Belgian fortress of Eben Emael, another aimed to seize bridges spanning three Dutch rivers, and a third sought to capture the Dutch government in The Hague. The success of the German forces assigned to the first two missions overshadowed the failure of the third.[11] In June 1940, the Soviets added to the growing reputation of airborne forces by organizing a large-scale airborne operation to coerce Romania into evacuating Bessarabia.[12]

Thus, each month between April and June 1940 witnessed successful tactical airborne operations that contributed to the achievement of operational objectives. Moreover, these accomplishments were achieved with minimal forces, with German airborne forces constituting just two of 156 German divisions. The results obtained by airborne forces were so disproportionate when compared to the means employed that paratroopers appeared to constitute a revolution in warfare.

By the summer of 1940, a veritable airborne fever swept the world's armed forces. All of the great powers established airborne forces of at least divisional size by 1943, while in many countries this new faith in airborne forces inspired multiple services to compete for the airborne mission.[13] In the United States, both the US Army and US Marine Corps formed airborne units, while in Japan the army and navy independently established paratroop formations.[14] In the United Kingdom, unorthodox air-delivered forces, such as the SAS and Chindits, were created in addition to conventional airborne forces. In Germany, Heinrich Himmler's SS formed an airborne regiment to rival the air force's existing units. Even governments-in-exile and smaller states formed paratroop units. Thus, the battles of 1940 transformed airborne forces from a curious experiment pursued by revisionist powers into an apparently decisive element of warfare.

The False Promise of Vertical Envelopment

The Second World War's first campaigns generated exaggerated expectations of what airborne forces could accomplish. Soon, paratroop drops occurred in locations as diverse as Crete, Indonesia, New Guinea, Normandy, Ukraine, Sicily, and the Ardennes. However, most of these operations failed to accomplish their objectives and resulted in unacceptably high casualty rates. These disappointments revealed fundamental shortcomings in the airborne concept, preventing airborne forces from achieving the results prophesied by their founders.

Although the battles of April and May 1940 cemented the reputation of airborne forces, a more informed examination of the campaigns in Scandinavia and the Low Countries would have led policymakers to adopt a more cautious outlook. In both campaigns the victims of airborne assaults were small, neutral states that were neither well prepared nor equipped to resist. Even so, German paratroops suffered significant reverses. In Norway, a paratroop company in the Gudbrans Valley surrendered after being surrounded and having its supply aircraft shot down.[15] In the Netherlands, German paratroops suffered a more significant reverse when Dutch forces counterattacked and re-took all of the airfields surrounding The Hague, destroying 170 transport aircraft and inflicting 28 percent losses on Germany's air-landing division in the process.[16] Thus, even German's early airborne successes were hardly bloodless victories.

As airborne forces were used with growing regularity and against more steadfast opponents, they suffered greater losses and failed more often to accomplish their objectives. These disappointments revealed four inherent shortcomings in the airborne concept. First, because of the need to deploy by air, paratroops traveled to their targets in large formations of vulnerable transport aircraft that could easily be destroyed by enemy fighters and anti-aircraft guns.[17] Second, even if they reached their target zone, the vagaries of winds and primitive navigation technologies frequently led to paratroopers becoming impossibly dispersed as soon as they exited their aircraft.[18] Third, although extremely mobile while in the air, paratroop forces become extremely immobile once they reached the ground, where their only means of transport is their feet.[19] And fourth, because air transportation dictates that airborne forces be lightly armed and laden, paratroopers are ill-equipped to fight standard infantry divisions and exceedingly vulnerable to attacks by enemy armored units. Combinations of the above factors transformed most large-scale airborne operations into either costly failures or, at best, pyrrhic successes.

The Germans themselves led the way in exposing airborne forces' limitations. After the early 1940 missions, the next German operation, an

April 1941 paratroop drop on the Corinth Canal, failed in its time-sensitive objective of cutting off the British retreat from mainland Greece.[20] One month later, in May 1941, German paratroops embarked on the momentous task of conquering Crete. Crete was considered an easy target because Germany possessed air superiority and believed the island to be poorly defended. Unfortunately for the Germans, Crete had been reinforced and its garrison artfully employed anti-aircraft guns.[21] Although the Germans prevailed after an arduous fight, they suffered 6,580 casualties out of a force of 22,000, and lost 151 transports (with another 121 damaged) out of 500.[22]

In the eyes of German leaders, the costs in terms of elite manpower and scarce equipment hardly justified the outcome. Adolf Hitler concluded that, "Crete proved that the days of the airborne corps are over! Airborne forces are a weapon of surprise. Your surprise factor has worn out."[23] General Kurt Student, commander of Germany's airborne forces, lamented, "I miscalculated when I recommended this attack, and this not only because it meant the loss of so many paratroopers…but also, in the end, the death of the German airborne force."[24] Germany forswore the use of airborne forces after Crete and only revisited this decision in late 1943, when the specter of defeat rendered them desperate. However, Germany's disillusionment with airborne operations did not stop other states from employing them.

Possessing the world's largest airborne forces at the time of the German invasion, the Soviets committed their paratroopers to massive attempts to encircle and destroy German forces in early 1942. However, the practice of "vertical envelopment" proved more complex than Soviet theory had anticipated. Their first operation, near Medyn, miscarried because wind dispersed the Soviets and the Germans quickly responded, capturing or killing all but 87 of the 202 paratroops.[25]

In February 1942, the Soviets launched the more ambitious and disastrous Viazma operation. In this operation, a corps of paratroopers jumped behind enemy lines in the hopes of precipitating the collapse of the German front. However, poor navigation and wind dispersed the Soviet paratroopers so widely that they became easy prey for German units. Thus, the Soviet attempt to encircle German frontline forces soon resulted in encircled Soviet paratroops fighting for their survival. After four months behind enemy lines, only 4,000 of the 14,000 paratroopers escaped.[26]

While one corps was decimated at Viazma, another suffered a similar fate near Demiansk after being ordered to infiltrate behind German lines by foot and parachute to seize airfields and headquarters. Fatally, the Germans deduced the paratroopers' objectives and could prepare their de-

fenses. Therefore, when the Soviets attacked, they were repulsed by alert defenders who captured or killed 7,000 out of 8,000 Soviet paratroops.[27]

The Red Army conducted one last airborne operation after its 1942 disasters. In September 1943, the High Command ordered two brigades to seize bridgeheads on the Dnepr River. Unfortunately, the drop left the Soviet paratroopers badly dispersed and unprepared to fight an oncoming German panzer division. Over 60 percent of the 4,500 Soviet paratroopers became casualties and the remainder fled into Ukrainian forests.[28] After the triple failures of Viazma, Demiansk, and the Dnepr, Soviet commanders renounced airborne operations.

Japan's first airborne operations coincided with the desperate Soviet efforts of 1942. As part of their Southeast Asian offensive, 1,000 paratroops jumped into Indonesia in February 1942 to capture Palembang's oil refineries. Despite fanatical attackers and a weak defense, the Japanese assault failed. Anti-aircraft guns shot down 16 of 70 transport aircraft, organizational cohesion was lost as a result of pilots taking evasive measures during the drop, and Allied forces quickly overcame the scattered attackers on the ground. Although smaller operations succeeded elsewhere (Celebes and Timor), the failure at Palembang dissuaded the Japanese High Command from launching further paratroop assaults until despair motivated a suicidal operation in December 1944.[29]

While most nations abandoned airborne operations, the United Kingdom and the United States began to employ their paratroops offensively. Although British airborne warfare began with a raid conducted in February 1941, British and American paratroops' first significant operations were launched in support of the Allied invasion of French North Africa (November 1942). In many respects, this debut presaged difficulties encountered later. While two operations succeeded in seizing French airfields, whose neutral and politically conflicted garrisons did not fight, both operations against Axis targets failed, as did an attempt to take a third French airfield.[30]

The next Anglo-American airdrop, on Sicily, was a much greater failure. Poor navigation led to 88 percent of one American regiment landing off target and, in a tragic friendly fire incident, 42 percent of the aircraft carrying another regiment were hit by allied anti-aircraft fire. Those paratroopers who managed to assemble near their objective were then scattered by a German armored division.[31] The disastrous Sicilian operation and subsequent decimation of an American airborne battalion in southern Italy led certain American policymakers to suggest abolishing airborne divisions.[32]

When Anglo-American paratroops jumped into battle during the 1944 invasion of Normandy, larger forces were employed to seize objectives that were kept deliberately modest.[33] Nevertheless, the operation encountered many problems, beginning with drops that scattered paratroopers across the countryside.[34] With over 60 percent of their personnel dispersed, American airborne forces failed to take most of their objectives, while British paratroops only seized theirs with difficulty.[35] In the process, allied airborne forces suffered heavy casualties, including 19 percent losses on the first day.[36]

After Normandy, Anglo-American airborne forces conducted three large-scale operations. While the airborne component of the August 1944 invasion of Provence fulfilled its mission of preventing German forces from attacking the beachhead, the September 1944 attempt to seize bridges over three Dutch rivers (Operation Market Garden) proved catastrophic when depleted German armored divisions annihilated the British 1st Airborne Division.[37] The final Anglo-American airborne operation, launched across the Rhine in March 1945, yielded mixed results as paratroops captured their objectives, but at the cost of casualties (12-13 percent) that were considered excessive.[38] The limited results of these operations persuaded American commanders not to use airborne forces in the planned invasion of Japan.[39]

Thus, by the end of the Second World War, the theory of airborne warfare had been tested and found wanting by all of the great powers. The tribulations involved with possessing insufficient intelligence on potential drop zones, having paratroops scattered by the act of the drop itself, and suffering disastrous losses in combat with an adversary's heavier regular forces combined to doom many airborne operations. In fact, as illustrated by Figure I, only two out of ten large-scale airborne operations can be rated "successful."[40]

These discouraging results prompted Germany, the Soviet Union, and Japan to suspend airborne operations during the war and provoked American officers to discuss abolishing airborne divisions.

Smaller operations of shorter duration and less ambitious objectives were comparatively more successful, see Figure 2. Only a minority of these operations achieved their objectives and several of these were achieved against unprepared opponents (three involving surprise attacks on neutral parties and two operations against the weakly-defended Dutch East Indies). Far from being the revolution in warfare prophesied by inter-war theorists, large-scale airborne operations proved catastrophic and smaller-scale operations only occasionally justified the expenditure of resources on airborne units.

Large Airborne Operations of WW II
(Over 3,000 Paratroops)

Failures	Indecisive Operations or Pyrrhic Successes	Successes
Viazma (1942: USSR)	**The Netherlands** (1940: Germany)	**Provence** (1944: UK/US)
Demiansk (1942: USSR)	**Crete** (1941: Germany)	**The Rhine** (1945: UK/US)
Sicily (1943: UK/US)	**Normandy** (1944: UK/US)	
Dnepr (1943: USSR)		
Market Garden (1944: UK/US)		

Figure 1. Large Airborne Operations of World War II.

Towards the Periphery of International Conflict

While the poor performance of airborne forces during the Second World War rendered the utility of paratroop units questionable, technological developments during the Cold War reduced the prospects for successful paratroop operations even further. Airborne forces gradually retreated from being a participant in great power conflicts, to a resource for counterinsurgency campaigns in the 1950s, until finally being relegated, in the 1960s, to the status of an intervention force for use against unsophisticated opponents in underdeveloped countries. This process reached completion in the late-1970s and, since 1978, no state has used paratroopers to achieve vital objectives. The two US airborne operations conducted since 1978—Grenada (1983) and Panama (1989)—saw these elite forces employed in

permissive environments, against poorly equipped opponents whose defeat would have been secured without airborne troops' involvement.

Although large-scale airborne operations proved disappointing during the Second World War, certain smaller operations succeeded and new technologies stimulated efforts to revitalize the airborne concept. One such development was the production of larger, specialized transport aircraft capable of parachuting men and equipment more precisely.[41] Another path pursued was the design of specialized armored vehicles that could be parachuted onto battlefields.[42] Associated with the development of airborne armored vehicles was experimentation with exotic techniques for dropping heavy equipment using multiple parachutes and retro-rockets.[43]

Despite these developments, broader technological trends undermined rather than strengthened airborne forces. One of these trends was the diffusion and strengthening of armored forces. As already noted, Second World War-era airborne forces were acutely vulnerable to tanks. Fortunately for 1940s paratroopers, armored divisions constituted only between five and 20 percent of contemporary armies.[44] The Cold War, however, saw armored vehicles proliferate. During the Korean War, the Communists' lack of precision air defense weapons and dearth of armor permitted the United States to conduct two indecisive medium-sized (3,000 man) airborne operations. However, the rapid spread of such weapons soon limited opportunities to repeat such exploits. Soon, over 80 percent of divisions in great power armies were armored or mechanized, increasing the likelihood of airborne troops encountering tanks.[45] Moreover, the horizontal proliferation of armored vehicles was accompanied by their vertical diffusion to Middle Eastern, Asian, and African states.

The development of airborne armored vehicles provided an insufficient response to the proliferation of conventional armored vehicles. Constrained by the need to drop vehicles by parachute, designers never succeeded in producing airborne armored vehicles weighing more than 16 tons.[46] As conventional armored vehicles grew larger (i.e. from 30 tons in 1945 to 60 tons in 1990) and acquired better armament, such weight restrictions undermined the value of airborne armored vehicles. Thus, despite the development of airborne armored vehicles, airborne forces became more vulnerable to enemy armor.

Small Airborne Operations of WW II
(Under 3,000 Paratroops)

Failures	Indecisive Operations or Pyrrhic Successes	Successes
Tragino Aqueduct (1941: UK)	**Corinth Canal** (1941: Germany)	**Scandinavia** (1940: Germany)
Medyn (1942: USSR)	**Drvar** (1944: Germany)	**Eben Emael** (1940: Germany)
Palembang (1942: Japan)	**Tagatay Ridge** (1945: US)	**Kerch-Feodosiia** (1941: USSR)
Oran (1942: US)	**Cagayan Valley** (1945: US)	**Celebes/Timor** (1942: Japan)
Oudna (1942: UK)		**Bruneval** (1942: UK)
El Djem (1942: US)		**Tebessa/ Souk-el-Arba** (1942: UK/US)
Avellino (1943: US)		**Leros** (1943: Germany)
The Ardennes (1944: Germany)		**Nadzab** (1943: US)
Leyte (1944: Japan)		**Corregidor** (1945: US)
		Rangoon River (1945: UK)

Figure 2. Small Airborne Operations of World War II.

While the spread of armored vehicles increased the risk of airborne forces being crushed on the ground, the development of surface-to-air missiles (SAM) barred them from reaching potential drop zones. Beginning in the late-1950s, mass produced and exported SAMs provided even second-rate powers with the ability to shoot down large slow transports carrying paratroopers. In the mid-1960s this situation was aggravated by the development of inexpensive shoulder-launched SAMs, known as man-portable air defense systems (MANPADS) that were cheap and simple enough for even guerrilla groups to use them.[47]

Within this context, the employment of Israeli, British, and French paratroops during the 1956 Suez Crisis marked the swansong of airborne assaults in high-intensity warfare. Throughout the planning process, French, British, and Israeli generals accorded airborne forces a principal role in their combined assault on Egypt.[48] However, although airborne forces achieved their objectives, the operation could have proven disastrous had the Egyptians properly employed their recently-delivered Soviet armored vehicles.[49] Indeed, better training, armored vehicles and SAMs gave medium-sized states the ability to defeat airborne operations within a few years of Suez. Consequently, only once since the Suez campaign has an airborne drop occurring within the context of a major conventional war. Even then, India's battalion-size airborne drop at Tangail in support of its 1971 offensive into Bangladesh merely contributed to the collapse of an already vanquished army.[50]

As the ability of airborne forces to contribute to conventional battles declined, paratroops found a new mission, albeit temporarily, fighting unconventional guerrillas. In 1944, Germany pioneered airborne operations against guerrillas when it attacked the Yugoslav partisan movement's leadership at Drvar and the French guerrilla sanctuary in the Vercors.[51] After the war, the United Kingdom and France turned to paratroops in their wars against anti-colonial guerrillas.[52]

France alone conducted 150 airborne operations during the Indochina War (1946-54).[53] Although paratroopers could rapidly attack targets or reinforce garrisons, light armament and insufficient mobility on the ground rendered them vulnerable to large guerrilla forces. As a consequence, elite paratroop battalions risked annihilation at the hands of heavier Vietminh forces in the battles for Route Coloniale 4 (1950), Tu-Lê (1952), and Dien Bien Phu (1954).[54] France's defeat at Dien Bien Phu alerted the world's armed forces to the dangers of employing paratroops against insurgents.

The French themselves led the way in finding alternatives when, beginning in 1956, they used helicopters, rather than aircraft, to deliver infantry to critical points.[55] After experiments in Algeria, helicopter opera-

tions proved superior to their airborne equivalent and became the norm for subsequent French, American, and Soviet counterinsurgency operations. When it fought its penultimate counterinsurgency of the Cold War, the British Army even preferred to request that Iran loan it helicopters in the 1970s rather than using its own aircraft to conduct paratroop drops in Dhofar Province, Oman.[56] Only Rhodesia continued to supplement to helicopter-borne forces with paratroop drops because international sanctions prevented them from importing enough helicopters.

Nearly powerless against conventional armored forces and less efficient than helicopter-borne troops in a counterinsurgency role, airborne forces became relegated to increasingly marginal theaters of operation. In fact, paratroops retained true value only in operations conducted at great distances (i.e. beyond helicopter range) and against ill-equipped irregular forces. These factors marked four-fifths of the airborne operations conducted during the 1960s and 1970s, including two Belgian hostage rescue operations in the Congo (1964-65), France's intervention against Zairian rebels (1978), and South Africa's raid on a guerrilla base in Angola (1978).[57] However, MANPADS and better armament eventually found their way to even Africa's insurgents, eliminating the last viable arena for airborne operations.

Thus, driven by the development and diffusion of new technologies, airborne operations have become a virtual impossibility. Only twice between 1966 and 2001 have US paratroopers jumped onto enemy targets and on both of these occasions, the United States' invasions of Grenada (1983) and Panama (1989), the overall disequilibrium of forces was so favorable to the American invading force that planning was driven more by bureaucratic politics than military necessities (described in subsequent sections). By way of contrast, combat paratroop drops were absent from more serious conflicts, including the 1967, 1973, 1982 and 2006 Arab-Israeli conflicts, the Falklands War, the Iran-Iraq War, the 1991 and 2003 Gulf Wars, the wars attending Yugoslavia's collapse, Russia's wars in Chechnya and its attack on Georgia.

However, despite their evident lack of utility, airborne forces have survived in varying degrees, in numerous militaries. This study will now examine why a failed innovation has endured for so long.

Why Failed Innovations Survive

Over the course of their existence, airborne forces have gone from a revolutionary participant in high-intensity warfare during the early 1940s, to a tool for counterinsurgency campaigns in the 1950s, until ultimately being reduced, in the 1960s, to operating against the world's least sophis-

ticated armed forces. It would be reasonable to expect individual state's airborne forces to evolve in a manner consonant with this global trend, implying a gradual decline in the size of airborne forces from the 1940s until the 1960s.

Soviet, British, and American Airborne Operations

	1945	1955	1965	1975	1985
Soviet Union	10 DIV	8 DIV	8 DIV	7 DIV	7 DIV
United Kingdom	2 DIV	1 BDE	1 BDE	1 BDE	3 BN*
United States	5 DIV	1 DIV 1 REGT	2 DIV 1 BDE 3 BN	1 DIV 1 BN	1 DIV 1 REGT 2 BN

*1 Active battalion

Figure 3. Soviet, British, and American Airborne Operations.

However, a survey of three states reveals that none of their airborne forces evolved as expected. As illustrated in Figure 3, Soviet and American airborne forces both remained large, with Soviet forces retaining a stable force structure and American forces fluctuating significantly.[58] Meanwhile, British airborne forces declined substantially, but did so while they ostensibly still possessed some military value during the first post-war decade.

Airborne forces' proponents generally advance three arguments to explain airborne forces' persistence and evolution since 1945. Within this

context, they contend that the survival of large airborne forces can be accounted for by: 1) states' strategic requirements for their capabilities; 2) their past performance in the paratroop assault mission; and 3) airborne forces' superior past performance in conventional infantry roles. While plausible, none of these rational arguments can adequately account for the variegated evolution of great power airborne forces since 1945.

If differing strategic requirements are used to explain airborne forces' development, then one would expect states with grand strategies that privilege long-range power projection missions against unsophisticated opponents to maintain the most formidable airborne forces. However, great power airborne forces evolved in a manner diametrically opposite to what one would anticipate based on strategic requirements alone. The Soviet Union—the power that put the least emphasis on power projection and gave the highest priority to conventional high-intensity warfare—maintained the largest and best-resourced airborne forces throughout the Cold War. Contrarily, the United Kingdom—the state that faced the greatest power projection needs as a legacy of its rapidly disintegrating global empire—went further and faster in cutting back its airborne forces than any other great power. Finally, alone the United States' grand strategy fluctuated substantially during the Cold War, alternatively prioritizing expeditionary as opposed to high-intensity warfare, actual fluctuations in the size of its airborne forces were less pronounced than a strategic argument would lead one to anticipate.

If the secret to airborne forces' post-war evolution is to be sought in their past performance in the paratroop assault mission, then states with abnormally positive experiences in their wartime use would maintain larger airborne forces, while states whose airborne forces were less successful would engage in broader cutbacks. However, as the following chapters demonstrate, in no case does the survival of airborne forces correspond to these rational expectations. Indeed, airborne forces remained the largest and suffered the fewest cutbacks in the country—the Soviet Union—where their performance had been the worst. Meanwhile, airborne forces suffered the most significant cutbacks in the country—the United Kingdom—where they had performed the best. Finally, fluctuations in the size of United States airborne forces cannot easily be explained by changes in performance.

Besides strategic requirements and operational success, airborne proponents advance a third rational argument explaining airborne forces' survival. Accordingly, many argue that airborne divisions' continued prominence is justified by their historic record of out-performing non-airborne infantry divisions in ground combat. Advocates of this hypothesis

draw anecdotal support from occasions when airborne units performed exceptionally well in a conventional role. Indeed, such incidents justifiably loom large in histories of the Second World War, including the Italian Folgore Division's last stand at El-Alamein (1942), the German 1st Fallschirmjäger Division's epic defense of Monte Cassino (1944), and the United States 101st Airborne Division's tenacious struggle to hold Bastogne (1944-45).[59]

However, critical examination reveals two basic flaws in the argument that airborne forces' superior performance as infantry justifies their continued size and importance. First, systematic, as opposed to anecdotal, data on unit effectiveness is rare. Although airborne units performed well, their role was one of static defense in a disproportionate number of the engagements (e.g. El-Alamein, Salerno, Monte Cassino, Brest, and Bastogne) cited in support of their allegedly superior value as infantry. Engagements such as these emphasize airborne forces' comparative strengths in motivated infantrymen, while concealing their relative deficiencies in support services and tactical mobility. On the few occasions scholars examined World War II unit performance more systematically they concluded that airborne divisions were not necessarily superior to conventional infantry.[60]

Moreover, even if one believes airborne forces were intrinsically superior to conventional infantry, competing hypotheses explaining this superiority render it difficult to argue on this basis alone that airborne forces should have been preserved in the manner that they have. As elite units, airborne forces had access to higher quality personnel—volunteers who met rigorous physical and mental criteria—than ordinary infantry units, which were largely staffed by draftees during the Second World War.[61] Since research has repeatedly shown that units with smarter, fitter, and more motivated soldiers and officers outperform those with inferior personnel, the question must be posed whether airborne forces were more effective because of the airborne training and doctrine they embraced or simply because they had better human material to work with in the first place.[62] When the performance of other elite or volunteer units is compared to that of airborne forces, a good prima facie case can be made that favorable personnel allotments, rather than parachute training, enabled airborne forces to perform as well as they did in conventional roles.[63]

Thus, given the impossibility of explaining the variegated evolution of airborne forces with rational factors alone, the next three chapters will examine the institutional determinants of how airborne forces evolved in these three states. In institutional terms, the survival of airborne forces in different states corresponds to the comparative strength of the orga-

nizational structures with which they were originally endowed. In this context, the exceptional durability of Soviet airborne forces can be explained by their enjoying a higher degree of institutionalization than their counterparts, while the decline of British airborne forces correlates with their lower degree of institutionalization. Finally, the United States' airborne forces possessed institutional resources that lay between these two extremes, which obliged American paratroops to continuously seek new roles to justify their existence.

Notes

1. James Bassett, "Past Airborne Emsployment," *Military Affair*s 12/4 (Winter 1948), 206.

2. John Galvin. *Air Assault: The Development of Airmobile Warfare* (New York: Hawthorn, 1969), 1-4.

3. Bassett; and David Glantz, *A History of Soviet Airborne Forces* (London: Frank Cass, 1994), 4.

4. Franz Kurowski, *Jump into Hell: German Paratroopers in World War II* (Mechanicsburg: Stackpole, 2010), 1.

5. David Glantz, *The Soviet Airborne Experience* (Fort Leavenworth: Combat Studies Institute, 1984), 4-17.

6. Kurowski, *Jump into Hell,* 2-3.

7. B.H. Liddell-Hart, *Europe in Arms* (London: Faber and Faber, 1937), 33.

8. Pierre Sergent, *Histoire modiale des parachutistes* (Paris: Société de Production Littéraire, 1974), 45-48.

9. Kurowski, *Jump into Hell,* 3-9.

10. Kurowski, *Jump into Hell,* 18-20.

11. Kurowski, *Jump into Hell,* 23-52.

12. Glantz, *The Soviet Airborne Experience,* 19-20.

13. The great powers established divisional-sized airborne forces in the following order: Soviet Union (three brigades and three regiments in 1936, five division-sized Corps in 1941); Germany (1938); Italy (1941); UK (1941); USA (1942); and Japan (1943).

14. TNA WO 208/3858 Japanese Parachute Troops, 1 July 1945; and Gerard Devlin, *Paratrooper: The Saga of US Army and Marine Parachute and Glider Combat Troops During World War II* (New York: St. Martins, 1979), 81-82.

15. Kurowski, *Jump into Hell,* 21-22.

16. Kurowski, *Jump into Hell,* 42-53.

17. Hellmuth Reinhardt et al., *Airborne Operations in World War II: A German Appraisal* (Bennington: Merriam, 2008 [orig. 1953]), 16-17.

18. Dwight Eisenhower to George Marshall, September 20, 1943, in *The Papers of Dwight David Eisenhower,* Vol. 3 (Baltimore: Johns Hopkins, 1970), 1439-42.

19. Eisenhower to Marshall, 19 February 1944, in *The Papers of Dwight David Eisenhower,* Vol. 3, 1736-39.

20. Kurowski, *Jump into Hell,* 67-71.

21. John Sadler, *Operation Mercury: The Battle for Crete, 1941* (Mechanicsburg: Stackpole, 2007), *passim*.

22. Sadler, *Operation Mercury: The Battle for Crete, 1941,* 183.

23. Hitler cited in Kurowski, *Jump into Hell,* 166.

24. Student cited in Kurowski, *Jump into Hell,* 165.

25. Glantz, *A History of Soviet Airborne Forces,* 78-86.

26. Glantz, *A History of Soviet Airborne Forces,* 104-227.

27. Glantz, *A History of Soviet Airborne Forces,* 228-61.

28. Glantz, *A History of Soviet Airborne Forces*, 262-88.

29. TNA WO 208/3858 Japanese Parachute Troops, 1 July 1945.

30. Peter Stainforth, *Wings of the Wind* (London: Arms and Armour, 1985), 74-78; and Clay Blair, *Ridgway's Paratroopers: The American Airborne in World War II* (New York: Dial, 1985), 66.

31. Galvin, *Air Assault*, 101-04.

32. Eisenhower to Marshall, September 20, 1943, in *The Papers of Dwight David Eisenhower,* Vol. 3, 1439-42.

33. Gordon Harrison, *United States Army in World War II: Cross-Channel Attack* (Washington DC: Center of Military History, 1951), 70-79, 183-86.

34. Harrison, *United States Army in World War II: Cross-Channel Attack*, 288; and Sergent, *Histoire mondiale des parachutistes*, 171-72.

35. Harrison, *United States Army in World War II: Cross-Channel Attack*, 278-98; and Gregor Ferguson, *The Paras, 1940-1984* (London: Osprey, 1984), 17-19.

36. Harrison, *United States Army in World War II: Cross-Channel Attack*, 284, 298.

37. Jeffrey Clark and Robert Smith, *United States Army in World War II: Riviera to the Rhine* (Washington DC: Center of Military History, 1993), 101-04; and A.D. Harvey, *Arnhem* (London: Cassell, 2001), 31-37, 90-98.

38. The infantry divisions crossing the Rhine suffered only 41 fatalities, compared to the airborne force's 787, suggesting ground forces could have taken the airborne objectives with fewer casualties. Stephen Waight, *The Last Drop: Operation Varsity, March 24-25, 1945* (Mechanicsburg: Stackpole, 2008), 287-290.

39. John Skates, *The Invasion of Japan: Alternative to the Bomb* (Columbia: South Carolina, 1994), 163.

40. Failures are defined as operations not accomplishing their stated objectives. Pyrrhic victories are defined as operations that succeed, whether through the actions of airborne forces or not, where the attacking force suffered over 25% casualties. Successes occur when operational objectives are seized and attacking forces suffered fewer than 25% casualties.

41. Glantz, *The Soviet Airborne Experience*, 147-49.

42. Steven Zaloga, *M551 Sheridan: US Airmobile Tanks, 1941-2001* (London: Osprey, 2009), *passim*; and Steven Zaloga, *Inside the Blue Berets: A Combat History of Soviet and Russian Airborne Forces* (Novato: Presidio, 1995), 166.

43. James Gavin, *Airborne Warfare* (Washington: Infantry Journal Press, 1947), 140-86; and Glantz, *A History of Soviet Airborne Forces*, 336-48.

44. In 1940, armored divisions constituted 6% of German divisions, 7% of French divisions and 15% of Soviet divisions.

45. By the 1980s, 16 of 20 US Army divisions were armored or mechanized and 162 of 170 Soviet Divisions were either motorized rifle or tank.

46. Zaloga, *M551 Sheridan*, 20-21.

47. Rachel Stohl et. al. *The Small Arms Trade* (Oxford: Oneworld, 2007), 59-128.

48. Marc R. DeVore, "Geplanter Miβerfolg: Anglo-Französische Militärplanung während der Suezkrise," In Bernd Greiner, Christian Müller and Dierk Walter, eds., *Krisen im Kaltan Krieg* (Hamburg: Verlag Hamburger, 2008), 158-203.

49. Marcel Bigeard, *Pour une parcelle de gloire* (Paris: Plon, 1975), 274-75; and SHD 3 K 37 Entretien avec le Général Hugo Geoffrey.

50. K.C. Praval, *India's Paratroopers: A History of the Parachute Regiment of India* (London: Leo Cooper, 1975), 291-98.

51. Branislav Radovic, ed. *Operation Drvar: A Facsimile of Official Kriegrberichter Reports* (Atglen: Schiffer, 2008), *passim*; and Pierre Vial, *La bataille du Vercors* (Paris: Presses de la Cité, 1991), 216-25.

52. On "tree jumping" in Malaya, see: TNA WO 216/494 Report on the Malayan Scouts--Special Air Service Regiment, 22 December 1951.

53. Henri le Mire, *Histoire des parachutists Français* (Paris: Albin Michel, 1980), 171-280.

54. Bernard Fall, *Street Without Joy: The French Debacle in Indochina* (Mechanicsburg: Stackpole, 1961), *passim;* and le Mire.

55. Bigeard, 236-37; and Pierre-Louis Garnier, "La guerre d'Algérie et la consecration de l'Alat," *Revue Historique des Armées* 229 (December 2002), 17-24.

56. Marc R. DeVore, "The United Kingdom's Last Hot War of the Cold War (Oman)," *Cold War History* 11/3 (2011), 457-461.

57. The singular exception was India's 1971 Tangail Operation, which has already been discussed. On the other operations, see: Thomas Odom, *Dragon Operations: Hostage Rescues in the Congo, 1964-1965* (Fort Leavenworth: Combat Studies Institute, 1988), *passim;* and Mathew Paul, *Parabat* (Johannesburg: Covos Day, 2001), 2-61.

58. This table was compiled using the many sources cited in the case study chapters dedicated to each individual state. Additionally, the United States list draws heavily from an order of battle for United States airborne forces compiled by the US Army's Combat Studies Institute's historians. For the United States order of battle, airborne Rangers are included in the table. Parachute-trained special forces (i.e. Spetznaz, SAS, SEALS, Greeen Berets etc.) are not included in the table.

59. On the Folgore Division's last stand, see: I.S.O. Playfair I.S.O.(2004), *The Mediterranean and Middle East, Volume IV: The Destruction of the Axis Forces in Africa. History of the Second World War;* (Uckfield: Naval & Military Press [1st. pub. HMSO 1966]), 46. For a good account of the German paratroops' defense of Monte Cassino, see: Frido von Senger und Etterlin, *Neither Fear Nor Hope : The Wartime Career of General Frido Von Senger und Etterlin, Defender of Cassino* (London: Macdonald, 1964).

60. The exercise of attempting to scientifically measure unit effectiveness is epistemologically highly contestable. Nevertheless, several prominent assessments argue that being an airborne unit had no independent impact on unit effectiveness during World War II. Trevor Dupuy, for example, argues that the

88th Infantry Division was statistically the most effective US infantry division in Western Europe. Of the German divisions participating in the Italian Campaign that Dupuy quantitatively evaluated, the highest ranked parachute division (the 4th Fallschirmjäger Division), only ranked 7th in terms of effectiveness. Peter Mansoor contends that the veteran US divisions employed during the Normandy campaign (the 1st and 9th Infantry Divisions, the 82nd Airborne Division, and the 2nd Armored Division) performed uniformly well. Finally, Keith Bonn highlights the exceptional performance of ordinary US infantry divisions during fighting in the Vosges Mountains (1944-45), where the 70th and 45th US Infantry Divisions arguably conducted as tenacious and skillful a defense during the German Nordwind Offensive as the 101st Airborne did at Bastogne. See: Trevor Dupuy, *Numbers, Predictions, and War: Using History to Evaluate Combat Factors and Predict the Outcome of Battles* (Indianapolis: Bobbs-Merrill, 1979), 106; Peter Mansoor, *The GI Offensive in Europe: The Triumph of American Infantry Divisions*, 1941-1945 (Lawrence: Kansas University Press, 1999); and Keith Bonn, *When the Odds Were Even: The Vosges Mountains Campaign*, October 1944 – January 1945 (New York: Presidio 1994).

61. The difference in personnel quality was particularly acute in the US Army during the Second World War. Since the Army funneled a disproportionate number of higher IQ draftees into administrative services and the Army Air Corps, the mean intelligence of personnel assigned to US infantry divisions was below average. Airborne divisions were considerably better endowed in this regard. An ancillary factor that may also have contributed to airborne divisions' relatively better performance in the US Army were the disruptive personnel shifts inflicted on ordinary infantry divisions. Experienced officers and NCOs were repeatedly stripped out of infantry divisions to provide cadres for new divisions, creating a continual churning of personnel. Units with more stability in their personnel assignments—including airborne divisions, but also some conventional divisions (the 88th)—performed better overall. Robert Palmer et al. *The Army Ground Forces: The Procurement and Training of Ground Combat Troops* (Washington D.C.: Department of the Army, 1948), 13-22, 492; and John Brown, *Draftee Division: The 88th Infantry Division in World War II* (Lexington: Kentucky University Press, 1986).

62. For data on higher IQ infantry outperforming lower IQ infantry, see: Peter Watson, *War on the Mind: The Military Uses and Abuses of Psychology* (New York: Basic Books Inc., 1978), 49-51.

63. During the Second World War great powers differentially allocated higher-quality manpower to a range of specialized and elite ground force units, including: armored and armored infantry divisions (certain German Wehrmacht, SS and even Luftwaffe divisions); airborne units (all great powers); mountain divisions (Germany and Italy); and commando units (UK Commandos and USA Rangers). All of these units, which received preferential personnel allotments, generally outperformed line infantry units.

Chapter 3

The Soviet Union

The post-war evolution of the Soviet Union's airborne forces demonstrates how strong institutions enable military organizations to remain large despite performing poorly in the past and contributing little to the state's later security strategies. Having conducted disastrous airborne operations during the Second World War and possessing a military doctrine oriented until the mid-1960s toward the challenge of great power warfare, it is difficult to explain the survival of the Soviet Union's airborne forces in rational terms. However, the Soviet Union's airborne forces did more than survive; they remained the world's largest and best-resourced. This outcome is best explained by the uniquely elevated institutional status accorded Soviet airborne forces prior to the Second World War, which has permitted them to continually innovate in the (misplaced) hope of rendering large-scale airborne operations viable in major wars.

Of all great powers, the Soviet Union's record of wartime airborne operations was so disastrous that rational calculations should have led the High Command to abolish airborne forces. Having begun the Second World War with the world's largest (10 divisions) airborne force, Soviet generals naturally expected paratroopers to contribute substantially to Red Army operations. However, as Figure 4 illustrates, Soviet airborne operations were particularly unsuccessful.

All of the Soviet Union's three large-scale operations failed catastrophically and the vast majority (75 percent) of participating paratroopers were either killed or wounded.[1] Tragically, these sacrifices were largely in vain as the Viazma and Demiansk operations merely annoyed the German High Command, while the Dnepr operation failed to accomplish even that. When the Medyn disaster is added to these catastrophes, it is easy to comprehend why the Soviet leadership imposed a moratorium on airborne operations during the remainder of the war.

The failure of the Soviet Union's own airborne operations were not compensated for by positive assessments of what other states had accomplished. In fact, the Soviet post-war assessment of airborne operations concluded that, "with the exception of the German use of paratroopers in Holland and Belgium in 1940, [all] wartime airborne operations were either failures or had no impact on the conduct of army operations."[2] Thus, Soviet airborne forces survived despite, rather than because of, assessments of their utility.

Figure 4. Soviet Airborne Operations of World War II.

If Soviet airborne forces did not survive because of rational expectations of their future utility, neither was their continued existence justified by unique operational requirements. As we have seen, evolving military technologies meant that airborne forces retained value in regions increasingly peripheral to the Cold War stand-off in Europe. As such, logic suggests that airborne forces should have survived in states whose armed forces were oriented towards Third World interventions.

However, Soviet airborne forces survived the first two post-war decades despite the Soviet Union's concentration on "continental" or "Eurasian" affairs.[3] Moreover, Soviet airborne planners did not prepare for overseas interventions, but instead focused on refining techniques and equipment for use against NATO in Europe. From this point-of-view, the survival of Soviet airborne forces cannot be explained by unique threats or areas of operation.

The best explanation for the survival and continuing strength of Soviet airborne forces lies in how these forces were institutionalized prior to

the Second World War. Because of the critical role that pre-war planners hoped paratroops would play, they endowed airborne forces with a special airborne administration, known as the Vozdushno-Desantnaya Voyska or VDV.[4] Subordinated directly to the Soviet High Command, the VDV enjoyed the status of a separate service, rather than a mere branch of the army or air force. In every respect, the VDV's institutional power exceeded that of any foreign airborne force and compared favorably with the Marines' status in the United States.[5]

To reinforce its special status, the VDV developed a substantial administrative staff and schools for training officers, specialists and parachutists. The Ryazan Higher Airborne School was established to train officer cadets for the VDV, while three other schools trained paratroopers in specialized skills required by airborne units.[6] The VDV also possessed an institutionally independent and higher quality supply of recruits than the rest of the armed forces. Whereas the other armed services received personnel allocations based on standardized tests, the VDV recruited directly from the communist youth organization, the Komsomol, and its aerial sports organization, Osoaviakhim. As a consequence, the VDV had its pick of athletic, motivated, and ideologically-reliable Soviet youth.[7]

Despite the failure of its Second World War operations, the VDV's institutional power permitted it to thrive in the post-war environment. Perhaps the greatest indication of the VDV's institutional strength is the fact that by the mid-1950s the organization was bigger than it had been prior to the war and larger than the rest of the world's airborne forces combined.[8] After the war, the VDV strove to perfect its pre-war doctrine of parachuting large airborne units deep behind enemy lines where they would collaborate with advancing mechanized units to encircle enemy forces.[9]

Airborne officers successfully sought to retain and expand their organization's prewar role in the Soviet Union's post-1945 military doctrine.[10] Within this context, Soviet airborne forces' primary mission during the Cold War was to conduct paratroop assaults of up to divisional size deep behind NATO's forces' front line.[11] In keeping with the Soviet doctrine of "deep battle," the simultaneous combination of deep airborne operations, mechanized assaults, and commando operations would administer a pervasive operational shock to their opponent's command and control system, leading to the swift disaggregation of their front line forces.[12] Airborne forces' specific role in this doctrine was to assault targets 100km to 300km behind the front line, seizing critical objectives such as airfields, bridges, headquarters facilities, and nuclear weapons depots. From the VDV's perspective, airborne units had failed to fulfill an analogous role during the Second World War because of resource constraints overcome

in the postwar era, and because earlier airborne forces lacked heavy weaponry. Therefore, the VDV directed its institutional energy and resources to seeking technological solutions that would render the organization's failed pre-war doctrine viable for the Cold War. Overall, this effort was directed at the two-fold objective of enhancing air transport capabilities and augmenting the firepower available to paratroopers.

Throughout the Second World War, VDV paratroopers used modified bombers and civilian airliners. As a consequence, paratroopers could only exit aircraft slowly, which increased dispersion upon landing and added to the number of serials needed to deliver paratroopers to their targets. After the war, the VDV blamed its wartime failures on these inadequate transport arrangements and lobbied for specialized airborne transport aircraft, whose size and spacious rear exits would facilitate rapid mass paratroop drops.

The VDV's relationship with the High Command and partnership with the Air Force's Military Transport Aviation branch ensured that airborne considerations shaped the design of future transport aircraft. As a consequence, improved transport aircraft entered service beginning in the mid-1950s, with the AN-8 (1956), AN-12 (1959), AN-22 (1967) and Il-76 (1974) each incrementally enhancing the VDV's capabilities.[13]

In addition to improving airborne transport aircraft, the other form of innovation the VDV pursued was in the domain of the firepower and mobility of paratroopers. Throughout the Second World War, the VDV's paratroopers had suffered because they lacked easily-deployable and effective anti-armor defensive weaponry. Meanwhile, the war highlighted the importance of armored vehicles for offensive warfare. As a consequence, the VDV concluded that paratroop units needed armored vehicles that could be parachuted behind enemy lines.

Limited by the carrying capacity of its transport aircraft, the VDV was obliged to start modestly by endowing airborne divisions with small numbers of lightly-armored assault guns. The first Soviet airborne armored vehicle, the ASU-57, entered production in 1951 and weighed three tons.[14] A successor, the ASU-85, entered service in 1961 and weighed 14 tons.[15] While both the ASU-57 and ASU-85 enhanced the firepower of Soviet airborne divisions, the strengthened airborne divisions remained outgunned by NATO's infantry and armored divisions, whose allotments of tanks, armored personnel carriers and self-propelled artillery continually increased.[16]

To remedy this mismatch, the Soviets embarked upon a costly program of mechanizing all their airborne forces. The ultimate goal, achieved gradually between the 1960s and 1980s, was equipping each airborne di-

vision with nearly 500 armored vehicles.[17] The cornerstone of this project was a revolutionary new vehicle, the BMD-1, which was designed to incorporate the firepower and protection of conventional infantry fighting vehicles, weighing over 14 tons, into an air-droppable 7-ton unit. At considerable cost, the BMD-1 entered production in the mid-1970s and equipped all eight paratroop divisions by the 1980s.[18] To round out the capabilities of Soviet airborne divisions, parachutable command, anti-tank, and artillery vehicles were also produced.

Thus, by the late-1980s, the VDV had evolved into a substantially more powerful force, unique in airborne history, with over 4,000 airborne armored vehicles organized into eight airborne divisions. However, the VDV's long-term approach of strengthening airborne forces for high-intensity warfare was fundamentally unsound because each move to strengthen airborne divisions with armored vehicles increased the difficulties of transporting them. For example, the most numerous Soviet transport aircraft, the AN-12, could only carry one BMD, while the largest aircraft, the AN-22, could only manage three. With each division possessing 7,000 men and 500 armored vehicles, all of the Soviet Union's airlift would have been necessary to deliver one division (out of eight).[19]

In principle, Soviet strategists could have compensated for their inadequate air transport capabilities by serially dropping its airborne forces (i.e. in multiple waves). However, such an undertaking would have been hazardous in the extreme and unlikely to succeed. Large numbers of lumbering transports typically associated with airborne operations are extremely vulnerable to surface-to-air missiles, fighter aircraft and radar directed gun systems. Similar considerations led other states and most independent experts to argue that contemporary air defenses precluded the use of airborne forces.[20] Soviet planners recognized this danger and argued that it could only be avoided if Soviet fighter bombers first neutralized NATO air defenses along the transport aircrafts' approach routes and if airborne forces achieved operational surprise by attacking at a time and location where NATO fighters were unprepared to intercept them.[21]

Achieving both of these conditions for an initial Soviet airborne drop would have been difficult. Airpower was one domain where NATO retained a qualitative edge throughout the Cold War.[22] NATO air defenses also continued to evolve, with integrated radar systems (the NATO Air-Defense Ground Environment or NADGE) and airborne early warning aircraft (AWACS) rendering a surprise Soviet airborne drop unlikely to succeed.[23] To make matters worse, the Soviet Union lagged behind other great powers (the United States, Britain, France, and even Israel) in developing precision-guided and anti-radiation missiles for suppressing enemy

air defenses.[24] Even if, against the odds, an initial Soviet drop succeeded, the drop's location would alert NATO planners as to the likely ingress routes of further waves of transport aircraft and enable them to concentrate air assets to destroy them. In such an eventuality, high attrition rates would likely decimate the Soviet transport fleet long before more than a tiny proportion of the VDV was dropped.

Assuming that Soviet airborne forces succeeded in landing behind enemy lines, the firepower provided by BMDs would have proven inadequate. The need to render BMD's compact and light enough to be carried by Soviet transport aircraft obliged designers to make numerous design compromises. Such compromises as the elimination of heavy armor, the sacrifice of internal ergonomics, and the adoption of a hydraulic suspension system, compromised the vehicle's combat value. Thus, during their only combat deployment, BMDs were withdrawn from service in Afghanistan because they were mechanically unreliable and vulnerable to rifles and machineguns.[25]

Unable to airdrop more than a single division and probably incapable of penetrating NATO airspace, Soviet airborne operations were even less feasible in the 1980s than they had been prior to the VDV's creation of mechanized airborne divisions. In fact, the VDV's flair for innovation only solved the narrow problem of giving airborne forces more firepower, but ignored the broader issue of whether mass paratroop combat drops were even possible in high-intensity wars. In this context, the institutional autonomy accorded the VDV produced a sort of bounded rationality whereby the strength and inventiveness of airborne forces was maximized, but the transcendent question of what role these forces would play lay unexamined. As a failed innovation, airborne forces not only soldiered on, but innovatively pursued their organizational essence at great cost to the Soviet Union and the rest of its armed forces.

Notes

1. Zaloga, *Inside the Blue Berets*, 69, 109; and Glantz, *A History of Soviet Airborne Forces*, 260-61.

2. Zaloga, *Soviet Bloc Elite Forces* (London: Osprey, 1985), 7.

3. A new Soviet doctrine was publicly articulated at the 1966 XXIIIth Soviet Communist Party Congress. Georges-Henri Soutou. *La guerre de Cinquante Ans: Les relations Est-Ouest, 1943-1990* (Paris: Fayard, 2001), 448.

4. Glantz, *A History of Soviet Airborne Forces*, 44.

5. Prior to the Second World War, the Marine Corps had not yet obtained its current *de facto* status as the fourth armed service and its commandant was not yet a member of the Joint Chiefs of Staff. Even today, the Marines lack an independent service academy equivalent to the Ryazan School.

6. David Isby, *Ten Million Bayonets: Inside the Armies of the Soviet Union* (London: Arms and Armour, 1988), 69-93.

7. Isby, *Ten Million Bayonets*, 113-14; and Sergent, *Histoire mondiale des parachutistes*, 48-52.

8. Zaloga, *Inside the Blue Berets*, 26-27, 118-19.

9. Glantz, *A History of Soviet Airborne Forces*, 322-35.

10. Scholars generally argue that Soviet military doctrine was characterized by a high degree of continuity between the 1920s and 1980s. The seminal early work positing the Soviet belief that large fast-moving 'deep' operations could lead to the rapid disaggregation of an enemy's combat power was V.K. Triandafillov's 1929 *The Nature of the Operations of Modern Armies*. In many respects, Soviet doctrine post-1945 sought to leverage new technologies to achieve this goal. See: V.K. Triandafillov, *The Nature of the Operations of Modern Armies* (London: Routledge, 1994); and David Glantz, *Soviet Military Art: In Pursuit of Deep Battle* (Milton Park: Frank Cass, 1991).

11. Glantz, *The Soviet Airborne Experience*, 147-57.

12. Richard Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare* (London: Brassey's 1985), 141-57; and Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (Milton Park: Frank Cass, 1997), 164-216.

13. Zaloga, *Inside the Blue Berets*, 148-49.

14. Isby, *Ten Million Bayonets*, 55-56; and Zaloga, *Inside the Blue Berets*, 126-29.

15. David Isby, *Weapons and Tactics of the Soviet Army* (London: Jane's, 1981), 155-56, 292-94; and Andrew Hull et al. *Soviet/Russian Armor and Artillery Design Practices: 1945 to Present* (Darlington: Darlington Productions, 1999), 291-92.

16. Hull et al., *Soviet/Russian Armor and Artillery Design Practices*, 288-92.

17. Glantz, *A History of Soviet Airborne Forces*, 383.

18. Isby, *Weapons and Tactics of the Soviet Army*, 295.

19. One division is the optimistic figure advanced by Isby and Waltz. Simp-

kin argues that *one regiment* represents the maximum force that could have been dropped. Isby, 56; Kenneth Waltz, *A Strategy for the Rapid Deployment Force 5/4* (Spring 1981), 60; and Simpkin, 155.

20. "Parachute Assault" *International Defense Review* (April 1989), 414-15; John Mearshimer, "Correspondence: Reassessing Net Assessment," *International Security* 13/4 (Spring 1989), 138; Joshua Epstein, "Soviet Vulnerabilities in Iran and the RDF Deterrent," *International Security* 6/2 (Autumn 1981), 149-52; and Simpkin, 156.

21. Glantz, *The Soviet Airborne Experience*, 146-47.

22. Sophisticated analyses of this issue include: Joshua Epstein, *Measuring Military Power: The Soviet Air Threat to Europe* (Princeton: Princeton University, 1984); and Barry Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca: Cornell University Press, 1991), 28-67.

23. Mike Hirst, *Airborne Early Warning: Design, development and operations* (London: Osprey, 1983), 7-125, 145-52.

24. On the United States' continuous air defense suppression efforts, see: Alfred Price, *War in the Fourth Dimension: US Electronic Warfare from the Vietnam War to the Present* (London: Greenhill); James Brungess, *Setting the Context: Suppression of Enemy Air Defense and Joint War Fighting in an Uncertain World* (Maxwell: Air University Press, 1994); and Anthony Thornborough and Frank Mormillo, *Iron Hand: Smashing the Enemy's Air Defences* (Somerset: Patrick Stephens, 2002). As of the 2008 Georgia War, Russia still lacked around-the-clock suppression of enemy air defense (SEAD) capabilities and, in fact, conducted no SEAD missions (losing several combat aircraft). On poor Soviet/Russian air defense suppression capabilities, see: TNA DSIR 23/28528 Squadron Leader I.A.N. Worby, *The Main Options Open to the Warsaw Pact Air Forces in Conventional Operations in Central Europe in 1970*, 23 July 1969; Yefim Gordon, *Soviet/Russian Aircraft Weapons Since World War Two* (Hinckley: Midland, 2004), 71-138; and Roger Mcdermott, "Russia's Conventional Armed Forces and the Georgian War," *Parameters* (Spring 2009), 65-80.

25. Zaloga, *Inside the Blue Berets*, 241.

Chapter 4

The United Kingdom

If the Soviet Union's paratroop forces constitute an extreme case of organizational autonomy, the United Kingdom's airborne forces lie at the opposite end of the spectrum. Possessing comparatively little organizational autonomy within the British Army, the United Kingdom's airborne forces were not as persistent or innovative after the war as either their Soviet or American equivalents. As a consequence, British airborne forces rapidly shrank from a wartime peak of two airborne divisions to three vestigial battalions, of which only one remains parachute-capable today. While this evolution paralleled the decreasing utility of airborne forces, it is nevertheless best explained by institutional factors, because rational considerations alone should have generated post-war British airborne forces comparatively larger, in proportional terms, than their foreign equivalents.

The United Kingdom's record of airborne operations during the Second World War is incapable in itself of explaining the rapid decline of British airborne forces in the post-war period. As can be observed in Figure 5, British operations were more successful than their Soviet equivalents and equivalent (arguably superior) to those of their American counterparts.

Based on these considerations, a rational analysis of wartime airborne operations should lead one to predict that Britain's postwar airborne forces would remain proportionally larger than their Soviet counterparts and comparable to their American equivalents. However, the reverse occurred, with British airborne forces declining more rapidly than their foreign counterparts.

If British airborne forces' comparatively successful record belies their post-war fate, so too does the overall thrust of British post-war grand strategy. Since post-war airborne forces remained comparatively more useful in low-intensity environments than high-intensity wars, one would expect airborne forces to remain comparatively large in states committed to projecting power or fighting insurgents. However, throughout the Cold War, the United Kingdom's armed forces exercised military power in the world's lesser-developed regions and against technologically unsophisticated opponents. This global military role survived the United Kingdom's renunciation of imperial commitments east of the Suez Canal (1967) and has endured to the present day.[1] Thus, the United Kingdom's airborne forces declined after the Second World War despite expanded commit-

ments to low-intensity operations and power projection, which could have provided a rational justification for retaining large airborne forces.

British Airborne Operations of WW II

Failures	Indecisive Operations or Pyrrhic Successes	Successes
Tragino Aqueduct (1941)	**Normandy** (1944)	**Bruneval** (1942)
Oudna (1942)		**Souk-el-Arba** (1942)
Sicily (1943)		**Provence** (1944)
Market Garden (1944)		**The Rhine** (1945)
		Rangoon River (1945)

Figure 5. British Airborne Operations of World War II.

While rational strategic considerations are incapable of accounting for the post-war decline of British airborne forces, an institutional analysis provides better insights into this evolution. Compared to their Soviet and American counterparts, British airborne forces were constituted on a fragile institutional basis. Rather than being accorded independent status or at least recognition as a co-equal branch within the ground forces, British airborne forces remained just one infantry regiment amongst the 71 com-

prising the British Army.[2] This comparatively low degree of institutionalization can be traced back to the origins of British airborne forces and continued to impede these same forces as they fought to maintain a large force structure after the Second World War.

Although Churchill was among the original proponents of airborne operations during the First World War, the British High Command long opposed the idea. From the Army's point of view, Britain's defensive military doctrine prior to 1940 rendered airborne forces of doubtful utility and would divert high-quality manpower away from conventional British ground forces. Meanwhile, the Royal Air Force (RAF) opposed airborne forces because it feared that constructing transport aircraft would absorb resources needed for bomber production.[3]

For the above reasons, the United Kingdom's armed forces showed little enthusiasm for airborne forces until 5 June 1940, when Churchill pushed for the creation of a 5,000 man airborne force.[4] However, even the Prime Minister's direct intervention (reiterated on 22 June) failed to elicit the anticipated degree of support for airborne units. Rather than embrace the Prime Minister's bold call for a large airborne unit, the High Command set in motion plans for a force only a tenth the size Churchill had proposed and attached airborne forces administratively to the Army's Commando program.

By attaching airborne forces to the Commandos, the High Command limited the institutional resources at their disposal. Commando units were themselves a recent development, also created at Churchill's behest. As such, Commando battalions lacked organic administrative facilities and Commando service was considered a temporary detachment from soldiers' parent regiments.[5] As if to highlight the low priority accorded airborne forces, both the RAF and Army assigned to the unit comparatively junior officers who lacked the clout needed to overcome the administrative obstacles raised by their respective hierarchies. The RAF proved particularly obstructive as it starved airborne forces of the minimum amount of equipment needed to train paratroops and refused to develop dedicated transport aircraft, instead arguing that airborne forces should rely on bombers for the delivery of paratroopers to the battlefield.[6]

The upshot of airborne forces' weak institutionalization was the glacial pace of their development. A year after Churchill ordered military commanders to establish a 5000-man force, the ranks of the "Paras" numbered only 500—and they were but partially-trained and ill-equipped. Bureaucratic opposition to his airborne directive upset Churchill, who wrote, "I feel myself greatly to blame for allowing myself to be overborne by the resistance which was offered."[7] Beginning in June 1941, Churchill

overcame resistance to airborne forces by directly pressuring the Chiefs of Staff Committee to expand, protect, and provide greater resources to them.[8]

Churchill's interventions yielded results and British airborne forces received adequate resources in the second half of 1941. Thus, British airborne forces expanded to brigade size by the end of the year and, in 1942 were granted a more stable administrative infrastructure than their former Commando attachment had provided. Cementing of airborne forces' new status came with receipt of the institutional perquisites of a regiment (the Parachute Regiment), which institutionalized airborne forces on a par with the United Kingdom's 71 existing infantry regiments and offered them the prospect of surviving postwar reductions.[9] Nevertheless, this organizational status paled in comparison to that granted American or Soviet airborne forces, as it left few resources for developing independent doctrine or equipment.

During the Second World War their relatively lowly institutional status had little impact on the performance of British airborne forces because Churchill's patronage overcame many of the bureaucratic obstacles that would otherwise have stunted their growth.[10] After 1941, British airborne forces expanded to the size of two divisions of 16 parachute infantry battalions, which were all attached to the Parachute Regiment.[11] Britain's lack of suitable aircraft was meanwhile fortuitously resolved by the United States providing large numbers of C-47 transports.[12] And high-level political intervention even led the United Kingdom to embark on an ambitious project to support airborne forces with tanks carried by gliders.[13] With these resources, the United Kingdom's airborne forces went on to conduct airborne operations on a scale and with results exceeded by no other state.

While weak institutionalization did not prevent the United Kingdom from developing large airborne forces during the Second World War, it rendered airborne forces vulnerable after the war. As Britain retrenched, airborne forces became a target for other branches and services intent on preserving themselves. Although one of the two airborne divisions was dissolved in 1945, vested interests sought to reduce British airborne forces further.

Resentful of having to divert aircraft and pilots, the RAF argued in 1946 that, "There has never been a really properly thought out appreciation of the airborne forces problem...if such an appreciation were made really honestly and objectively, the conclusion would be that airborne forces are not worth it in a major war."[14] Meanwhile, airborne forces were singled out for attack by traditional British infantry regiments, which hoped the abolition of airborne forces would strengthen chances for their own sur-

vival. Arguing to abolish the Parachute Regiment, Britain's Director of Infantry framed the issue in organizational terms by stating, "In its baldest terms, the question…is whether it is in the interests of the Service that the Parachute Regiment shall be disbanded in order to preserve the 64 Infantry Regiments of the Line."[15]

Given its regimental status, British airborne forces had difficulty defending the existence of nine parachute battalions, while older infantry regiments of just two or three battalions were being dissolved. Nevertheless, the complete abolition of the Parachute Regiment was obviated by a combination of its regimental status, a reputation for toughness developed during the Second World War, and an active veterans lobby with 14,000 members.[16] As a result, while the Parachute Regiment survived, the United Kingdom's remaining airborne division was reduced to brigade size upon its return from Palestine in February 1948.[17]

Even this surviving brigade had trouble commanding the resources needed to remain credible in an airborne role. The Parachute Regiment failed to persuade the RAF to design transports with rear-loading doors for parachuting men and equipment, was unable to acquire sufficient training flights for its men to jump more than once annually, and lacked the resources to procure specialized airborne equipment.[18] As a consequence, the aptitude of Britain's remaining parachute brigade to conduct an airborne operation deteriorated. When ordered to parachute into Egypt in 1956, British paratroops were obliged to scour museums for Second World War-vintage airborne equipment and only succeeded in achieving their objectives thanks to the deficiencies of their opponents.[19]

While Suez highlighted the neglect of British airborne forces, it in no way constituted their nadir. Consequently, although British special operations forces had deployed by parachute during the Malayan Emergency, helicopters had entirely replaced parachutes by the time Britain engaged in its next counterinsurgency campaign in Oman in 1965-75.[20] Within this context, further budgetary pressures and an increasing appreciation of the vulnerability of airborne forces led the United Kingdom to dissolve its parachute brigade in 1977.[21] Fundamentally, this development marked the end of a British capacity to conduct large-scale airborne operations.

Although three parachute battalions remain, they lack specialized support services and only one parachute battalion remains actively qualified for airborne missions.[22] While they have fought in numerous campaigns, including Northern Ireland, the Falklands, Sierra Leone and Afghanistan, they have not parachuted into battle since 1956. Indeed, weak institutional resources have even left British airborne forces comparatively ill-equipped to lobby for the type of prestigious non-airborne missions

that their American and French counterparts have regularly obtained.[23] To the extent they have survived, British airborne forces perform the duties of normal infantry and justify their existence by a reputation for esprit de corps.[24]

By way of conclusion, British airborne forces' institutional weaknesses rendered them vulnerable to attacks from other interests groups within the armed forces following the Second World War. Although overseas missions offered a plausible justification for their survival and a comparably favorable operational record provided reasons for believing that airborne operations could still succeed, the Parachute Regiment's dearth of clout and resources prevented it from developing doctrine or pursuing innovations that could have revitalized the airborne concept. As a consequence, the decline of British airborne forces paralleled the increasingly marginal status of paratroopers as a means of waging war. Given the global decline in airborne operations, the fact that weak institutions permitted the United Kingdom to dispense with this type of military capability must be viewed in a positive light.

Notes

1. On British defense policy, see Michael Dockrill, *British Defence since 1945* (London: Basil Blackwell, 1988), *passim;* William Jackson, *Britain's Defence Dilemma: An Inside View* (London: B.T. Batsford, 1990), *passim;* and Dwin Bramall and Bill Jackson, *The Chiefs: The Story of the United Kingdom Chiefs of Staff* (London: Brassey's, 1992), 261-451.

2. TNA WO 163/318 Memorandum by D.Inf., Sub-Committee on Future of Parachute Regiment, 17 July 1947.

3. William Buckingham, *Paras: The Untold Story of the Birth of the British Airborne Forces* (Chalford: Tempus, 2008), 11-33.

4. TNA CAB 140/414 Prime Minister to Hastings Ismay, 5 June 1940.

5. Buckingham, *Paras*, 73-77.

6. Buckingham, *Paras*, 77-79, 96-112.

7. TNA CAB 120/262 Prime Minister to Hastings Ismay, 27 May 1941.

8. Frank Hilton, *The Paras* (London: BBC, 1983), 126.

9. Hew Strachan, *The Politics of the British Army* (Oxford: Clarendon, 1997), 195-233.

10. The RAF nevertheless continued to starve airborne forces of resources. TNA AIR 2/7913 Despatch Review No. 6, Airborne Assault Operations, February 1946.

11. The Parachute Regiment, "History." http://www.army.mod.uk/infantry/regiments/parachute/24055.aspx (accessed 9 June 2015).

12. Buckingham, *Paras*, 161.

13. TNA AVIA 22/1572 Major-General F.A. Browning to Brigadier R.N. Gale, 5 July 1942; and TNA AVIA 22/1572 Note on Airborne A.F.V.s, March 6, 1942.

14. TNA AIR 2/7913 A.M.P to D.S.D., March 6, 1947.

15. TNA WO 163/318 Memorandum by D.Inf., Sub-Committee on Future of Parachute Regiment, 17 July 1947.

16. TNA WO 163/318 Memorandum by D.I./A.W., Sub-Committee on Future of Parachute Regiment, 17 July 1947.

17. TNA WO 163/318 Standing Committee on Army Post-War Problems, Sub-Committee on the Future of the Parachute Regiment, 12 September 1947; and Ferguson, *The Paras*, 34.

18. Robert Jackson, *Suez: The Forgotten Invasion* (Shrewsbury, England: Airlife, 1996), 82.

19. LHA, *Stockwell Papers*, 8/2/2, Report by Commander 2 (Br) Corps on Operation "Musketeer," 1 February 1957.

20. Marc R. DeVore, "A More Complex and Conventional Victory: Revisiting the Dhofar Counterinsurgency, 1963-75," *Small Wars and Insurgencies* 23/1 (2012), 141-170.

21. "Parachute Assault" *International Defense Review* (April 1989), 414.

22. Ferguson, *The Paras*, 41-45.

23. For example, whereas the United States' 82d Airborne Division partici-

pated in the 1991 Gulf War as motorized infantry and France's military contingent in that war was commanded by an airborne general (Michel Roquejoeffre) who lobbied heavily for the deployment of an airborne brigade, British airborne forces had no institutional pull within British decision-making. See Marc R. DeVore, "Armed Forces, States and Threats: Civil-Military Institutions and Military Power in Modern Democracies," *Comparative Strategy* 31/1 (2012), 56-83.

24. Strachan, *The Politics of the British Army,* 223-24.

Chapter 5

The United States

The evolution of American airborne forces since the Second World War offers additional insights into how institutional factors shape military forces. Whereas a high degree of institutionalization enabled Soviet airborne forces to resist cutbacks, and a low-level of institutional strength condemned British airborne forces to gradual decline, the medium degree of institutionalization characterizing the United States' airborne forces obliged American paratroopers to bureaucratically struggle to assure their continued existence. As a result, American airborne forces succeeded in defending a large force structure, but not to the same degree as their Soviet counterparts and only at the expense of continuously redefining themselves in terms of changing strategic priorities. This result can best be accounted for by institutional, as opposed to rational factors.

The United States' historic record of airborne operations is incapable in itself of rationally explaining the retention of large airborne forces. Although more successful than some foreign counterparts, less than half of American airborne missions, as illustrated by Figure 6, can be unreservedly characterized as successes.[1]

The early disasters suffered by US airborne formations in North Africa, Sicily, and Italy created such a negative opinion in the minds of American commanders that many policymakers favored dismantling large airborne forces.[2] Although later operations proved more successful, the heavy casualties endured during even such well-planned operations as Neptune (Normandy), Market Garden, and Varsity (The Rhine) convinced American planners not to include an airborne component in plans to invade Japan's home islands.[3] Thus, while several operations achieved their objectives, the failure of others devalued airborne forces in the eyes of American commanders.

The inability of a mixed wartime record to explain the postwar survival of American airborne forces becomes particularly evident when the relationship between the institutional performance and survival of airborne forces is compared to that of other novel American forces. The early experiences of the Army's paratroops proved so disappointing that the Marine Corps abolished its airborne regiment in 1943.[4] Moreover, other specialized American military units, such as the Rangers, Merrill's Marauders, 1st Special Service Force, and Galahad Force, enjoyed combat records equally or more distinguished than the paratroops, yet faced institutional extinction after the war.[5]

If the resilience of American airborne forces cannot be explained by wartime performance, neither can it be accounted for by unique operational requirements. American airborne forces, contrary to their Soviet equivalents, justified their continued existence by arguing that they provide unique power projection capabilities for lower-intensity conflicts.[6] Superficially, this connection between airborne forces and power projection may be viewed as providing a rational justification for airborne forces.

American Airborne Operations of WW II

Failures	Indecisive Operations or Pyrrhic Successes	Successes
Oran (1942)	**Normandy** (1944)	**Tebessa** (1942)
El Djem (1942)	**Market Garden** (1944)	**Nadzab** (1943)
Sicily (1943)	**Tagatay Ridge** (1945)	**Provence** (1944)
Avellino (1943)	**Cagayan Valley** (1945)	**The Rhine** (1945)
		Corregidor (1945)

Figure 6. American Airborne Operations of World War II.

However, airborne forces remained strong both when American defense policy focused on high-intensity operations in Europe (the 1950s and 1970s) and when it gave greater emphasis to lower-intensity opera-

tions against less sophisticated adversaries (the 1960s and 1980s). Another problem with attributing the retention of airborne forces to exterior interventions can be found in the unsuitability of such forces in all but the least threatening environments. In fact, despite retaining large airborne forces, the United States conducted forced-entry airborne operations only against Grenada and Panama within the last thirty years, and did not do so in Iraq, Somalia, Haiti, the Balkans, or Afghanistan.[7]

Contrary to rational explanations, institutional factors best explain the evolution of American airborne forces. Convinced of the future value of airborne operations, American military leaders endowed airborne forces with robust institutions between 1940 and 1943. Less powerful and autonomous than their Soviet equivalents but more thoroughly institutionalized than their British counterparts, the medium degree of institutionalization characterizing American airborne forces provided them with the organizational resources needed to innovate in the search of new roles and missions after World War II.

Although the United States was comparatively late in embracing the airborne concept, the German successes of 1940 prompted American commanders to devote considerable efforts to developing a viable airborne force.[8] Impressed by the German invasion of Crete, Army Chief of Staff General George Marshall became convinced that, "in the proper development of airborne operations lies one field in which we have real opportunity and capability to get ahead of the enemy."[9] In keeping with Marshall's vision, the United States' 1942 "Victory Program" anticipated the creation of a massive airborne force consisting of ten divisions (out of a 98 division Army).[10] If enacted, this program would have rendered American airborne forces equal in size to their Soviet equivalents and proportionally the largest in the world.

Creating such a large force in so little time demanded the establishment of special institutions. The cornerstone of these institutions was the Airborne Command, whose creation in March 1942 rendered airborne forces a quasi-branch of the Army, possessing an institutional status only marginally inferior to that of the traditional branches (infantry, cavalry, and artillery).[11] Although commanded by major generals, the Airborne Command enjoyed a degree of administrative freedom on par with that of traditional branches as it answered directly to the Army Ground Forces' Lieutenant General Leslie J. McNair.[12] As an institution, Airborne Command was tasked with elaborating airborne doctrine, training airborne units, and developing specialized equipment. To achieve these objectives, Airborne Command was endowed with a Parachute School to train personnel in both parachuting and technical subjects relevant to airborne operations.[13]

Airborne Command was also given privileged access to high quality recruits. Empowered to induct only volunteers, paratroopers earned an extra $50 a month compared to ordinary soldiers.[14] Because of greater prestige and higher pay, airborne forces attracted the Army's most intelligent and physically fit recruits. In fact, this drain of quality manpower created such friction that Army Ground Forces officially condemned airborne forces' retention of excessive numbers of recruits of a higher-than-average intellectual aptitude.[15]

Thanks to the organizational resources at its disposal, Airborne Command activated two airborne divisions in August 1942 and developed specialized equipment, including gliders, lightweight howitzers, and an airborne tank.[16] Nevertheless, the United States' first airborne operations in North Africa and Italy proved disastrous. These failures extinguished much of the early enthusiasm for airborne operations. In fact, Secretary of War Henry L. Stimson, the Commander of Army Ground Forces General McNair, and Allied Forces commander General Dwight Eisenhower all argued that large airborne forces should be abolished.[17] However, Airborne Command now represented a powerful interest group and its commanders successfully defended large-scale airborne operations.[18]

In the aftermath of this debate, the United States scaled back its plans to create future airborne forces from the ten divisions of the "Victory Program" to the five actually formed during the war.[19] Moreover, theater commanders became more cautious in approving airborne operations and rejected bold proposals for operations against Rome, the Evreux-Dreux area (Normandy), and Japan.[20] Although several more conservative operations succeeded, many entailed heavy casualties.

From a rational point-of-view, the heavy losses, significant costs, and meager results of many wartime airborne operations should have rendered the post-war survival of American airborne forces unlikely. However, airborne forces' high degree of wartime institutionalization provided its leaders with the resources needed to secure the future survival of their organization. Within this context, airborne officers pursued a two-pronged strategy. On the one hand, they sought, through innovation and reorganization, to adapt America's airborne forces for the roles and missions prioritized by political leaders. On the other hand, because a good combat record is an important criterion for institutional survival, airborne forces lobbied hard for a role in the United States' national defense strategy.

American airborne forces were aided in their post-war struggle for survival by their privileged status. Because Airborne Command had been accorded elite status and substantial resources, it attracted the Army's

brightest officers and offered them opportunities for accelerated promotion. As a consequence, many former paratroopers rose to senior leadership positions in the smaller, postwar Army. The disproportionate influence of this informal group, known as the "Airborne Club," facilitated airborne forces' ability to pursue innovations and acquire new missions.[21]

One of the first accomplishments of the Airborne Club was to secure a disproportionate role for airborne forces in the immediate post-war force structure. Although airborne forces would naturally be cut as the Army downsized from 89 divisions to 11, Airborne Command succeeded in preserving the two airborne divisions. Thus, while airborne forces shrunk in absolute terms, they grew as a percentage of American ground forces.[22]

However, prestige and influence would not alone protect airborne forces from future cutbacks. Instead, American airborne officers constantly sought to re-package and renovate airborne forces to correspond to the military priorities annunciated by American political leaders. For example, when President Eisenhower articulated a national military doctrine based on nuclear deterrence, airborne officers lobbied for an airborne division to become the first American unit re-designed for tactical nuclear warfare, despite airborne forces' being particularly unsuited to tactical nuclear warfare.[23] Given that high levels of tactical mobility and vehicles equipped with overpressure systems provide land forces personnel with their best chances of survival in environments where tactical nuclear detonations and radiation contamination are ubiquitous, airborne units' deficiencies in these regards constituted a fatal handicap.[24] Nevertheless, airborne lobbying succeeded in securing an airborne unit's designation as the United States' first Pentomic Division.

When John Kennedy succeeded Eisenhower as President, the government's strategic priorities shifted from deterrence in Europe to projecting power and fighting insurgents in developing countries. Faced with this situation, airborne partisans advertised their ability to provide the new administration the capabilities it sought. They were assisted in this endeavor by the Chairman of the Joint Chiefs of Staff General Maxwell Taylor and the Chief of Army Plans, Research, and Development General James Gavin, both former airborne division commanders.

With the patronage of these officers and the institutional resources at its disposal, Airborne Command re-defined airborne units as crisis-response forces, formations that would be the leading edge of any American contingency operation because of their high mobility and forced-entry capability. Accepting this argument, the Kennedy Administration created two new independent airborne brigades for Asia and Europe, and small-

er battalion-sized forces for Alaska and Latin America.[25] Because of the airborne community's responsiveness to the new national strategy, they played a prominent role in the era's military interventions by providing the first substantial army combat units deployed (but not dropped) to both the Dominican Republic and South Vietnam in 1965.[26]

While airborne officers argued the value of traditional paratroop units, they also explored revolutionary alternatives for delivering soldiers by air. As early as 1947, General Gavin had extolled the helicopter's potential value.[27] The United States Marines provided further evidence of how this new vehicle could move infantrymen when they employed helicopters to reposition a battalion in 1951, during the Korean War.[28] Nevertheless, the airborne community only began to seriously investigate helicopters as a substitute for parachutes after the Kennedy Administration articulated its requirement for flexible military forces.[29]

Once this occurred, the airborne community led the way in developing helicopter-borne airmobile warfare. An airborne officer, General Hamilton Howze, led the group that recommended the creation of an airmobile division in 1962. To explore how such a unit might function, Howze employed a battle group from the 82d Airborne Division to conduct a battery of field tests.[30] Then, when the Army created a special-purpose experimental unit, it was given an airborne designation and entrusted to another former paratrooper, General H.W.O. Kinnard.[31]

However, the airmobile concept proved of ambiguous value to the airborne community. While helicopters provided a new and more-dependable means for accomplishing traditional airborne missions, they challenged the institutional ethos of airborne forces because they required none of the specialized training or equipment that justified paratroopers' elite status. In fact, because any ordinary unit could be converted to airmobile status, the Army's chief of staff gave his own branch, the cavalry, the privilege of forming the first airmobile division.[32] Thus, although the airborne community pioneered airmobile warfare, they temporarily lost ownership of the concept.

The vicissitudes of the Vietnam War, however, permitted airborne forces to gradually re-appropriate the airmobile role. Upon its deployment to Vietnam, the 173d Airborne Brigade began extensively using helicopters despite its lacking an airmobile designation.[33] Then, once the 1st Cavalry (Airmobile) Division had proven the value of airmobile forces, the Army approved the creation of a second airmobile division, the privilege of providing which went to the airborne community's 101st Airborne Division.[34] This expansion of the airborne community was due, in part at least, to the predominance of airborne officers within the army's senior

command and staff positions during this period.[35] Nevertheless, the exigencies of the Vietnam War and irrelevance of airborne training to ongoing military operations led the 101st Airborne Division to curtail training for airborne jumps in 1968.

When the end of the Vietnam War heralded a decline in the United States' need for airmobile forces, the airborne community became the sole proprietor of the airmobile role. While the cavalry and airborne communities had fought over the airmobile mission prior to Vietnam, the Army's post-Vietnam focus on high-intensity warfare stimulated the Army to transform the 1st Cavalry Division into an armored force. Bereft of a credible high-intensity role, the airborne community clung to airmobility, maintaining the 101st as the United States' only airmobile division.[36]

Although post-Vietnam cutbacks led to the abolition of most of the independent airborne brigades and battalions created in the 1960s, the airborne community successfully lobbied for the creation of two (Airborne) Ranger battalions in 1973 as elite unit showcasing the Army's efforts to reinvent itself as an all-volunteer force. This force was later expanded into the Ranger Regiment in 1984 with the addition of a third battalion and the creation of a dedicated headquarters company.[37] Then, when American policymakers became alarmed at the prospect of a Soviet invasion of Iran following the Soviet 1979 intervention in Afghanistan, the airborne community offered the 82d Airborne Division as the ideal force for responding to such a contingency, arguing that one of its brigades should constantly be maintained at a higher state of readiness.[38]

Concomitant with its search for new roles and missions, the airborne community lobbied for airborne operations whenever America intervened. Despite the superiority of airmobile forces, the airborne community convinced America's commander in Vietnam, General William Westmoreland, himself an airborne officer, to approve a parachute assault in 1967.[39] Although the unsatisfactory results of this operation precluded further operations in Vietnam, the United States' invasions of Grenada (1983) and Panama (1989) featured the sort of ill-equipped and poorly-organized opponents against which airborne assaults could still be conducted. In neither case were airborne forces absolutely necessary, and in Grenada the Marines actually lobbied to take the airborne objective via an amphibious assault.[40] Nevertheless, adroit lobbying ensured that both invasions included airborne components.

Subsequent American interventions have proven less conducive to airborne operations. Despite active lobbying, America's military leaders considered Iraqi defenses too formidable for an airborne operation during the 1991 Gulf War.[41] Although the 2003 Iraq War was equally unsuitable

for airborne operations, the airborne community's lobbying earned them the right to conduct an airborne operation *behind friendly lines*, whereby an airborne brigade parachuted onto an airfield already controlled by American special forces.[42] Although the airborne community had actively sought this well-publicized mission, the drop at Bashur airfield was at least justified by the airfield's limited unloading capacity, which meant that troops could be delivered faster by parachute than by landing them.[43]

In light of their infrequent employment in an age of frequent United States military interventions, it may appear paradoxical that the size of American airborne forces has actually grown. Indeed, two battalions expanded to brigade size between 2000 and 2006. The United States Army today possesses five airborne brigade combat teams.[44] Consequently, the United States' airborne forces are larger today in absolute times than they have been at any time since 1968. Moreover, considering that the United States Army's overall order of battle has shrunk from 20 active divisions to ten since the end of the Cold War, the recent expansion in airborne forces is more significant yet when it is viewed in comparative terms.

In sum, despite the fact that operational necessities have not justified any of the United States' airborne operations since the Korean War, the occasional conduct of such operations in benign environments has fostered the illusion that airborne forces still have an important role to play in modern warfare. Nevertheless, the ability of American airborne forces to redefine and restructure themselves in keeping with shifts in American grand strategy proved more fundamental to their survival. Indeed, American airborne forces' current efforts to redefine themselves as a force capable of responding to the challenge posed by Chinese anti-access/area denial capabilities must be viewed in this broader context.[45]

The key to this dynamic lies in the medium degree of institutionalization conferred on American airborne forces when they were created during the Second World War. Unable to count on superior institutional strength to blindly pursue their organizational essence, as the Soviet VDV could, American airborne forces nonetheless possess sufficient resources to maintain a large force structure provided they adapted to the perceived needs of changing political administrations.

Notes

1. Market Garden is classified as a pyrrhic success in the American case whereas it is considered a failure elsewhere in this article. The reason for this is that although the overall operation failed when its British component, the 1st Airborne Division at Arnhem, was overrun and annihilated, the American component of the mission succeeded in seizing and holding its objectives, albeit at heavy cost.

2. Eisenhower to Marshall, September 20, 1943, in *The Papers of Dwight David Eisenhower,* Vol. 3, 1439-42; and Thomas Sheehan, *World War II Vertical Envelopment: The German Influence on US Army Airborne Operations* (MA Thesis: US Army Command and General Staff College), 68-70.

3. Skates, *The Invasion of Japan,* 163.

4. Devlin, 275-77.

5. Scott McMichael, *A Historical Perspective on Light Infantry* (Fort Leavenworth: Combat Studies Institute, 1987), *passim;* and Michael King, *Rangers: Selected Combat Operations in World War II* (Fort Leavenworth: Combat Studies Institute, 1985), *passim.*

6. Maxwell Taylor, *Swords and Plowshares* (New York: Da Capo, 1972), *passim;* and Edward Gavin, *LTG James M. Gavin: Theory and Influence* (Fort Leavenworth: School of Advanced Military Studies Monograph, 2012), *passim.*

7. As described later, the 2003 paratroops drop on Iraq's Bashur Airfield was conducted in territory controlled by friendly Kurdish paramilitary forces, who had a good working relationship with US Special Forces already deployed in the area.

8. Blair, *Ridgway's Paratroopers,* 30.

9. Eisenhower to Marshall, 19 February 1944, in *The Papers of Dwight David Eisenhower,* Vol. 3, 1736-40.

10. Eisenhower to Harold Roe Bull, Memorandum for General Bull, Assistant Chief of Staff, G-3, April 4, 1942, in *The Papers of Dwight David Eisenhower,* Vol. 1, 226-27.

11. Kent Greenfield et al., T*he Army Ground Forces: The Organization of Ground Combat Forces* (Washington D.C.: Department of the Army, 1947), 396-416.

12. James Huston, *Out of the Blue: U. S. Army Airborne Operations in World War II* (West Lafayette: Purdue University Press, 1998), 66-69.

13. Palmer et al., *The Army Ground Forces,* 258.

14. Blair, *Ridgway's Paratroopers,* 32.

15. Palmer et al., *The Army Ground Forces,* 20.

16. Janet Bednarek, "Damned Fool Idea: The American Combat Glider Program, 1941-1947," *Air Power History* (Winter 1996), 44-47; R.M. Ogorkiewicz, *Design and Development of Fighting Vehicles* (New York: Doubleday, 1968), 52; and Sheehan, *World War II Vertical Envelopment,* 49-54.

17. Sheehan, *World War II Vertical Envelopment,* 68-69.

18. Taylor, *Swords and Plowshares,* 52; and Blair, *Ridgeway's Paratroop-*

ers, 173-75.

19. Blair, *Ridgway's Paratroopers* 34.

20. Eisenhower to Pietro Badoglio, September 8, 1943, in *The Papers of Dwight David Eisenhower*, Vol. 3, 1402-04; and Harrison, *United States Army in World War II: Cross-Channel Attack*, 184-86.

21. A. Bacevich, *The Pentomic Era: The US Army Between Korea and Vietnam* (Washington D.C.: National Defense University, 1986), 106; and Richard Betts, *Soldiers, Statesmen and Cold War Crises* (New York: Columbia, 1991), 134.

22. Gordon Rottman. *US Army Airborne*, 1940-90 (London: Osprey, 1990), 19.

23. Bacevich, *The Pentomic Era*, 103-27.

24. Albert Mauroni, *America's Struggle with Chemical-Biological Warfare* (Westport: Praeger, 2000), 124.

25. Rottman., *US Army Airborne, 1940-90*, 33-50.

26. Airborne forces were assigned to the intervention in the Dominican Republic because it was originally anticipated that they would have to conduct a parachute assault onto an airfield. However, by the time the United States intervened, friendly forces controlled the airfield in question. The reason airborne forces were the first army units sent to Vietnam are three-fold. As high-readiness formations, airborne units had long been viewed as the first Army units that would be sent to a crisis zone. Moreover, the highly publicized deployment of Marines created pressures for the Army to respond with an equally dramatic entrée into South Vietnam—one provided by elite airborne forces. Finally, the fact that the US commander in Vietnam, General William Westmorland, was himself an airborne veteran contributed to calls for this particular type of unit. See: Lawrence Yates, *Power Pack: US Intervention in the Dominican Republic 1965-1966* (Fort Leavenworth: Combat Studies Institute, 1988), 68-70.

27. John Tolson, *Vietnam Studies: Air Mobility, 1961-1971* (Washington DC: Department of the Army, 1973), 3-5; and Gavin, 150-51.

28. Galvin, *Air Assault*, 261-63.

29. Mark Olinger, *Conceptual Underpinnings of the Air Assault Concept: The Hogaboom, Rogers and Howze Boards* (Arlington: Institute for Land Warfare, 2006), 6.

30. Galvin, *Air Assault*, 274-79.

31. Shelby Stanton, *The 1stt Cav in Vietnam: Anatomy of a Division* (Novato: Presidio, 1987), 25.

32. Stanton, *The 1st Cav in Vietnam*, 36.

33. Tolson, *Vietnam Studies: Air Mobility*, 63-67.

34. Tolson, *Vietnam Studies: Air Mobility*, 195-99.

35. On the so-called airborne club's influence during the Vietnam War, see: Douglas Kinnard, *The War Managers: American Generals Reflect on Vietnam* (New York: Da Capo, 1991 [orig. 1971]), 114-15.

36. Stanton, *The 1st Cav in Vietnam*, 249-51.

37. David Hogan, *Raiders or Elite Infantry?*: *The Changing Role of the US*

Army Rangers from Dieppe to Grenada (Westport: Greenwood, 1992), 195-210.

38. Rottman, *US Army Airborne, 1940-90,* 53.

39. Tolson, *Vietnam Studies: Air Mobility,* 126-41.

40. Mark Adkin, *Urgent Fury: The Battle For Grenada* (Lexington: Lexington, 1989), 131-39.

41. Bernard Trainor and Michael Gordon, *The General's War: The Inside Story of the Conflict in the Gulf* (Boston: Little, Brown and Company, 1995), 157.

42. Matthew Konz, "Operational Employment of the Airborne Brigade Combat Team: The 503d Parachute Infantry Regiment as a Case Study" (Fort Leavenworth: School of Advanced Military Studies, 2009), 37-55.

43. Gregory Fontenot, E.J. Degen and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, Kansas: Combat Studies Institute, 2004), 227.

44. In 2000, the 173rd Airborne Brigade was reactivated as an independent brigade. In 2005, the 4th Brigade Combat Team (Airborne) / 25th Division was created employing, in parts, personnel taken from the 1-501 independent airborne infantry battalion. From 2006 to 2014, the 82d Airborne Division was reorganized, transforming it from a three brigade structure to a four brigade structure.

45. On the priority officially accorded meeting the anti-access/area denial (AC/AD) challenge, see: *2013 Army Strategic Planning Guidance*. For an example of airborne forces' efforts to position themselves to benefit from this mission, see: Charles Flynn and Joshua Richardson, "Joint Operational Access and the Global Response Force: Redefining Readiness," *Military Review* (July-August 2013), 38-44.

Chapter 6

Conclusions and Implications for the US Army

Institutional Design and Military Performance

As this study demonstrates, institutional status plays a decisive role in shaping the destinies of military organizations. Early in organizations' existence, a high degree of institutionalization is critical to military innovation. Indeed, military organizations will rarely succeed at exploiting their core tactics and technologies unless they possess a high level of autonomy and significant institutional resources. However, when technological and tactical developments later challenge the viability of a military organization's central mission, institutional strength plays the opposite role of enabling obsolescent military organizations to resist necessary reforms. Consequently, it is those organizations that possess the greatest levels of autonomy and the most institutional resources that are both the most likely to survive and the least likely to critically reappraise themselves when outside developments undermine their original *raison d'être*.

The converse of what has just been said about strong organizations applies to weaker ones. Military organizations with little autonomy and few resources are unlikely to develop significant innovations even when they are created with the express purpose of doing so. However, a low degree of institutionalization becomes an asset once the technologies and tactics central to a military organization become obsolete. Within this context, a state's leaders can more easily abolish military organizations that have outlived their usefulness when those organizations are themselves weakly institutionalized.

Each of the three cases examined bears out the overriding impact of institutional factors in determining how military organizations evolved.

In the Soviet case, strong institutions enabled airborne forces to develop swiftly prior to the Second World War and remain at the forefront of airborne innovation. However, the wartime performance of Soviet airborne forces fell far short of pre-war expectations, partly due to Premier Joseph Stalin's purge of many airborne officers in the years 1936-39. Nevertheless, Soviet airborne forces possessed the institutional resources needed to preserve their size and mission after the Second World War because they had originally been institutionalized in the strongest possible way—as an independent military service—prior to that war. Soviet airborne forces were therefore able to mobilize vast human and technical resources in the

ultimately futile endeavor of developing technologies and tactics to reinvigorate the airborne forces' preferred strategic mission. Even though the Soviets created innovative airborne armored vehicles, developed mammoth transport aircraft, and practiced massive assaults, these measures could not redress airborne forces' fundamental vulnerabilities in an age of armored vehicles and surface-to-air missiles.

Contrary to the Soviet example, British airborne forces' evolution was marked by their extremely weak institutionalization. Having been initially established as an ad hoc unit, British airborne forces had great difficulty acquiring the equipment and personnel needed to develop a credible airborne capability. Indeed, only Prime Minister Winston Churchill's repeated personal interventions procured for the United Kingdom's airborne forces the resources needed to field a credible capability by the middle of the Second World War. Surprisingly in light of their slow gestation, British airborne forces performed well later in the war. Nevertheless, neither their successful wartime performance nor the United Kingdom's vast overseas commitments saved British airborne forces after the war. Indeed, having only been institutionalized as a single regiment, British airborne forces lacked the resources to either defend their original mission or adapt themselves for a new one. Consequently, airborne forces' utility was ruthlessly reappraised and their size was rapidly reduced, with a vestigial force being retained on the grounds of the regiment's elite status.

Finally, the United States' airborne forces' development has been shaped by the median level of institutionalization they were originally accorded. Having been established as a powerful community within the United States Army, American airborne forces possessed fewer institutional resources than their Soviet counterparts, but more than their British compatriots. Lacking the sheer scale of resources needed to protect airborne forces' original mission—large-scale, high-intensity airborne operations—in the face of technological developments, the American airborne community continuously sought new roles that would justify their size and autonomy. Consequently, they embraced such concepts as the Pentomic division, heliborne operations, and high readiness rapid response force (the so-called "ready brigade"). To the extent that the American community has succeeded at finding new justifications for their existence, it has remained larger and more influential than a rational examination of the United States' need for "parachute infantry" would suggest.

The Failure of Rationality

When examined as an ensemble, it is striking both how important institutional factors were in shaping airborne forces' evolution and how

often rational explanations fail to account for how airborne forces developed. Traditional histories of military units typically suggest that a major factor in organizations' survival after wars is their military performance during those conflicts. If such were the case, one would expect to see units that were successful in wartime capitalize on their accomplishments to achieve an exalted peacetime status, while units that were unsuccessful at war would suffer severe cutbacks in peacetime. However, the airborne forces examined in this study exhibit the contrary tendency.

For example, the Soviet Union's airborne forces, which suffered repeated defeats and were a cause for disappointment every time that they were used, were best able to preserve their size, resources and mission after the war. Meanwhile, the United Kingdom's airborne forces, which performed the most successfully, experienced the most significant cuts to their size and resources. Finally, although the British and American airborne forces enjoyed nearly comparable wartime experiences, serving side-by-side in the largest operations, American airborne forces remained comparatively large and well-resourced, while their British counterparts declined to symbolic proportions.

Thus, the issue of whether military units actually succeeded at their wartime tasks was wholly irrelevant in determining their postwar tasks. The reason why wartime performance had so little impact on post-war policy outcomes lies in the ambiguous nature of after-action assessments and the role of institutional factors in determining what lessons were officially drawn. Within this context, analysts in all three of the countries had great difficulty disentangling the different factors that led to the success or failure of individual operations. Moreover, even when the determinants of success or failure were understood, they could be interpreted in multiple ways.

For example, when Soviet strategists evaluated the disastrous Dnepr (1943) airborne operation, they had to decide whether the operation failed because the basic concept of such an assault was flawed or whether it failed because of other factors, such as paratroops being inadequately equipped or Soviet armored forces being too slow in breaking through the German front line. Likewise, when British planners evaluated the success of the Normandy airborne drops (1944) it was difficult for them to determine whether the operations contributed in their own right to the overall campaign or whether their success was itself dependent on assistance from other combat arms, such as naval gunfire support and rapid relief by amphibious units.

The nature of the lessons that each state drew from its experiences was shaped by airborne forces' institutional roles within their respective

military high commands. Where airborne forces possessed a great deal of institutional clout, such as in the Soviet Union, they succeeded at determining how wartime experience was interpreted. This meant, in the Soviet case, that the airborne assault mission itself remained sacrosanct and that wartime failures were attributed to inadequate equipment and training. Interpreted in this way, poor wartime performance became a justification for greater resources in peacetime.

In sharp contrast to the lessons drawn in the Soviet Union, the institutionally weak position of British airborne forces meant that their utility was continually questioned despite their better wartime performance. The singular failure of Operation Market Garden (1944), for example, was exploited ruthlessly by airborne forces' opponents to argue that they were no longer a worthwhile combat arm for large scale warfare. Thus, as demonstrated by these examples, wartime experience has little independent bearing on post-war policy outcomes because military organizations use whatever institutional power they possess to instrumentalize the wartime record to their own ends.

Perhaps even more astonishing than the irrelevance of wartime experience is the limited impact that national strategies had on how airborne forces evolved in each state. As argued earlier, wartime experience and post-war technological developments demonstrate that the only valid mission for airborne forces, beginning in the Cold War, was long-range interventions in low-intensity conflicts. Therefore, it would be rational to expect airborne forces to prosper in states where this long-range, low-intensity mission was considered vital, and decline in ones where it was not a priority.

However, such was not the case and airborne forces' evolution appears to have been unaffected by changing national strategies. Thus, while the Soviet airborne forces remained large throughout a period (until 1966) when the armed forces' sole combat mission was large-scale high intensity warfare, the United Kingdom's airborne forces suffered most of the cutbacks they endured during the period (before 1968) when the state was deeply committed to intervening in a far-flung empire. Only in the United States, where airborne forces were obliged to continually seek new roles and missions, did changes in airborne forces' size occasionally correspond to changes in national strategy, such as the increased emphasis on low-intensity contingencies during President John Kennedy's administration.

Insights for Policymakers

Thus, issues of institutional design systematically trumped rational calculations in determining how the airborne forces of each state devel-

oped. Considering that institutional factors, rather than rational ones, drove the development of military capabilities in this case, it might be asked what lessons decision-makers should draw when it comes to formulating defense policies. To answer this question it is necessary to examine what factors decision-makers should take into account in designing institutions.

Perhaps the greatest lesson that decision-makers should draw is that how they configure military organizations will determine what sort of outputs those organizations will produce. If decision-makers aim to foster new technologies or tactics they first must ensure that they create organizations that possess enough autonomy to successfully pursue the innovations. Concomitantly, if decision-makers are dissatisfied with the level of innovation achieved, they may remedy the situation by institutionally strengthening the organization dedicated to the technology or tactic they consider promising. For example, as was discussed in Chapter 1, having been long dissatisfied with the armed forces' inadequate special operations capabilities, Congress strengthened the institutional design of American special operations forces by writing the creation of the Joint Special Operations Command into the 1986 Goldwater-Nichols Act.

While institutional design is a factor in military innovation, it is also a determinant of organizational inertia. Within this context, decision-makers must recognize that institutionally strong military organizations rarely engage in critical reappraisals of their utility and are often successful at preserving themselves long after their core missions have become obsolete. However, there is no point in blaming the individual members of such organizations for this state of affairs. The biases that cloud individual members' judgments are a natural by-product of military organizations' efforts to develop *esprit de corps* and the incentives that further officer careers. Consequently, military organizations cannot be expected to objectively evaluate the feasibility of their own doctrines at all times.

As a result, military commanders and civilian policymakers responsible for crafting defense policy must critically evaluate the claims advanced by military organizations. To succeed, they must also actively seek alternative perspectives, ask probing questions of such organizations, and demand that military organization's core doctrines be examined in as objective and neutral a fashion as possible. Moreover, since no military organization is ever likely to admit that its utility has come to an end, such critical evaluations must come from outside of the organization itself, either from other military services, civilian analysts, or think-tanks.

To this end, the great German military historian Hans Delbrück argued that the official histories of contemporary wars should be written by academic historians rather than military officers because the lat-

ter face too many pressures to justify or otherwise defend the high command's doctrines.[1] In the 1960s, operational research, drawing heavily on statistical analysis, was championed as a superior means for objectively evaluating military doctrines and force postures.[2] More recently, certain scholars have argued that inter-service rivalry plays a key role in exposing the shortcomings of military organizations, as military organizations are better at critically evaluating their rivals than themselves.[3] Other scholars have, meanwhile, suggested that the military policymaking process should be systematically broadened by including experts from think tanks in doctrinal debates.[4] While none of the above approaches is foolproof, in combination they can provide decision-makers with better information upon which to base their policies.

When the weight of evidence suggests that a military organization's core mission is obsolete, decision-makers should intervene to abolish or redesign the organization. Such measures are necessary because organizational insiders have deeply-seated interests and emotional reasons for protecting the organizations they serve; meaning that they are rarely willing to make difficult, yet essential choices. Within this context, it was only due to the long-overdue actions of organizational outsiders that the United States' horse cavalry was finally abolished in 1951 and Russia's National Air Defense Forces were dissolved in 1998.[5] Thus, in the final analysis it is the defense community as a whole—including elected leaders, members of rival military organizations and civilian analysts—that bears the ultimate responsibility for ensuring that the components of a nations' armed forces are all capable and necessary.

Implications for Current US Army Airborne Forces

Although the focus of this study was demonstrating the role institutional designs play in shaping organizations' destinies, it is worthwhile to briefly comment on the role of airborne forces in contemporary United States defense policy and the implications of this study's conclusions on those forces. Because the United States' airborne forces continually sought new roles and missions to justify their existence, American forces are less self-evidently obsolete than their Russian counterparts, which remain committed to their original mission of conducting large-scale paratroop drops in support of high-intensity operations. Therefore, to evaluate the utility of United States airborne forces it is necessary to examine both their force structure and the missions that justify that structure.

With five airborne brigade combat teams, the United States' airborne forces are today the second largest (still behind Russia) and best equipped in the world.[6] Moreover, American airborne forces can draw on a larger

fleet of transport aircraft than many of their foreign counterparts, which frequently lack the airlift capability to airdrop even a miniscule proportion of their paratroop units.[7] Two missions provide the official justification for airborne forces of this magnitude. These missions are the parachute-delivered forced-entry into hostile territory and the rapid deployment of troops to airfields controlled by friendly forces.[8] Because these two missions are so central to American airborne forces' current size, it is worth examining whether the missions are realistic and whether the current force structure (five brigades) is necessary to execute them.

The forced-entry mission's requirement—to be able airdrop an airborne brigade at short notice to a location on the other side of the globe—provides the justification for maintaining an airborne division.[9] However, since only three brigades are needed to maintain one on alert, the strategic brigade drop cannot in itself justify retaining five airborne brigades.[10] Moreover, the United States would likely be unable to conduct a larger strategic drop if the situation arose because it lacks the C-17 transport aircraft necessary drop more than one brigade at a time. Consequently, the United States currently possesses more airborne troops than it can usefully employ in this role.[11]

More fundamentally, however, the likelihood of even a brigade-size airborne operation is open to serious doubts. As was shown in Chapter 2, the spread of surface-to-air missiles and armored vehicles has rendered airborne operations extremely hazardous unless they are conducted against the least sophisticated opponents. For this reason, the only airborne operations conducted since the 1956 Suez Campaign have been against extremely weak enemies, including Congolese rebels (Belgian operations in 1964-65 and the French operation in 1978), Namibian rebels (by South Africa in 1978), Grenada's armed forces (by the United States in 1983), and the Panamanian Defense Forces (by the United States in 1989).

The United States and other military powers have been unanimous in considering the use of airborne forces to be risky and uncertain when they have fought marginally more competent opponents than those discussed above. Consequently, airborne operations were noticeably absent from the contemporary epoch's major wars, including the Gulf Wars, the (post-1956) Arab-Israeli Wars, the Wars of Yugoslavian Secession, the Falklands War, and the post-Soviet wars in the Caucasus.[12] With so many conflicts waged under such a diverse set of circumstances, it stands to reason that states' decisions not to employ airborne operations reflect their calculations that the costs would far outweigh the benefits.

Moreover, when forced-entry missions were required, states routinely favored the alternatives offered by amphibious or heliborne forces.

Amphibious forces were employed by Egypt for its surprise assault across the Great Bitter Lake (1973), Turkey for its invasion of Cyprus (1974), the British for their re-conquest of the Falklands (1982), and the United States in multiple operations (Lebanon, Grenada, and Somalia). Heliborne operations have also been used extensively, with the United States employing them massively during the 1991 Gulf War, the 1994 intervention in Haiti, and its counterinsurgency operations in Afghanistan.[13]

Given this persistent record of non-use, except under the most favorable circumstances, it is doubtful that the United States *needs* the ability to conduct brigade-size airborne drops. Indeed, if airborne drops are only likely to be conducted against poorly-equipped adversaries in countries that are extremely far away, then a single battalion at a high state of readiness (with two more in rotation) would probably suffice for the nation's needs. Indeed, a single battalion was enough to secure success in all of the airborne operations that have been conducted since 1956, with the singular exception of the United States' invasion of Panama. In each case, forces of battalion (or smaller) size rapidly seized airfields, which permitted additional forces to be flown in and landed by transport aircraft.

If the ability to conduct a brigade size airdrop appears of doubtful necessity, the same cannot be said of the need to be able to rapidly airlift troops in the event of crises. Indeed, the ability to airlift high-readiness forces in the event of crises has proven invaluable in circumstances ranging from the preventative deployment of Soviet troops to Damascus in 1973 to the United States defensive deployment in Saudi Arabia in 1990. Moreover, because of the limits of air transport capabilities, the first troops sent by air will necessarily be lightly-equipped infantry, configured much as airborne troops are. However, while airborne troops can fulfill this rapid deployment role, there is no functional reason why rapid deployment units should also be qualified to conduct paratroop assaults.

It may be countered that providing airborne training for these units is comparatively inexpensive—at least within the context of the United States' national defense budget—considering that the United States already possesses a fleet of transport aircraft adequate for training purposes.[14] Furthermore, it is frequently argued that airborne training is particularly effective at instilling in soldiers virtues such as self-reliance and physical toughness. While both these economic and training arguments are valid to a degree, any accurate analysis of the United States' airborne force should take into account the opportunity costs of retaining five brigades in the airborne role. Ultimately, the time infantry units spend training and qualifying for the airborne mission is time they do not spend preparing for alternative missions. Considering the rarity of airborne operations, might

it not be better to have elite infantry units specialize in equally demanding, yet more likely forms of warfare?

Whereas the last airborne operations that were conducted out of necessity date back to the late 1970s, warfare has become much more frequent in mountainous and urban environments. From the Balkans to the Caucasus and the Hindu Kush, many of the bloodiest conflicts over the past three decades have occurred in Eurasia's mountainous regions. Moreover, long experience demonstrates the utility of specialized training in enabling infantry to fight effectively in such environments. Meanwhile, the gathering pace of urbanization has inexorably resulted in more and more battles occurring in cities, as evidenced by the contemporary struggles for Mogadishu, Sarajevo, Grozny, Fallujah, Baghdad, and Aleppo. Since urban environments pose distinct challenges to infantrymen, such as the clearing of buildings and neutralization of snipers, it may also be useful to develop large infantry units specialized in taking, holding, and controlling cities.

Cities and mountains are but two of the environments that challenge contemporary infantrymen, with tropic jungles, arctic wastes, and deserts also posing additional difficulties. If the United States possesses a surfeit of airborne forces, would it not make sense to convert some of its airborne brigades into light infantry units specializing in these distinctive forms to warfare? Historically, specializing in fighting in such arduous and distinct environments led units to develop an ethos rivaling that of contemporary airborne forces. For example, the birth of modern "elite" military units can arguably be traced to European armies' creation in the late 19th century of units specialized at fighting in mountains, including the Italian Alpini, the French Chasseurs Alpins, and the Austro-Hungarian Tyrolean Kaiserjägers.[15] The creation during the Second World War of specialized jungle units, such as Merrill's Marauders and Wingate's Chindits, arguably spawned some of that war's most distinguished formations and contributed greatly to the Allied military effort in Burma.

After examining these examples, it is worth asking whether the United States would not be better served by a wider variety of specialist elite units rather than the five airborne brigades it currently possesses. The United States pursued a policy along some of these lines in 1985-86, when it designated four divisions as "light infantry" and tasked them with training for jungle, mountain, and winter warfare.[16] However, unlike successful specialist infantry units of the past, the light divisions of the 1980s were never accorded an elite status, given preferential access to higher-than-average-quality personnel, or provided with resources to develop mission-specific equipment.[17] Moreover, these units were expected to

cross-train for operations in three radically different environments, rather than specialize.[18] As a result of their comparatively meager institutional resources, the light infantry divisions fell victim—during a period of broad post-Cold War defense cuts—to competing claims for resources from the Army's dominant heavy community and well-connected airborne community.[19] Consequently, two light divisions were inactivated after the 1991 Gulf War and the two others lost their "light" designation at this time. Retrospectively, challenges experienced during years of operations in the Balkans and Afghanistan, following the light divisions' abolition, suggest that specialized infantry capabilities might be of great value and could be obtained by converting some of the Army's elite airborne brigades to other missions.

Thus, although the purpose of this study has been to demonstrate that long forgotten decisions about institutional design shaped the fate of military organizations throughout their existences, it also highlights the dynamics that have shaped the United States' airborne force. Having been institutionalized as a powerful community within the United States Army during the Second World War, American airborne forces preserved their size and autonomy by adapting themselves to accomplish new missions considered vital to national security. Today, as noted earlier, its two main missions are forced-entry (i.e. the strategic brigade drop) and rapid deployment (i.e. the "ready brigade").

While these missions theoretically support the United States' national military strategy, they provide an inadequate justification for the current size of its airborne force, since airborne forced-entry operations are likely to be small (battalion rather than brigade size) and airborne training is unnecessary for rapid deployments. Within this context, the current composition of the United States' airborne forces appears more a product of the airborne community's lobbying efforts in favor of their own size and autonomy than cold calculations about national interest or military requirements. However, the United States' airborne community should not be faulted for this state of affairs since they have acted identically to other organizations facing similar circumstances insofar as they merely employed the institutional resources at their disposal to preserve themselves in the face of inevitable technological and tactical developments. Having acknowledged this, is it time for the US Army to reassess its Airborne forces and their mission?

Notes

1. Peter Paret, "Hans Delbruck on Military Critics and Military Historians," *Military Affairs*, 30/3 (1966), 148-152.

2. Alain Enthoven and K. Wayne Smith, *How Much Is Enough? Shaping The Defense Program, 1961–1969* (New York: Harper & Row, 1971), *passim.*

3. Owen Coté, *The Politics of Innovative Military Doctrine: The US Navy and Fleet Ballistic Missiles* (Ph.D.dissertation, Department of Political Science, Massachusetts Institute of Technology, 1996), *passim*.

4. Kimberly Zisk, *Engaging the Enemy: Organization Theory and Soviet Military Innovation, 1955-1991* (Princeton: Princeton University Press, 1993), *passim*.

5. The term outsider here connotes individuals outside the military organization itself. Many of the outsiders were in the armed forces, but represented competing branches and services.

6. Russia possesses four airborne divisions and one independent airborne brigade. China's airborne force is, on paper, larger than the US force with three divisions. However, the aggregate size of the force is only 35,000, meaning that it is, in practice, smaller.

7. According to one calculation, a minimum of 96 C-17 aircraft are needed to conduct a strategic brigade combat drop. Based on these calculations, the United States' fleet of 158 C-17s would theoretically be sufficient to drop 1.5 brigades. However, since the entire fleet cannot be used at once (due to routine maintenance needs and other missions), little more than one brigade can likely be dropped at a time. The United States also has a large force of C-130 aircraft (151 aircraft in the active Air Force inventory), which lack the range for the strategic airdrop requirement, but could theoretically be used in certain scenarios. Since it has been calculated that 111 C-130 aircraft are needed to conduct a combined airdrop/airlift of a brigade, the United States' C-130 fleet can probably carry a brigade (factoring-in aircraft unavailable due to maintenance). Therefore, for short range operations and assuming a high availability of aircraft, the United States could theoretically drop two airborne brigades. However, these calculations are highly theoretical as it would probably be impossible to concentrate virtually all of the United States' airlift force for a single operation. See Rowayne Schatz, "Airborne Forcible Entry Operations: USAF Airlift Requirements" (MA Thesis, US Army Command and General Staff College, 1994), 90-100; Richard Klumpp, "Strategic Brigade Airdrop: Past. Present. Future?" (MA Thesis, Graduate School of Logistics and Acquisition Management, Air Education and Training Command, 1996), 31-40; and Douglas DeLancey, "The 82nd Airborne Division in Transformation: Is it Possible to Significantly Increase the Combat Power in the Division Ready Brigade and Reduce Deployment Sorties Using Current, Fielded Technology?" (Monograph: School of Advanced Military Studies, 2001), *passim.*

8. I have consolidated under two missions a variety of activities that are aggregated and disaggregated in distinct ways in different planning documents. According to the *2013 Army Strategic Planning Guidance*, the primary mission

assigned airborne forces is to be sought in one of the 11 missions listed for the Army—projecting power despite Anti-Access/Area Denial Challenges. According to the Army's field manual for brigade operations, airborne-specific missions include forcible entry operations, airfield seizure, expanding an airhead, and expanding a lodgement. *FM 3- 90.6 Brigade Combat Team* (US Army, 2010), 1-10.

9. Given normal rotation, training and leave procedures, three brigades are generally needed to ensure that one can be held at a high state of readiness at a time.

10. Rapid reaction forces in Western democracies are typically organized so that one unit out of three is available for operations at short notice. In general, one unit is on mission cycle, ready to respond to any contingency. Another unit is on a wartime training cycle, and the final unit is on support cycle. The support unit prepares vehicles and equipment for deployment, and supports the other units' activities. When the 82nd Airborne Division was organized with three brigades (it was reorganized into four brigades in 2006), one of the three was nominally available for deployment with 18 hours' prior notice.

11. See footnote 7 above, for more detailed information on the United States' airlift potential. To conduct a simultaneous two-brigade drop would require using a large proportion of the C-130 fleet in addition to the C-17s. However, the limited range of C-130s means that such an operation can only be conducted relatively close to large American-controlled airfields. Moreover, it is unlikely that such a large proportion of the transport aircraft fleet could be rendered available unless conducting paratroop drops was accorded an exclusive priority by the Joint Chiefs of Staff. Such is especially the case in international crises, when transport aircraft will be called upon to preventatively deploy troops, move urgently-needed equipment, and logistically support units already in the field. Therefore, if two brigades were used, the second would likely have to be dropped serially, in a second sortie by the transport fleet. However, if, on the one hand, the first brigade is capable of seizing an airfield, the second brigade could be air-landed and consequently would not need airborne training. Contrarily, if, on the other hand, the first brigade is incapable of seizing an airfield, the second brigade will face the perilous situation of jumping into the midst of an alert enemy, while a portion of the transport fleet will simultaneously be needed to re-supply the first brigade with logistical airborne drops. Thus, the United States' ability to operationally use two airborne brigades seems quite limited.

12. Although airborne units were deployed during many of these operations, they were employed in a conventional infantry capacity. No combat paratroop drops were conducted during any of these conflicts.

13. Also of note, the United Kingdom preferred to use heliborne, rather than airborne forces, for their 2000 operation against the West Side Boys militia in Sierra Leone. On paper, this operation should have been a text book case for a paratroop drop as the opponent was ill-equipped, the theater of operations was far away and the intervening forces (1st Battalion, the Parachute Regiment and the SAS) were airborne qualified. Nevertheless, a heliborne operation was preferred to the hazards of an airborne operation. See Richard Connaughton, "Operation

'Barass'," *Small Wars & Insurgencies*, 12/2 (2001), 110-119.

14. Claiming that the airlift capacity needed to strategically employ airborne forces is cost free is somewhat fallacious. When the United States government examined in the 1990s what mixture of aircraft to purchase to fulfill its power projection requirement (i.e. a set need to lift a certain quantity of materiel a given distance), three options were debated. The option adopted, that of purchasing a large fleet of C-17 transport aircraft, was the most expensive one examined. The most economical option was one that involved a mixture of C-33s (a proposed militarized version of the Boeing 747-400) and C-17s). This option was rejected because of the C-33's inability to handled over-sized loads, conduct airborne drops, or employ short runways. The second most economical option involved maintaining a larger fleet of C-5 aircraft and a smaller one of C-17s. This option was rejected because the C-5 is ill-suited for airborne operations and cannot employ short runways. Therefore, by a process of elimination, the most expensive option—the large C-17 fleet—was retained. Thus, the decision to issue stringent requirements for being able to conduct paratroop drops and operate from short runways resulted in the United States purchasing a much more expensive combination of strategic transport aircraft. See United States General Accounting Office, *Military Airlift: Options Exist for Meeting Requirements While Acquiring Fewer C-17s* (Washington D.C.: GAO, 1997), *passim.*

15. See Enzo Berrafato, Laurent Berrafato and Jean-Pierre Verney, *L'Italie en Guerre, 1915-1918* (Paris: 14-18 Éditions, 2006), 131-40; and Christian Haager et al., *Die Tiroler Kaiserjäger: Die Geschichte der Tiroler Eliteregimenter* (Cremona, Italy: Perisco, 2001), *passim.*

16. For these divisions' rationale, see: John Wickham, Jr., United States Army Chief of Staff, *White Paper, 1984: Light Infantry Divisions,* (Washington DC: US Army, 1984).

17. Kevin Stringer, *The Light Infantry Division: Cold War Chimera* (Lexington: Adams Center, Virginia Military Institute, 2009) available at: www.vmi.edu/uploadedFiles/Archives/Adams_Center/EssayContest/20082009/AdamsCenterEssay_StringerKD.pdf (accessed June 2014).

18. McMichael, *passim.*

19. Timothy A. Wray, *The Army's Light Infantry Divisions: An Analysis Of Advocacy And Opposition* (Washington D.C.: National War College, 2005).

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The Army Press
Fort Leavenworth, Kansas