A New Conception of

WAR

JOHN BOYD, THE U.S. MARINES, AND MANEUVER WARFARE

IAN T. BROWN

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MCUP

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To Aaron, Molly, and Josh
My favorite little warriors

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Foreword

I believe the world's greatest military theorists are Carl von Clausewitz, Sun Tzu, and John Boyd. The first two left an extraordinary legacy with their written words; Boyd, however, did not, which is unfortunate and no doubt the reason his lessons are fading into the distance for active duty military officers today. Major Ian Brown has researched and authored the material in this book to rectify that deficiency. It is a superb piece of scholarship that U.S. Marine Corps officers must read and digest if they are to truly understand the roots of maneuver warfare, and more important, advance the profession of arms with their own intellectual efforts.

In 1969, I returned from my second tour of duty in Vietnam; the first was spent as an advisor to an infantry battalion in the Vietnamese Marine Corps and the second as a rifle company commander in the 1st Marine Division. Like many young Marine Corps officers, I was dissatisfied with much of what I had learned from instructors at Marine Corps Base Quantico's Basic School and Amphibious Warfare School before going off to war. My dissatisfaction stemmed not so much from the tactics, employment of weapons, or small unit leadership we were taught—all of which seemed to work well during combat—but in terms of any real knowledge of war as a phenomenon that unfolds with its own

dynamics. Before and during the war, the belief that combat leaders could make events play out like clockwork prevailed at Quantico, the "Crossroads of the Corps," and throughout the operating forces, if these leaders would just follow accepted procedures.

Too much of the instruction I received, especially at the Amphibious Warfare School, focused on the techniques of business management, particularly system analysis as espoused by the then-secretary of defense, Robert S. McNamara. The notion that leaders could resolve tactical and operational problems by reducing them to their constituent components for study and afterward reassembling them into a coherent whole was prevalent in most of the classes on planning and decision making. Students spent an inordinate amount of time learning to employ various rule-based processes, many of which had numerous subroutines that they were to master. The focus was inward on elaborate step-by-step methods rather than the situation or problem at hand.

Never did map exercises or war games allow for a simulated enemy to work against students' plans and orders. Rather, instructors injected scripted actions to ensure they covered teaching points largely oriented to factual information; students were not expected to exhibit initiative, but rather to arrive at a solution closely approximating one described in the *yellow*, a detailed handout provided at the end of each class as the school solution.

The so-called received wisdom offered at what was known during the 1960s as Marine Corps Schools Quantico did not prove so wise when one considers that the U.S. military won every battle and engagement—often at great cost—while failing to win the war in Vietnam. Tactical excellence alone was insufficient. Operational art was a lost art. Many junior and midgrade officers pondered why this was the case.

Though scores of officers from my generation yearned to understand war in a different way during the early 1970s, few guideposts were readily available to establish a meaningful method of personal education. I found reading military history to be one option, an early habit I continued in earnest while serving as a battalion and later regimental operations officer in 1974 and 1976. It was not until I attended the Naval Command and Staff Course at

the U.S. Naval War College in 1977 and 1978, however, that I was able to properly direct my reading interests. A few years earlier, Admiral Stansfield Turner had upended the "take a year off and spend time with your family while improving your golf game" curricula at the college when he introduced the requirement for academic rigor and meaningful courses of instruction. Here, I found professional military education at its finest. Along with other students I was able to view war through the eyes of Thucydides's classic, *Peloponnesian Wars*, and understand its true nature by burrowing deeply into Carl von Clausewitz's opus, *On War*.

It was during these same years that articles in military journals, most particularly the *Marine Corps Gazette*, proposed a different way of fighting, which its advocates named *maneuver warfare*. Frequently misinterpreted to mean the maneuvering of large mechanized units, the term actually refers to a different manner of thinking about how to fight. In a nascent way, military history and these new concepts merged in my mind and those of contemporaries such as future Generals Anthony C. Zinni, Richard I. Neal, and Charles E. Wilhelm.

At the same time, the name of John Boyd, a retired U.S. Air Force fighter pilot, began to surface in professional conversations and a few articles. I first became aware of him while at the Naval War College when my twin brother, Jim, then a student at Marine Corps Command and Staff College, sent me a paper copy of one of Boyd's early acetate slide briefings. On the front cover, he wrote in red ink, "This is either the most brilliant military officer I have ever listened to, or he is nuts! I'm not sure which." His puzzlement was not uncommon and led many officers to too easily dismiss the ideas Boyd had developed through his own experiences and eclectic reading habits. As my brother and I were to eventually learn, Boyd, though an iconoclast, was anything but nuts.

I would not meet John Boyd until 10 years later, by which time, he was known by many officers in the Corps largely due to the proselytizing of the man and his ideas by then-Major Michael D. Wyly. During that decade, I had a unique opportunity to delve deeper into and to experiment with the emerging ideas of maneuver warfare while serving in an infantry battalion, infantry

regiment, Marine division, and Marine Expeditionary Force. I was fortunate in all of these assignments to have senior leaders willing to move away from Vietnam-era thought, especially Lieutenant Generals H. C. Stackpole III, Edwin Godfrey, and Ernest C. Cheatham Jr. Though not fully formed, maneuver warfare thinking did prove its value in numerous war games and field exercises during those years.

The opportunity to meet John Boyd came in 1988, when Marine Corps Commandant General Alfred M. Gray Jr. assigned me as the director of Command and Staff College and issued me mission-type orders: "Imbue the curriculum with history and maneuver warfare and set the direction for this college to become the finest of its kind in the world." Early in my tour, a few advanced-thinking faculty members arranged for Boyd to visit; my view of the world has never been the same since that first meeting and the myriad follow-on discourses we enjoyed. Boyd lived up to his well-earned reputation as a zealot who did not suffer fools easily. Once he knew you were paying attention, though, he never hesitated to engage, often at a most unreasonable time of day; a 0200 phone call from Boyd was not unusual. His intensity was beyond anyone's I had ever known. Our daughter, Cindy, soon recognized his voice when answering our telephone, but she seldom identified him by name, simply saying, "Dad, the man you take your glasses off for is on the phone." Cindy had regularly seen me remove my glasses, close my eyes, and lower my head on these calls so that I could shut out all distractions and focus on Boyd's profound thoughts.

In 1988, Marine Corps Combat Development Command, newly named by General Gray, was fast becoming the center of a Corps-wide intellectual renaissance. There was a feeling of excitement in the air that lasted through the late 1990s. Formal and informal groups were meeting constantly to debate the future of the Corps and to explore operational concepts. In most of these gatherings, it was never the rank of an individual or their billet that was significant; it was the merit of an idea that won the day. Many a time, I heard a captain or major say something like, "General, your approach to this problem won't cut it in the real world, sir," and an energetic back-and-forth began, with other officers of

all grades entering the fray with passion. After duty hours, plans were commonly put on hold when a telephone call announced that a group of officers planned to assemble at 1730 to discuss some doctrinal topic they deemed important. These gatherings occasionally extended late into the night.

When General Gray decreed that there was to be a new and different capstone doctrinal manual for the Marine Corps, he took the unprecedented step of tasking a junior captain, John F. Schmitt, to author the publication. Drawing on the thoughts of the world's greatest military theorists—Clausewitz, Sun Tzu, and Boyd—Captain Schmitt was to write a seminal document that has had more influence on the Corps' way of thinking about war and warfare than any previous manual. Its republication in at least a half-dozen foreign languages and adoption by many commercial firms attests to its distinctive character, as does the fact it has stood the test of time, having undergone only one minor revision in the 29 years since General Gray approved it with his signature. During that revision, Boyd's influence was more pronounced, because what many saw as a new science commonly called *chaos* or *complexity theory*, which had found its way into Marine Corps deliberations about the fundamental nonlinear nature of war, was not new to him. He had read the important works on nonlinearity long before they were known to most military theorists and doctrine writers and had incorporated their reasoning into his own theories.

Boyd promulgated his insights on warfare in a series of lengthy briefings rather than writing. Yet, in a very real sense, each briefing was like a small book because most of his hundreds of slides were copies of his typewritten thoughts. Collected, they would surely fill scores of pages, though lacking detailed transitions—Boyd used his own spoken words to accomplish that purpose—such a work would not make for easy reading. His presentations were intricate but logical assemblages drawn from a wide-ranging study of history and science. Boyd built each one based on a series of simple notions that he amalgamated into a new understanding of a complex problem. In his presentations, he repeatedly returned to previous elements of his argument to ensure his audience could see the reasoning behind every step. Nonetheless, over time, others

reduced his rich concepts to one notion: observe, orient, decide, and act (the now near-ubiquitous "OODA loop"). I often liken this to the famous Swiss mathematician Leonhard Euler's capturing of complex mathematical relationships in a simple expression; one that noted American physicist Richard Feynman called "the most remarkable formula in mathematics."[1] Like Euler's formula, there is a wealth of information and thought behind Boyd's OODA loop, and putting forth either formula without knowledge of what is behind it is an intellectual travesty. Yet, that is exactly what is currently taking place in our Corps and elsewhere.

While filling the Donald Bren Chair and subsequently the Kim T. Adamson Chair for Terrorism and Insurgency at Marine Corps University from 2004 through 2017, and in lecturing at many other U.S. military professional military education institutions, I found only a handful of officers who knew more about John Boyd than his OODA loop. For this reason, I developed and offered a 10-seminar elective on John Boyd and his theories for Marine Corps Command and Staff College students with the hope that I could revive interest in the man and his ideas. Surprisingly, it was a popular course among Air Force officers, but less so with Marine Corps officers. In the end, my effort did little to inspire greater knowledge about this remarkable thinker that Marines across the Corps need.

Several years ago, then acting director of the Marine Corps University's Archives Branch, Dr. James Ginther, and I were discussing the merits of each of the three worthy existing books on John Boyd and his theories when Ginther remarked that he believed the seminal book on John Boyd and his work, especially with Marines, was yet to be written. I think Ian Brown's book is that book. I hope Dr. Ginther agrees.

There are many reasons I think Ian Brown has achieved this unique merit. First, none of the research done by authors of the

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[1] Between 1740 and 1748, Euler developed a mathematical formula establishing the "fundamental relationship between trigonometric functions and the complex exponential function." Carl B. Boyer, "Leonard Euler," *Encyclopedia Britannica*, 8 April 2018.

other credible works on John Boyd and his theories is as extensive as Brown's. His comprehensive examination of relevant issues of *Marine Corps Gazette* is unmatched. Likewise, uncovering an audio recording of Boyd's essential presentation, "Patterns of Conflict," he transcribed that recording to give him critical insights unavailable to earlier authors. Similarly, his extensive interviews of not only the well-known key participants in the Marine Corps post–Vietnam War intellectual revival but also of many lesser known, yet no less important, contributors provided a new and often distinctive understanding of events and actions. Additionally, Brown had the advantage of listening to oral histories of Marines responsible for doctrinal development in the 1970s and 1980s that were recorded subsequent to the research of previous authors. Finally, he has adeptly woven together the many threads of this story in a comprehensive, straightforward, clear, and concise manner. For Marines and those who observe and study the Marine Corps way of warfighting, Ian Brown's book provides a story for the ages.

Lieutenant General Paul K. Van Riper
USMC (Ret)

Preface

I did not plan to write this book. As John Boyd once said of his own historical journey, it was an accident. Four years ago, I was working toward my master's degree and had to write a short paper on one of the great thinkers in military theory. At that time, the entirety of my knowledge on Boyd consisted of a vague association between his name, the observe, orient, decide, and act (OODA) loop that had popped up in a couple of aviation tactics briefs I had seen, and a doctrinal publication I had last read at The Basic School 10 years prior. But for this assignment, I figured my classmates—all civilians—would go for one of the well-known names like Sun Tzu or Carl von Clausewitz. I hoped to at least get extra points for sparing my instructor the umpteenth regurgitation of *On War*, and so picked John Boyd. After all, Boyd must have had some good ideas to merit mention in our capstone doctrine and tactics briefs, and perhaps the instructor—a retired colonel of the 8th Canadian Hussars armored regiment—would be unfamiliar with him. Maybe I would earn points for novelty, if nothing else. Naturally, this approach backfired. Responding to my choice, the instructor said simply: "Marine, Boyd is one of my favorites. Don't screw it up."

I never imagined that Boyd's name had been heard outside the U.S. Marine Corps, let alone north of the border. But I quickly

learned that there was much more to Boyd and his ideas than I could capture in a 15-page paper, and so I ended up writing my thesis on him and his contribution to Marine Corps doctrine. I learned that his concepts on conflict came in the wake of a long and unprecedented U.S. Air Force career. By the time he retired, Boyd had designed two different fighter aircraft, developed a groundbreaking equation on energy relationships, and literally written the book on air-to-air combat tactics. I learned that such commonly known ideas as the OODA loop barely scratched the surface of what he was trying to convey. I learned that many of his theories remain highly relevant in today's threat environment, yet they are unknown because the bulk of his work was unpublished or inaccessible.

The more I explored Boyd's work and influence, the more I learned, and the more I felt compelled to write about it. I drove my wife crazy talking about Boyd, because each time I thought I was done with him, I found some new wrinkle in his slides or oral history that launched me down a different path to write another piece that I then politely asked her, as an editor, to read. When I could not fit all my thoughts into the brief space of a *Marine Corps Gazette* article, I submitted a revamped version of my thesis to the Marine Corps History Division with the hope that they might publish it in their journal. They told me that my draft was too long for the journal, and then, utterly unexpectedly, offered to publish it as a monograph if I could flesh it out.

In my journal submission, I truly thought I had plumbed Boyd's depths as much as possible. With the History Division's offer, I returned to his original works and found I was wrong. His briefings and oral history interviews offered new insights each time I went back to them, so fleshing out the manuscript was not the problem. Rather, it was how to do justice to the ideas of a man who had built a rich and multilayered concept of conflict and bequeathed it to the Marine Corps, doing so in a way that was both comprehensible and, against my own bad habits, brief.

This book is my attempt to do that. I hope I did not screw it up.

Ian T. Brown
San Diego, California

Acknowledgments

Victory has many fathers; defeat is an orphan. That is certainly the case with this book, built as it was on several excellent works that preceded it, and with the assistance of individuals from a multitude of organizations. Any success I owe to them; failures, errors, and omissions are entirely my own.

First and foremost, I must thank my parents, David and Claudia. They sacrificed much to ensure that I received the best education possible, and it was thanks to their dedication that I was introduced to a slew of high school teachers and college professors who taught me how to think, analyze, and write. They also first gave me the deep and abiding love for history, particularly military history, that I carry to this day. Were it not for childhood vacations spent walking through Gettysburg, Yorktown, and countless other fields of conflict, this book would not exist.

That this book exists is also due to the support of the Marine Corps History Division at Marine Corps University (MCU). As previously noted, I originally submitted this work as a journal article. The historians and editors could easily have rejected it as unsuitable for their journal and left it at that. Instead, they gave me the unexpected opportunity to publish it as a book. I remain humbled and grateful for their decision to give such a chance to a

nonacademic who had never published a book, and whose work on the project would always be subject to the vagaries of Marine Corps service.

There are several individuals affiliated with the History Division who deserve particular thanks. At the top of that list is Dr. Alexandra Kindell, the editor who received the unenviable task of turning my jumbled article into a book. Her suggestions helped drive my research in valuable new directions, and always made the manuscript better. She had the highest level of enthusiasm for the project, which translated into motivation that I sometimes sorely needed to get the book across the finish line. Stephani Miller patiently talked me through her mysterious house styles as she copyedited each chapter. Angela Anderson gave the project final approval and provided the key breakthrough on cover design. I also owe thanks to Dr. Fred Allison and Dr. James Ginther, both of whom located a wealth of audiovisual sources and transcripts relating to Boyd and maneuver warfare, many of which had not been previously published; and Colonel Ray Damm (Ret), director of MAGTF Integration Group, for providing an advance copy of the interview with Generals Alfred M. Gray Jr. and Paul K. Van Riper, and Major John Schmitt.

The pages of the *Marine Corps Gazette* provided much of my research, and I must thank especially its former editor and publisher, Colonel John Keenan (Ret). He put me in touch with Robert Coram and Boyd's circle of "acolytes" and provided a number of timely contemporary resources on Boyd.

From the Archives Branch of the Marine Corps History Division, the archivists who helped me sort through the vast holdings of the archives, and especially Greg Cina, head of the Library of the Marine Corps' Research Library, for providing recommendations on relevant holdings that proved invaluable to the book's argument.

The Marine Corps Heritage Foundation provided a very generous grant that facilitated my transcription work on the audio recordings of "Patterns of Conflict." Perhaps more so even than this book, I believe that having a written version of Boyd's presentation available as a tool for future researchers will pay dividends for

those seeking a deeper understanding of Boyd and the foundation of maneuver warfare. I could not have completed the transcription in anything approaching a reasonable time frame without the foundation's support.

Among those who provided feedback on various versions of the manuscript, I owe thanks to Dr. Nathan Packard, currently of Marine Corps Command and Staff College, both for his informal comments on the book itself and his permission to use his unpublished dissertation on the many other Marine Corps reforms that occurred during the same period my book covers. Major General William F. Mullen III, commanding general of the MAGTF Training Command in Twentynine Palms, California, kindly took extra time that I am sure he did not have out of his schedule to review the later version of the manuscript and provided key feedback in several areas prior to publication. And my thanks, finally, to the anonymous peer reviewers who donated their own time to provide valuable comments during the final stages of the project.

Several former Marines deserve great credit for not directing my cold-call emails to their spam folders. Thanks to Colonel Keenan, I tracked down Colonel Wyly relatively easily, and he was very patient in helping me get the timeline of many events in the 1980s in their proper order. Stephen Miller was a pure shot in the dark, but with the miracle of social media I found somebody by the same name, and from a tentative email learned that it was indeed the same man whose articles got so much credit for kicking the maneuver warfare debate into high gear, yet about whom so little was known. I am grateful for the chance to tell his story here. Finally, Lieutenant General Paul K. Van Riper did not seem to mind me grabbing his email address from MCU's Case Method Club distribution list, and generously agreed to write the foreword for a manuscript dropped in his lap by an unknown author. All three were exemplars of Marines helping fellow Marines.

Outside Marine Corps circles, I owe a special thanks to Dr. Charles Oliviero and Dr. David Ulbrich, both of the Norwich University Military History program. Dr. Oliviero read the very first version of this work and has been a ready resource for feedback and additional material whenever I asked for it. Dr. Ulbrich

helped me take my original paper from a 15-page baby to a master's thesis, and he deserves special credit for encouraging me to plug into the wider world of professional historians. Both greatly influenced the shape this project ultimately took.

Last, but by no means least: Brianne Brown, my wife and in-house editor, who has read every single version of every page I have written about John Boyd and maneuver warfare for my master's project, *Gazette* articles, and this book (and really hopes I am done this time), all pro bono while working several other editorial jobs that actually paid for her time. Few now exceed her in knowledge of maneuver warfare. M/L.

To these and the many others who made this work possible, I am deeply indebted and grateful for your support.

Introduction

In 1989, General Alfred M. Gray Jr., 29th Commandant of the Marine Corps, signed his name to a short doctrinal manual entitled *Warfighting*, Fleet Marine Force Manual (FMFM) 1.[2] In itself, this was an unremarkable act; many a forest has been felled producing military doctrinal publications on every topic from emplacing a machine gun to folding socks. But the manual that General Gray charged every Marine to "read and reread" was different.[3] The manual's very label as Fleet Marine Force Manual 1 hinted as such, with the "1" indicating its preeminence over all other doctrine. *Warfighting* was not a how-to guide for digging a fighting position or landing on a beach but rather a conceptual framework for thinking about war itself. This framework focused on attacking an adversary's mental and moral cohesion, with the goal of disrupting their ability to think and respond effectively to those friendly activities directed against them. Termed *maneuver warfare*, this approach did not operate at the physical level of weapons and technology so much

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[2] MCU Press's editorial style treats military publication designations as separate from a publication's title; for example, *Warfighting*, FMFM-1, rather than the military usage of FMFM-1 *Warfighting.*

[3] "*FMFM–1* Warfighting," in *Warfighting: Maneuver Warfare in the U.S. Marine Corps*, ed. LtCol H. T. Hayden (London: Greenhill Books, 1995), 36.

as it did at the spiritual level of the human operators behind them.

Such a focus was ideal for the Marine Corps, tasked as it was to be the nation's force in readiness. This statutory responsibility meant that the Corps' expeditionary forces could, as first responders, be called upon to face adversaries ranging from lightly equipped guerrillas to heavily armed Soviet-style conventional forces. With the smallest force size and portion of the defense budget, it would be impossible for the Marine Corps to materially equip itself for this range of contingencies. Yet these threats had one thing in common: whatever the weapon system, table of organization, or numbers arrayed against a Marine force, all were guided by human minds. The human focus of maneuver warfare made it eminently useful for a military organization that operated under significant physical constraints and yet had to be prepared to fight in myriad combat environments. Maneuver warfare demanded its practitioners think deeply on what gave an adversary cohesion; then, using the modest but infinitely tailorable resources of the Marine Air-Ground Task Force (MAGTF), attack those key linkages to cut up an enemy into uncooperative components. So long as the adversary's ability to think and resist could be degraded and kept that way, the wholesale destruction of their armed forces was not required. This revelation was particularly important to the Marine Corps, whose small size meant that it could not sustain a one-for-one attritional exchange with a numerically superior enemy.

The Marine Corps' doctrine of maneuver warfare did not spring into existence ex nihilo. Rather, it was the product of two interrelated threads that eventually wove together until culminating in the 1989 manual. The first thread was spun during a long period of institutional soul searching following the end of the Vietnam War. Historically, the Marine Corps has always been an introspective organization. This introspection was not always expressed evenly in the Corps' subordinate elements, subject as it was to the strengths, weaknesses, and foibles of any human institution; the drivers of introspection and innovation could change through the years and enjoy varying levels of official endorsement. As such, the maneuver warfare debate contrasted with another pe-

riod of significant institutional change: the development and adoption of amphibious doctrine following World War I. In the case of amphibious warfare, senior Marine Corps leaders recognized the need to operate across the vast reaches of the Pacific Ocean and directed that the whole institution prepare for that scenario, to the point that the students of official training schools in Quantico were diverted from their normal studies to write amphibious doctrine. In the Vietnam era, the dynamic changed, with senior leaders grappling with the many corrosive effects the stalemate in Vietnam had on the total force and training schools focusing on getting their students to the fight as quickly as possible rather than engaging in military theorizing. Yet the institutional culture of adaptation and flexibility was still transmitted to Marines through the Corps' history and traditions and was received by willing individuals who recognized what the Corps strove to be. If Vietnam had distracted the formal organs of Marine Corps bureaucracy from adapting to the future, then Marines would find their own informal ways of keeping the institution useful. The *Marine Corps Gazette*, in particular, proved a key outlet for the grassroots movement toward maneuver warfare.

Thus, the course of the Marine Corps through the twentieth century was charted by a desire to be a useful contributor to national defense, and the Corps regularly adapted its mission and organization to the exigency of the day. But Vietnam added new urgency to this attitude. Faced with the bitter reality that the Corps' performance and bloody sacrifice in that conflict had not staved off defeat, many Marines searched for new ideas on fighting that would prevent such costly failures in the future. The revelations of Vietnam were combined with a larger one: that the post–Vietnam threat landscape was quite different from the one that preceded the war. In this new world, the Marine Corps grappled with two key questions: What was its role, and what was the best way to fulfill that role? A handful of Marines and civilians teased out the rough concept of maneuver warfare, which they believed provided both a more successful method of fighting and the answer to the Corps' two questions.

The second thread originated not in an institution but in the

relentlessly curious mind of a retired Air Force colonel whose previous experiences in combat and aircraft design had sparked deeper insights on warfare. Colonel John R. Boyd would provide the intellectual foundation for maneuver warfare by way of a presentation entitled "Patterns of Conflict." Colonel Boyd's presentation resonated with those Marines seeking to reposition the Corps for success in the post–Vietnam world by addressing institutional shortcomings in the last war. These included ignorance of history's lessons and the failure to understand the mental and moral dimensions of their enemy. In Boyd's theory, the *moral* realm encompasses culturally dictated codes and standards of behavior that shape one's responses and contribute to the formation and sustaining of social bonds.

What ultimately brought these threads together into a single weave was a worldview shared both institutionally by the Marine Corps and individually by Boyd. This outlook could be summed up in Boyd's frequent admonition "to be or to do."[4] Boyd meant that, on the one hand, one could make a name for oneself from past accomplishments, doing the "right" things, holding the "right" jobs, and coasting on faded glory. Or, on the other hand, one could try to achieve something concrete in the here and now, whether or not it made one popular, famous, or took one down the "right" career track. One had a choice: focus on being well known or on being useful.

Growing up during the Great Depression, Boyd developed the drive to produce and practiced it throughout his life. He always felt compelled to do something concrete in the here and now. This was reflected throughout his career, from developing theoretical equations, to aircraft design, to studying history for those invariants that brought success to battlefield commanders.

In this, Boyd never stopped to coast on past achievements, such as creating the Energy-Maneuverability (E-M) Theory for aircraft performance or designing well-known fighter aircraft. Resting on his laurels would have been easy. He could have stopped after any

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[4] Robert Coram, *Boyd: The Fighter Pilot Who Changed the Art of War* (New York: Little, Brown, 2002), 285–86.

of his achievements and leveraged their fame for years without doing anything new, but that was not Boyd's style; he had to produce, to contribute, to be useful rather than become famous and stagnate.

The Marine Corps also exhibited a drive to be useful, going back at least as far as the interwar years when Boyd was growing up and ingrained institutionally by its fight for existence after the Second World War. The Marine Corps did not rest on its past laurels as the victor of Belleau Wood or on its legacy of amphibious operations in the Pacific theater. It felt an inherent need to justify itself in terms of utility today, to provide a concrete capability in the here and now. There was an element of institutional paranoia, a product of past attempts to kill the Corps, but one cannot ascribe fear as the Corps' only motive for change. There was always a desire to provide some good, some resource of value to the nation's defense. It always held an attitude, subconscious or not, that "the Marine Corps' future lies in being useful."[5]

And herein lay the convergence between Boyd and the Marine Corps. This attitude of usefulness meant adapting to new circumstances as they arose so that one could survive and thrive. Such adaptability required a mind-set that could recognize when circumstances changed, process the new information, and make those decisions necessary to adapt and triumph. This is what Boyd made manifest in "Patterns of Conflict" and its framework for maneuver warfare. The Marine Corps quite arguably had executed this process for decades as it fought for its place in the national defense community, from being the Navy's police and landing force before World War I, to seizing advanced bases and amphibious operations in World War II, to a force in readiness after World War II, to whatever its new role would be after Vietnam. But the Marine Corps did this subconsciously, without recognizing the underlying mechanics.

Boyd made evident the mechanics. He synthesized a "theme for vitality and growth," and he showed how it could be used both "constructively" for self-survival and "destructively" against exter-

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[5] Russell Murray II, "The Marine Corps' Future Lies in Being Useful," *Marine Corps Gazette* 64, no. 8 (August 1980): 24−29.

nal threats to survival.[6] This was what the military existed to do anyway. Boyd illuminated something that the institution already knew and practiced at an instinctual level. In return, the Marine Corps adopted his warfighting concepts for use in a new threat environment in which the variety of possible adversaries required a mental framework of infinite flexibility that zeroed in on the one thing every adversary shared: a human mind.

The purpose of this book is to explore how these two threads evolved and ultimately converged. First, it examines Boyd's early life and military career, outlining how he exhibited his personal drive to be useful and how he applied it from the open skies of aerial combat to the halls of the Pentagon. It also discusses his first glimmerings of a grander idea of conflict, developed from several insights gleaned through decades of military service. From there, it outlines the Marine Corps' tradition of adapting to remain useful and places it in the context of an institutional realization that the post–Vietnam world required another adaptive leap to retain its advertised utility. It continues with a discussion of initial attempts by Marines and interested civilians to find answers to two key questions—what was the Corps' role in the new threat environment, and what organizing principle should it use to fulfill this role—and concludes with the initial discussions about the maneuver warfare concept, which a handful of thinkers believed was the answer to those questions. The book then returns to Boyd and his development of the ideas on conflict that would become the intellectual foundation of maneuver warfare. It illustrates the key events that ultimately led him to create a mental framework for conceptualizing survival and decision making as described in his essay, "Destruction and Creation," and then applying that framework to the realm of warfare in "Patterns of Conflict." After summarizing the central insights from those two works, it explains general misconceptions about each that arose as Boyd's theories gained a wider audience and shows how the ideas from "Patterns of Conflict" became enmeshed with the debate about maneuver warfare. It

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[6] John R. Boyd, "Patterns of Conflict," in *A Discourse on Winning and Losing* (Quantico, VA: August 1987), 144, hereafter "Patterns of Conflict."

also discusses objections to the maneuver warfare concept raised at the time and how the misunderstandings surrounding Boyd's ideas contributed to the resistance against maneuver warfare. The discussion identifies four key individuals with whom Boyd's ideas particularly resonated and describes how those individuals would finally, in 1989, be in positions whereby they could officially make maneuver warfare the organizing principle that would guide the Marine Corps' approach to future war. This work concludes with a discussion of the extent to which the Corps institutionalized and practiced the ideas of maneuver warfare in combat operations during the past three decades.

While this book is a history, the reader should not shoehorn it into specific categories. It is part institutional history, as the Corps' tradition as an adaptive institution—with its experience in Vietnam accelerating its adaptivity—made it receptive to new ideas that could safeguard its future utility for national defense. It is also intellectual history, tracing how Boyd's mind absorbed, processed, and refined concepts from myriad disciplines, first into an abstract decision-making model in "Destruction and Creation," and then with the application of that model to real-world conflict. And it is biographical, as the life events of not only Boyd but also the many Marines who contributed to the maneuver warfare debate from beginning to end were critical to shaping their perceptions on war.

A word of caution to the reader: while this book contains biographical elements, it is not a comprehensive biography of John Boyd. Boyd's life and personal idiosyncrasies have been covered extensively in two biographies and several other books and articles by those who knew him intimately, and this work is not an attempt to recreate them. Here, Boyd's life experiences will be examined in the context of how they shaped and steered his innate drive to produce and how they fed into his development of those ideas on conflict that ultimately influenced the Marine Corps. This work does not claim that Boyd was a man without flaws, or that his singularity of vision had no repercussions. Boyd's drive to produce often ignored military traditions of rank and chain of command; if he felt he was being stymied, he often simply went around the person blocking him to the next senior person who would listen.

Or, just as often, Boyd would confront that person in profane and insulting terms. However, it should be noted that—paraphrasing one of Boyd's own comments—he did not immediately default to verbally beating down an opponent. If the person, though skeptical, heard Boyd out, he took the time to explain his thoughts. It was those critics who refused to even give him a hearing that Boyd excoriated. This also illustrates how Boyd, despite his regular clashes with higher ranks, could still cultivate constructive relationships with senior leaders in the Army and Marine Corps who let him explain himself, to the point where he greatly assisted in revising *Warfighting* in 1997, the same year as his death.

Boyd also was determined to maintain a strict independence to pursue his ideas; consequently, he eschewed speaking and travel fees when invited to lecture, and following his military retirement, he refused to be paid for more than one day of work every two weeks while working as a civilian analyst at the Pentagon, lest he become beholden to the agencies giving him money. Boyd's family was thus forced to live in very austere conditions for the sake of his ideological freedom. Boyd produced and maintained his independence but there was undeniable collateral damage to his puritanical pursuits. But again, that is not the focus here, and readers seeking a fuller picture of Boyd's personal life are encouraged to consult his biographers.

While this book crosses several subdisciplines of history, it may be viewed as a data point for a bottom-up model of innovation in the realm of innovation studies. As noted by Adam Grissom, most schools of thought on military innovation advocate a top-down model to describe change. These schools collectively view militaries as "intrinsically inflexible, prone to stagnation, and fearful of change"; such resistance must be overcome by "senior officers and/or civilians" who can "bludgeon, politically leverage, or culturally manipulate the organization into compliance."[7] The belief in the criticality of powerful leaders at the top is shared even by

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[7] Adam Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (October 2006): 919–20, https://doi.org/10.1080/01402390600901067.

those thinkers, such as Stephen Rosen, who reject as inaccurate the assumption of institutional inertia within most armed forces. Rosen argued that "respected senior military officers" were still needed to formulate the strategy for innovation, spread the new ideas throughout the military's culture, and clear the way bureaucratically for the rise of like-minded junior officers.[8]

Such a characterization does not describe the maneuver warfare debate portrayed throughout this book. The adoption of maneuver warfare by the Marine Corps offers itself as a potential case of bottom-up military innovation. The top-down model was not entirely absent, since the Corps, as a "learning organization," had enjoyed a culture of self-reflection and inquiry for decades, which maneuverists exploited.[9] The maneuver warfare movement also enjoyed a powerful patron in General Gray, who, as he moved toward the top of the institution, gave maneuverists the top-level leader that could make their ideas stick. But the debate—from the unrefined ideas at its inception to the back-and-forth that honed those ideas and spread the message—was born and grew from the bottom. Maneuver warfare came from the ground-level work of Boyd and his development of a detailed intellectual framework. Boyd's ideas, in turn, gained hold among intellectually curious junior and midgrade officers and civilians such as Captain Stephen W. Miller, Colonel Michael D. Wyly, William S. Lind, and others writing in the *Marine Corps Gazette*, who then, through schools and informal organizations, pushed the debate and spread the word. Even General Gray, during his earlier years as the commander of midsize units like the 4th Marine Amphibious Brigade (4th MAB) and 2d Marine Division, can be viewed as a transitional innovator: not entirely bottom-up, as he held higher rank at the beginning of the maneuver warfare debate, but not entirely top-down either. He remained close to the members of the bottom-up echelon when he held lower-level commands, giving them a chance

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[8] Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1991), 21.

[9] Eliot A. Cohen, "Change and Transformation in Military Affairs," *Journal of Strategic Studies* 27, no. 3 (September 2004): 401, https://doi.org/10.1080/1362369042000283958.

to have their voices heard and implementing ideas he liked under his own limited authority. As will be seen in chapters 2, 3, and 6, conversation about the Corps' direction—both in broad and specific terms—was not the exclusive dialogue of generals but found much of its substance from frontline operators who believed that direction needed to change. And while the generals did not always agree with the conversation's direction, they at least allowed it to happen. While perhaps the top-down model can be used to characterize the institutional culture that allowed the maneuver warfare inquiry to exist, the inquiry and its substance were driven from the bottom up.

The astute reader knows that this book is not the first to discuss John Boyd, his conflict theories, and his influence and thus might fairly ask why another work on the subject is necessary. In reply, this author believes there are, in fact, several gaps in the historical record that this book seeks to fill. The first is a general confusion about where, precisely, the intellectual foundation that defined the maneuver warfare concept during the 1970s and 1980s originated. As will be seen, more vocal proponents of maneuver warfare—William Lind, for example—sometimes received this credit. When General Gray signed the publication that made maneuver warfare official Marine Corps doctrine, those unfamiliar with the background of the debate mistakenly believed that the theoretical foundation came from him. As a result, Boyd has been undercredited for providing that intellectual foundation, despite the fact that this contribution was well known both at the time and after his death.

Majors Gary I. Wilson and William A. Woods, two longtime maneuver advocates, noted that "the conceptual underpinnings of modern maneuver warfare find themselves in the work of Col. John Boyd."[10] Lieutenant General Paul K. Van Riper, whose career covered the breadth of the debate, stated that "from my view . . . I am firmly convinced that the ideas the Marine Corps adopt-

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[10] Maj G. I. Wilson and Maj W. A. Woods, "The Controversy: Attrition or Maneuver?," *The Word* (Marine Corps Reserve Officer Association), January–February 1984, 38–42.

ed were ideas that came from Boyd. . . . It's the conceptual, intel-
lectual portions that were from—the main source was Boyd."[11]
Lind regularly reiterated this point, even to audiences outside of
the Marine Corps:

> Working from his studies of air-to-air combat, Col. Boyd has
> generalized a theory of conflict which both *explains the essence*
> *of maneuver war* seen historically and provides a basis for fur-
> ther development of maneuver tactics. . . . *The Boyd Theory*
> *enables us to understand what happens in maneuver warfare*. It illus-
> trates for us the effect of continual relational movement.[12]

A point paper commissioned by then-Major General Gray in
1983 emphasized that

> the conceptual underpinnings of modern maneuver war-
> fare, then, had to be ferreted out of the history books by
> someone who know [*sic*] exactly what he was looking for,
> someone who could read between the lines as it were.
> Colonel John Boyd, USAF (Ret), is just that person. . . .
> Colonel Boyd's intensive studies and musings led him to
> devise a fascinating theory about the nature of conflict
> which is now known as the BOYD Theory. . . . Colonel
> Boyd's unpublished papers have been the genesis of all
> the controversy now raging over the merits of maneuver
> warfare.[13]

The paper's author is not listed but may well have been either
Major Wilson or Major Woods; both were part of the Maneuver
Warfare Board during General Gray's tenure as the commanding

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[11] LtGen Paul K. Van Riper (Ret), interview with LtCol Sean P. Callahan, 20
February 2014, transcript (Oral History Section, Marine Corps History Division,
Quantico, VA).
[12] William S. Lind, Paper for the 1980 New York Militia Association Convention,
folder 1980—"Maneuver Warfare" by W. S. Lind, box 39, Alfred M. Gray II
Papers, Personal Papers Collection, Archives Branch, Marine Corps History Di-
vision, Quantico, VA, emphasis added.
[13] Talking paper for use by MajGen A. M. Gray, Commanding General, 2d Ma-
rine Division, (Rein) FMF, 29 March 1982, folder Sep 1983—2D MARDIV Ma-
neuver Warfare Readings, box 39, Alfred M. Gray II Papers.

general of the 2d Marine Division. Its language is similar to their article, cited on page xxxiv.

Colonel Michael Wyly, a man close to Boyd and one whose influence will be outlined in chapter 6, held the same belief. While Robert Coram's biography of Boyd discusses some aspects of their professional relationship, an unpublished interview transcript makes it clear that Wyly considered Boyd the philosophical father of maneuver warfare. Wyly specifically states that "John was my teacher."[14] Coram's notes contain a great deal of similar evidence on Boyd's influence, including an article by Fred Kaplan that characterizes Boyd as "a retired Air Force colonel who is considered the intellectual leader of the movement that revived maneuver-warfare philosophy."[15] James Burton, another of Boyd's close associates, states that "the Marine Corps ingested Boyd's theories into its own doctrine. *Fleet Marine Force Manual Number 1*['s] . . . theoretical framework is clearly based on Boyd's work."[16]

Writers years removed from the maneuver warfare debate nevertheless credited Boyd's influence. Major Jeffrey Cowan called Boyd the "godfather of maneuver warfare," echoing a common refrain that "maneuver warfare was not a new concept, but the way Boyd presented it was." Cowan argued that Boyd combined moral and maneuver elements of conflict into the "counter-blitz" construct, which later "would simply be called maneuver warfare and leave its unexpected legacy on the U.S. Marine Corps."[17] Colonel William Harkin, a warfare instructor for both the Marine

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[14] Col Michael Wyly (Ret), interview with Robert Coram, 22 January 2000, transcript, folder 9, box 3, Robert Coram Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA, hereafter Wyly interview with Coram.

[15] Fred Kaplan, "Marine Who Fought Tradition Is Out; Colonel Led the Charge for Speed and Surprise," *Boston Globe*, 1 May 1991, city edition, folder 9, box 3, Robert Coram Papers.

[16] James G. Burton, *The Pentagon Wars: Reformers Challenge the Old Guard* (Annapolis: Naval Institute Press, 2014), 2–3.

[17] Maj Jeffrey L. Cowan, USAF, "From Air Force Fighter Pilot to Marine Corps Warfighting: Colonel John Boyd, His Theories on War, and their Unexpected Legacy" (master's thesis, U.S. Marine Corps Command and Staff College, 2000), 27–34.

Corps' Expeditionary Warfare School and Command and Staff College, states that by building on the theories of J. F. C. Fuller and B. H. Liddell Hart and by using extensive historical study, Boyd "arguably [laid] the foundation for maneuver warfare theory."[18] A dissertation (later revised into a book) by Anthony Piscitelli features interviews with many principal actors in the maneuver warfare story, and Piscitelli points to Boyd as the "non-Marine who entered into the intellectual and philosophical heart and soul of this evolutionary process [the maneuver warfare debate]."[19]

The Marine Corps spared no effort to publicly acknowledge Boyd's impact on its institution. Within two days of Boyd's death in 1997, Marine Corps Commandant General Charles C. Krulak contacted Boyd's family to preserve his papers, all of which now reside in the Archives Branch of the Marine Corps History Division at Marine Corps Base Quantico, Virginia.[20] Krulak also penned a remarkable tribute to Boyd, stating that thanks to the many years spent sharing ideas, presenting his briefs, and shaping the maneuver warfare debate, Boyd "was an architect of [the Desert Storm] victory as surely as if he'd commanded a fighter wing or a maneuver division in the desert." Krulak concluded: "I, and his Corps of Marines, will miss our counselor terribly."[21] The Corps can pay

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[18] Col William J. Harkin, "Maneuver Warfare in the 21st Century," *Marine Corps Gazette* 95, no. 2 (February 2011): 19–24.

[19] Anthony John Piscitelli, "The United States Marine Corps Way of War" (PhD diss., University of Glasgow, 2014), 222. Just prior to this work's publication, Piscitelli released a revised version of his dissertation as a formal monograph; see Anthony J. Piscitelli, *The Marine Corps Way of War: The Evolution of the U.S. Marine Corps from Attrition to Maneuver Warfare in the Post-Vietnam Era* (El Dorado Hills, CA: Savas Beatie, 2017). However, it does not include several sections that this author found to be among the most valuable in the original dissertation. The new book also appears to contain editing errors created by the removal of the aforementioned sections. As the original dissertation is more complete, in this author's opinion, Piscitelli's doctoral thesis is used as the primary reference throughout this work.

[20] Grant T. Hammond, *The Mind of War: John Boyd and American Security* (Washington, DC: Smithsonian Books, 2001), 205. The repository itself may be found in Col John R. Boyd Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA.

[21] Hammond, *The Mind of War*, 3–4.

no higher compliment than claiming a man as one of its own.

Another gap this book seeks to fill is in illuminating the wealth of material generated by original members of the maneuver warfare movement, which has only come out recently after the publication of the two Boyd biographies by Robert Coram and Grant Hammond. Among these materials are an individual oral history by John Schmitt, the author of the doctrinal manual that codified maneuver warfare; a group interview with Schmitt, General Gray, and General Van Riper as they reflected on the maneuver debate; and this author's own interview with Captain Miller, who as a junior officer in the late 1970s wrote the earliest articles about maneuver warfare in the *Marine Corps Gazette*. These, along with other previously unpublished material, shed new light on the path maneuverists traveled as they sought to transition Boyd's ideas into doctrine.

In related fashion, this book also attempts to make more extensive use of the primary materials left behind by Boyd himself. For example, while Robert Coram utilized Boyd's official Air Force oral history in his biography, a number of segments in the history provide deeper insight into Boyd as a man and how he developed his ideas on military conflict, particularly the mental genesis of "Patterns of Conflict." Along with the oral history, two papers critical of Boyd's brief and his OODA loop contain notes handwritten by Boyd that state what observations inspired him to create the loop in the first place. Additionally, as part of writing this book, this author completed a full written transcript of an audio copy of "Patterns of Conflict" that is among the Boyd holdings of the Marine Corps History Division archives. One of the most common critiques of Boyd is that he never wrote anything down, meaning that anyone who did not have the benefit of personally attending Boyd's brief could only access his ideas through the slide deck Boyd left behind. While these slides provide some insight, when compared with the audio and transcript of the full presentation, it becomes clear that the slides are truly only half the story. The audio recording demonstrates that Boyd often used his slides as jumping-off points for larger discussions, but the

slides do not show the give and take Boyd encouraged with his audience, which also led to further elaboration on his ideas. Thus, any analysis of Boyd's concepts that does not make use of the full audio is inherently incomplete. This includes Frans P. B. Osinga's study, though it nevertheless deserves great credit as being the only existing attempt to offer a detailed intellectual critique of Boyd's body of work.[22]

In an email exchange with this author, Osinga confirmed that he could not access the audio for "Patterns of Conflict" in writing his work.[23] As a result, he omits concepts like *fingerspitzengefühl* (or finger-tip feeling), which Boyd discussed at length in his presentation but not in his slides. Osinga also makes no reference to Boyd's oral history, in which Boyd specifically explained the thought process that resulted in "Patterns of Conflict." Osinga's book is a remarkable work of deduction based on Boyd's slides and secondary sources, and this author found it an invaluable aid for a deeper understanding of Boyd's ideas. In his email, Osinga states that he was not able to access the audio until after his book was published, but that upon listening, found nothing that contradicted his own conclusions. This holds true; it is simply this author's assertion that the fullest understanding of Boyd, both his ideas and his appeal to the Marine Corps, can only be achieved by assessing the slides and the audio/transcript as a complete work. Taken together, Boyd's original works illuminate the processes by which he developed and refined his ideas and address many of the misconceptions that grew around his meaning, which came from the relatively limited exposure many in the maneuver warfare debate had to Boyd himself. While there is insufficient room in this book for an exhaustive analysis of these resources, this author hopes that by at least introducing them, readers gain better insight into Boyd's ideas and can explore those resources more extensively on their own.

A third category of primary material this book seeks to illu-

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[22] Frans P. B. Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd* (New York: Routledge, 2007).

[23] See Frans Osinga, email message to author, 16 May 2017.

minate are the many contemporary *Marine Corps Gazette* articles that grappled with the Corps' post–Vietnam role and ultimately fed into the maneuver warfare debate. The *Gazette* was founded in 1916 by then-Colonel John A. Lejeune—who went on to become Commandant after World War I—as a "venue to debate issues of importance to the Corps and disseminate military art and science."[24] While printed journals may seem archaic to today's digital generation, the reader should remember that before the age of blogs, social media, and webpage comment threads, there were limited opportunities for members of a profession to discuss relevant topics short of physically meeting in the same place. A professional journal provided a forum for sharing new ideas, refining old ones, and debating their merits. Members of the profession participated in these discussions regardless of their geographic location, a particularly pertinent quality for an organization like the Marines, whose members were legally mandated to exercise their profession around the globe.

Those who took their professions seriously were expected to subscribe to and write for their professional journal. Before the digital age, the *Gazette* was one of the only media available to America's expeditionary warfighters for a scholarly analysis of the issues affecting them. Furthermore, as mentioned above, the *Gazette* enjoyed a disproportionately strong influence on the post–Vietnam and maneuver warfare debates, as the formal structures that had driven institutional adaptability in the past, like the Corps' most senior leaders and training schools, were otherwise grappling with the fallout of Vietnam. Finally, many involved in the maneuver warfare debate directly credited the *Gazette*, under its editor, Colonel John E. Greenwood, with being a vital and irreplaceable vehicle for sharing and refining maneuver warfare

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[24] "The *Marine Corps Gazette*: Since 1916 the Professional Journal of U.S. Marines," Marine Corps Association and Foundation, accessed 4 August 2017.

ideas.[25] For all these reasons, the *Gazette* deserves the singular focus given its articles in this book.

The *Gazette* articles of the post–Vietnam War era show an organization whose individual members were cognizant that the world around them was changing and were aggressively seeking the best way to adapt to that world and remain a relevant component of America's military strategy. As the maneuver warfare debate was born and matured, one also sees how Boyd's ideas and terminology slowly became the lexicon by which the debate was conducted, even when the debaters themselves were not conscious of it. Past works, such as Nathan Packard's dissertation, "The Marine Corps' Long March: Modernizing the Nation's Expeditionary Forces in the Aftermath of Vietnam, 1970–1991," a broad survey of institutional reforms within the Corps at the time, often include abbreviated lists of related articles.[26] But to date, there has not been an inclusive study of those articles that helped build the stage that maneuver warfare eventually occupied. This book shines a light on many such articles that have long been overlooked.

There is a final gap this book seeks to fill, and that is the absence of a study that follows the detailed thread of maneuver warfare's development through Boyd's life experiences, into the genesis and development of "Patterns of Conflict," and out into the arena of military doctrine as expressed in *Warfighting*. The existing works on Boyd tell parts of the story but not the whole story. Robert Coram's biography, *Boyd: The Fighter Pilot Who Changed the Art of War*, offers good material on Boyd's personal life and career, but it does not get into an academic analysis of Boyd's thought (a problem ex-

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[25] Coram, *Boyd*, 388–89; Capt Terry C. Pierce, USN, *Warfighting and Disruptive Technologies: Disguising Innovation* (New York: Frank Cass, 2004), 92; Fideleon Damian, "The Road to FMFM 1: The United States Marine Corps and Maneuver Warfare Doctrine, 1979–1989" (master's thesis, Kansas State University, 2008), 44–46, 110; Robert T. Foley, "Lessons in Writing from a Master: Col John E. Greenwood, USMC (Ret)," *Defence-in-Depth* (blog), 17 April 2015; and "Col John E. Greenwood, USMC (Ret), Former Editor of the *Marine Corps Gazette*, Passes Away," Marine Corps Association and Foundation, 14 April 2015.

[26] Nathan R. Packard, "The Marine Corps' Long March: Modernizing the Nation's Expeditionary Forces in the Aftermath of Vietnam, 1970–1991" (PhD diss., Georgetown University, 2014).

acerbated by a lack of footnotes and formal references). Coram's work is further plagued by demonstrable inaccuracies—some of which this book will address—which often compel the reader to consult other material for correlation.[27] Grant T. Hammond's *The Mind of War* has better documentation and greater focus on Boyd's professional career, but it does not delve as deeply into the intellectual development of maneuver warfare as Osinga's work, and it only briefly assesses Boyd's impact on the Marine Corps. In *The Pentagon Wars*, James G. Burton provides many fascinating personal insights from his friendship with Boyd, but the book's focus is naturally on Burton's own military career, and so his discussion of maneuver warfare is generally tangential. As mentioned before, Osinga's *Science, Strategy and War: The Strategic Theory of John Boyd* is by far the most detailed conceptual analysis of Boyd's essay "Destruction and Creation" and the follow-on presentations. But his brief discussion of Boyd's life and career does not reference Boyd's oral history, in which Boyd offered many specific details on those key events that ultimately drove the direction of his ideas on conflict. Nor did Osinga have access to any audiovisual records of "Patterns of Conflict." With a full transcript of that presentation now complete, it becomes clear that Boyd discussed many ideas with his lecture audience that are not covered in the slides. Boyd also emphasized certain slides and quickly shuffled through others; thus, it is only from the audiovisual records and transcript that one learns which points Boyd believed most important. While he touches on the turmoil within the American military following Vietnam, Osinga does not specifically address the history of the Marine Corps as an adaptive institution or extensively detail the maneuver warfare debate that followed Vietnam. This book, using the transcript of "Patterns of Conflict" and more of Boyd's oral history, as well as a more comprehensive assessment of *Marine Corps Gazette* articles, highlights the concepts Boyd emphasized

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[27] This may explain why Coram's book, which graced the Marine Corps Commandant's Professional Reading List for many years, was replaced in the 2017 revision by Hammond's more rigorously documented biography, *The Mind of War*. See "2017 Commandant's Professional Reading List," Library of the Marine Corps, last updated 2 May 2018.

from his own brief and ties them to the cultural undercurrents of the Marine Corps at the time.

The more general historical studies of this period also tell only pieces of the story. Works such as Allan R. Millett's *Semper Fidelis* are necessarily broad and do not dwell on the development of individual doctrinal publications.[28] In recent years, several dissertations have focused more closely on the post–Vietnam period in the Marine Corps. Packard's "The Marine Corps' Long March" provides an excellent analysis of the many equipment, personnel, and other organizational adaptations the Corps made after Vietnam. This includes a chapter on the development of *Warfighting*; however, the understandable constraints of framing this in the larger context of concurrent institutional reforms precluded a full analysis of Boyd and his influence on maneuver warfare. Piscitelli's "The United States Marine Corps Way of War" looks more deeply at the combat philosophy of the Corps throughout its history.[29] He collects a wide array of first-person accounts of recent Marine Corps combat operations, as well as interviews with many of the participants in the maneuver warfare debate. However, Piscitelli's focus is less on the development of maneuver warfare than its application as a "way of war"; as such, he does not dwell at length on the larger post–Vietnam institutional churn that made the Corps amenable to Boyd's ideas, discuss the ideas themselves in any detail, or elaborate extensively on the drafting of *Warfighting*. Fideleon Damian's master's thesis, "The Road to FMFM 1: The United States Marine Corps and Maneuver Warfare Doctrine, 1979–1989," makes the manual's development its central story, but as the title indicates, picks up the story near its middle in 1979.[30] As such, it omits the important institutional debate about the Corps' post–Vietnam War role, which preceded 1979. Damian also says very little about Boyd's life or "Patterns of Conflict," beyond acknowledging that Boyd did indeed influence the other

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[28] Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps*, rev. ed. (New York: Free Press, 1991).

[29] Piscitelli, "The United States Marine Corps Way of War."

[30] Damian, "The Road to FMFM 1."

maneuverists on whom his thesis focuses. Thus, there are many books that highlight different aspects of the story of John Boyd, the post–Vietnam War Marine Corps, and maneuver warfare, but they do not tie them all together. This book does so.

Two final goals this work hopes to achieve are not so much the filling of gaps as explaining why Boyd and his concepts remain relevant today. The first reason he remains relevant is that his legacy did not end with his death in 1997. His ideas have permeated a number of national defense concepts in the years since, and there has been a resurgent interest in applying Boyd to such modern threats as Russia, China, and the Islamic State.[31] Boyd has even been used to understand the less lethal—though no less competitive—realms of business and politics.[32] To understand why

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[31] For example: Maj David S. Fadok, USAF, "John Boyd and John Warden: Air Power's Quest for Strategic Paralysis" (master's thesis, Air University Press, 1995); John Andreas Olsen, ed., *Airpower Reborn: The Strategic Concepts of John Warden and John Boyd* (Annapolis: Naval Institute Press, 2015); Ens Steven Mason, USN, "John Boyd and Strategic Naval Air Power," *Proceedings* (U.S. Naval Institute) 129, no. 7 (July 2003): 76–78; Daniel Ford, *A Vision So Noble: John Boyd, the OODA Loop, and America's War on Terror* (Durham, NH: Warbird Books, 2010); Chester W. Richards, *A Swift, Elusive Sword: What if Sun Tzu and John Boyd Did a National Defense Review?* (Washington, DC: Center for Defense Information, 2003); B. A. Friedman, "John Boyd's Revenge: How ISIS Got Inside Our OODA Loop," *Medium*, 1 June 2015; Maj Paul Tremblay Jr., "Shaping and Adapting: Unlocking the Power of Colonel John Boyd's OODA Loop" (master's thesis, Marine Corps Command and Staff College, 2015); and Mark Safranski et al., ed., *The John Boyd Roundtable: Debating Science, Strategy, and War* (Ann Arbor, MI: Nimble Books, 2008). Dmitry Adamsky's paper on Russian new generation war (NGW) operations, while it does not reference Boyd directly, is arguably a case study of how a nation-state is actively employing many of the tenets of mental and moral warfare Boyd suggested; see Dmitry Adamsky, "Cross-Domain Coercion: The Current Russian Art of Strategy," *Proliferation Papers* (Institut Français des Relations Internationale), no. 54 (November 2015). Russian practices in the NGW construct—attacking an enemy's decision-making apparatus, waging a war of information with kinetic operations as a follow-up, using a 4:1 ratio of nonmilitary to military measures to achieve national goals, and undermining an adversary's morale, cohesion, and trust— are striking echoes of Boyd's moral aspect of warfare in "Patterns of Conflict."

[32] Chet Richards, *Certain to Win: The Strategy of John Boyd Applied to Business* (Bloomington, IN: Xlibris, 2004); Philip Gold, "John Boyd's Guide to Hasbara," *Times of Israel*, 31 August 2015; Philip Gold, "John Boyd and Israeli Retail," *Times of Israel*, 3 September 2015; and Dan McLaughlin, "Military Strategist Explains Why Donald Trump Leads—And How He Will Fail," *Federalist*, 16 December 2015.

Boyd matters today, one must understand why he mattered after Vietnam. He especially mattered to the Marine Corps then, and the Corps is rediscovering him today. The current Commandant, General Robert B. Neller, has specifically called for the Corps to "reinvigorate a Maneuver Warfare mindset for the 21st Century," a vision that has both refocused the Corps to assess new threats in the wake of wars in Iraq and Afghanistan and generated renewed debate about how well the Corps institutionalized maneuver warfare in the first place.[33] This point is addressed at length in the epilogue.

The second explanation for Boyd's continued relevance lies in understanding where his thoughts fall on the spectrum of military theory. That Boyd is used today as a model for analyzing conflict comes from the fact that he was a true theorist, and theory is far more enduring than military doctrine or strategy. Doctrine and strategy change from war to war, and even within the same war. Boyd and maneuver warfare have remained relevant from the late Cold War, through Operation Desert Storm and the Global War on Terrorism, to the continued challenges posed by both nation-states and extremist organizations today. This suggests a timelessness beyond the rotating cast of trendy operating concepts that emanate from the Pentagon. Unfortunately, modern military terms tend to define concepts to the point of meaninglessness, and so one must look elsewhere for clarity. Dr. Charles Oliviero has offered a framework for military theory that makes the delineations clear. His model is a conceptual pyramid going from the broad to the narrow. Philosophy is the foundation of everything; theory is built on top of it; theory becomes the foundation for strategy; and strategy is the basis for tactics, techniques, and procedures (TTPs).[34] Oliviero further defined each of these terms. *Philosophy*

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[33] *Fragmentary Order (FRAGO) 01/2016: Advance to Contact* (Washington, DC: Headquarters Marine Corps, 19 January 2016).

[34] Charles Oliviero, "The Complex Web of Western Military Theory: A New Model for the Investigation of Western Military Theory" (PhD diss., Royal Military College of Canada, 2006), 30. This dissertation is a draft of a larger book on military theory currently in revision by Oliviero. This author is grateful for Dr. Oliviero's permission to cite his work.

is the underlying sets of beliefs upon which a society, including its armed forces, bases all that it does. It is the most timeless, with changes measured in centuries or longer. *Theories* are compilations of principles or premises to aid in understanding. *Strategies* are plans of action to achieve goals. *TTPs* are the means of achieving those goals on a given battlefield, and given the uncertainty of combat, the most transient level of the model.[35]

Under this framework, one sees that Boyd is, at a minimum, a theorist. Indeed, it could be argued that "Destruction and Creation," as the most abstract and least militant of Boyd's works, rises to the level of philosophy. Yet, it was "Patterns of Conflict" that most influenced the Marine Corps, and so Marines had to content themselves with Boyd the theorist. However, this was no small consolation. From Oliviero's framework, it is clear that the concepts the Corps adopted from Boyd operated far above the level of TTPs, regardless of the fact that *Warfighting* was termed a doctrinal publication. Doctrine, in the form of manuals, guidebooks, and pocket checklists, is the prime avenue within the institutional military for the widespread dissemination of knowledge that military leaders believe essential for warriors down to the lowest levels to understand. Nonetheless, doctrine is rarely timeless, precisely because it is often tied to specific times, places, and battlefields and necessarily needs to be changed to ensure that the troops on the ground are doing the most effective things to achieve national goals.

General Gray believed maneuver warfare to be so important that every Marine should learn it—and not just learn it but use it as the foundation for contextualizing all other military knowledge. Thus, the Marine Corps stood alone among the other Services in having as their capstone doctrine something that was not really doctrine at all but a theory of conflict with all the temporal endurance that the most valuable theories enjoy—an enviable consolation indeed. That endurance is derived from maneuver warfare's focus on the human aspect of war, something which, over millennia of violence, has changed very little.

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[35] Oliviero, "The Complex Web of Western Military Theory," 16.

A NEW CONCEPTION OF WAR

Tending to Produce

John Boyd from the Pool to the Pentagon

In 1973, Air Force Captain Raymond J. Leopold, newly assigned to the Pentagon, found himself reporting to Colonel John Boyd. According to his foremost biographer, Robert Coram, Boyd welcomed Leopold with the following lecture:

> Tiger, one day you will come to a fork in the road. And you're going to have to make a decision about which direction you want to go. If you go that way[,] you can be somebody. You will have to make compromises and you will have to turn your back on your friends. But you will be a member of the club and you will get promoted and you will get good assignments.[1]

Boyd counseled the young captain that the other fork in the road was harder and lonelier, but it offered a chance for true accomplishment: "You can do something—something for your country and for your Air Force and for yourself. If you decide you want to do something, you may not get promoted and you may not get the good assignments and you certainly will not be a favorite

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[1] Coram, *Boyd*, 285–86.

of your superiors. But you won't have to compromise yourself."[2]

In his later years, John Boyd frequently gave the men whom he mentored his "to be or to do" speech, just as he did to Captain Leopold. This singular phrase outlined what Boyd saw as the most important choice one could make in life. One could devote one's energy to being well known or to being useful. If renown followed utility, so be it; but renown for its own sake emptied and compromised oneself too much to be valued highly. This speech manifested an attitude that first emerged when Boyd was a child during the Great Depression and was one that motivated him for the remainder of his life.

From his youth, Boyd cultivated in himself a drive to produce, to do meaningful things in the here and now. His career reflected this drive, from his development of theoretical equations and aircraft design to the study of history for the invariant ideas that brought success to the greatest battlefield commanders. Guided by this attitude, Boyd refused to cruise on old successes. Others might become complacent in their triumphs but not Boyd. A problem solved was simply a springboard to another; past victories merely grist in the mill for future ones.

This drive, combined with its particular outputs, found a kindred spirit in the post–Vietnam Marine Corps. The Marine Corps, too, had long striven to prove its utility to an American defense establishment that regularly questioned the Corps' necessity, because, as a Marine once noted during an especially tumultuous battle over the Corps' existence, "in terms of cold mechanical logic, the United States does not *need* a Marine Corps. However, for good reasons which completely transcend cold logic, the United

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[2] Coram, *Boyd*, 285–86. Capt Leopold evidently took this to heart. Following his Air Force career, he would go on to help conceive and design the Iridium satellite communication system, which allowed instant point-to-point voice communication between appropriately equipped users anywhere in the world. Variations of this speech were reported by most of Boyd's closest associates. See also Burton, *Pentagon Wars*, 37; and Franklin C. Spinney, "Genghis John," *Proceedings* (U.S. Naval Institute) 123, no. 7 (July 1997): 45.

John Boyd's official U.S. Air Force photograph, taken shortly before his retirement from active duty, ca. March 1974.
John Boyd Papers, Marine Corps Archives

States *wants* a Marine Corps."[3] Yet few desires are independent of a perceived need; for America to continue to want a Marine Corps, the Corps had to demonstrate that it fulfilled a mission the other Services could not. Prior to and during World War II, this mission was developing amphibious assault tactics and then executing them as the Navy's ground force in the maritime cam-

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[3] LtGen Victor H. Krulak (Ret), *First to Fight: An Inside View of the U.S. Marine Corps* (Annapolis: Naval Institute Press, 1984), xv, emphasis in original.

paign against Japan's Pacific empire; following that war, it became a force in readiness for emergency contingencies. In the post-Vietnam world, the Corps yet again had to prove it provided something unique. That something would be an idea taken from Boyd's mind, as Boyd struggled to find his own purpose following his retirement from the Air Force in 1975.

Boyd's impact was not limited to the Marine Corps. Before his enmeshment in the Corps' post-Vietnam reforms, he had already enjoyed a career characterized by incredible productivity and a corresponding single-mindedness to hone both himself and those around him into more productive and competitive entities. This desire made him a mover and a maverick in the American defense establishment. James Burton, another of Boyd's biographers, may have overstated the case in claiming that Boyd "almost singlehandedly . . . changed the way our military leaders think about and fight wars."[4] Yet, there was no denying the fact that, from aircraft design to conflict theory, Boyd had a hand in shaping many American military developments during the Cold War.

Boyd's influence came from an almost pathological obsession with winning that manifested itself at an early age. His obsession was not over victory for victory's sake. Though always very competitive, Boyd seemed less interested with the win itself than the mechanics behind it. The self-study of success in competition undergirded his life. It was a never-ending quest that began in the realm of youthful sport and culminated in the paramount arena of global competition: war. To explore Boyd's outlook, this chapter draws heavily on his 1977 U.S. Air Force oral history interview. This interview received brief mention by Boyd's other biographers, yet there remains a great deal of unexplored material that reveals much about his worldview and methodology.

RAISED TO PRODUCE
John Richard Boyd was born on 23 January 1927 in Erie, Pennsylvania, and shared the hardships experienced by many Americans

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[4] Burton, *Pentagon Wars*, 3.

during the Great Depression.[5] Boyd's family circumstances during the Depression—he was the fourth of five children and lost his father when he was three years old—resulted in a significant degree of personal independence, described as having "a lot of freedom to do things *as long as I tended to produce*."[6] Boyd repaid the latitude granted to him by his mother by driving himself to produce in all things, especially the realms of athletics and academics. Again, such circumstances and their by-products of expectation and personal industry were not unique during the Depression years. Boyd's zeal was singularly energetic, both during the Depression and across the span of his life. From this childhood, Boyd developed two traits that shaped his future: a fierce desire to operate on his own, doing things his own way; and an equally fierce determination to maximize self-study and deliver useful products to repay this independence.

While Boyd's experiences pushed him in a particular direction, his general worldview was a well-documented product of the era in which he was raised. Russell Baker, who joined the Army when World War II began, had a similar childhood. He repeatedly noted his mother's expectation that he make something of himself to the point that he felt ashamed when he failed to be productive, especially in supporting the family. Broader studies support this anecdotal evidence. In her survey of Depression-era youth, historian Kriste Lindenmeyer found both increased emphasis on the importance of putting hard work into one's education and the desire for self-improvement fostered by friendly competition. Interestingly, one of her subjects, in writing about the value of hard work, echoed Boyd's later "to be or to do" mantra: "you have to have ambition—you just can't have ability and personality; you

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[5] Boyd official military records, box 9, folder 6, "Research Material (14 of 18)," Robert Coram Collection, Personal Papers Collection, Archives and Special Collections Branch, Marine Corps History Division, Quantico, VA; and David R. Mets, "Boydmania," *Air & Space Power Journal* 18, no. 3 (Fall 2004): 100.

[6] John R. Boyd, U.S. Air Force Oral History (Corona Ace Interview) interview with LtCol John N. Dick Jr., 28 January 1977, transcript, box 24, folder 10, Col John R. Boyd Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA, 2, emphasis in original, hereafter Boyd Air Force oral history.

have to work." In his study of Oakland-area youth, Glen Elder, a sociologist, provided additional support for the commonality of these attitudes. The decline in a Depression-era family's capacity to support individual advancement correspondingly increased the reliance on one's personal resources for success, accelerated interest in assuming the role of an adult, and made self-realized success an individual status symbol that surpassed family status in importance. Additionally, mothers exerted significant influence on their sons in promoting individual achievement, especially in families such as Boyd's and Baker's that lacked a father figure during the Great Depression.[7]

COMPETING IN AND OUT OF THE MILITARY

Absent the outlets available during good economic times, Boyd's desire to compete and produce manifested itself predominantly in sports during his youth. Growing up near Lake Erie, he had ample opportunity to swim in the summer and skate in the winter.[8] Through junior high school, Boyd played a different sport each season, and in high school he became a championship swimmer.[9] It is worth noting his early gravitation toward sports was based on individual competition. Though Boyd proved eminently capable of operating as part of a team under the right conditions, he always viewed competition in highly personal terms.

The love of individual competition carried over into his military career. Boyd wryly noted that his reason for joining the military was because he "was 18 years old in 1945 and Uncle Sam said, 'Hey, we want your hot body.' "[10] He enlisted in the Army Air Corps at the end of World War II—ironically, first applying for

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[7] Russell Baker, *Growing Up* (New York: Signet, 1984), 17, 23, 121–22, 156, 212, 228, 233, 239–44; Kriste Lindenmeyer, *The Greatest Generation Grows Up: American Childhood in the 1930s* (Chicago: Ivan R. Dee, 2005), 113, 125, 127, 145, 198; and Glen H. Elder Jr., *Children of the Great Depression: Social Change in Life Experience* (Boulder, CO: Westview Press, 1999), 33, 81, 116, 136, 139, 141, 144.

[8] Boyd Air Force oral history, 3.

[9] Boyd Air Force oral history, 3.

[10] Boyd Air Force oral history, 4.

the aviation cadet program and being rejected for low aptitude—
and was trained as a remote control turret mechanic.[11] The war
ended before he could be assigned to a combat unit, so instead he
deployed "to meet overseas requirements" as part of occupational
forces in Japan at the end of 1945.[12] His twin drives of competi-
tion and productivity evidently did not allow him to idle away in
the lax lifestyle of occupation duty; he made himself useful as an
athletic instructor in his squadron and continued to push himself
individually as a member of the Far Eastern Swim Team.[13] Clear-
ly Boyd's superiors valued his industry, because in 1946 he was
promoted from private first class to corporal to sergeant in the
space of seven months.[14]

He was discharged in 1947, giving little consideration to a fu-
ture military career. Though privately he noted, "Well, the war is
all over now. There, of course, might be another one some day
[*sic*]." Boyd attended the University of Iowa on the GI Bill and,
seeking some extra money in his junior year, joined the Reserve
Officer Training Corps (ROTC).[15] He received a commission as
a second lieutenant in the newly independent Air Force in July
1951, after the outbreak of the Korean War.[16] Mulling his options,
Boyd's competitiveness and desire for personal freedom drove him
toward the fighter wing. As related in his oral history, "You get in
[the fighter] and the whole load is on you alone—'Can you or can
you not do it?' . . . I really believe it was a carry-over from com-
peting in sports . . . to me it was like a different kind of a sport or
a continuation of that kind of competitiveness." Boyd understood
that the military had a collective mind-set, but he still believed in
the value of individual contribution: "Granted, you are going to
work with your teammates, but a lot of it depends on how well
you do, how well *you* are trained, how well *you* think, how well *you*

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[11] Boyd official military records.

[12] Coram, *Boyd*, 29–30; Boyd Air Force oral history, 4; and Boyd official military records.

[13] Boyd Air Force oral history, 4; and Boyd official military records.

[14] Boyd official military records.

[15] Boyd Air Force oral history, 5.

[16] Coram, *Boyd*, 38; and Boyd official military records.

move."[17] He had hedged his bets that the Cold War might blow hot, and it paid off: he would become an officer and a pilot, setting him on a path that seemed unlikely just a few years before.

In flight school, the determination to produce on his own terms led Boyd to study and practice maneuvers well outside the normal flight training syllabus. Finding that the air-to-air combat curriculum boiled down to "stay inside, hose him down, and do what I tell you," Boyd experimented on his own to learn which moves increased his chances of getting in position for a kill, to the point where he began beating his own instructors.[18] This did not endear him to his teachers, but the result of his experiments was the manifestation of a subconscious impulse Boyd described as the "hunter instinct." Boyd stated that the hunter "has to see the results of his own personal victory. . . . He gives his all during that one-on-one competition and he needs his due reward or penalty. . . . I think it is a challenge due to the fact that it is a stressful situation and the fact that he can overcome that stress and come out on top." Boyd believed that the hunter, just as he did, sought stress as a way to better himself: "In many things that I do, I will set up an adversary relationship—not that I do not like the guy, that is not the point—because it sharpens me."[19] Over the years, Boyd used many people as unwilling whetstones in his quest for self-sharpening. But it is worth noting that Boyd did not consider this conflict personal but rather necessary to make himself—and, if willing to learn and adapt, his target—better, more competent, more successful. Boyd was at his best when people got "pissed off so they could fight me and I could get down to work."[20] Those who earned Boyd's genuine ire were the ones who refused to improve themselves through this sharpening process.

LESSONS IN THE AIR
Selected to fly the North American F-86 Sabre jet fighter, Boyd

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[17] Boyd Air Force oral history, 6–7, emphasis in original.
[18] Boyd Air Force oral history, 8, 15; Coram, *Boyd*, 45, 47; and Hammond, *The Mind of War*, 33.
[19] Boyd Air Force oral history, 79–80.
[20] Boyd Air Force oral history, 79–80.

North American Aviation F-86 Sabre jets on a flight line in South Korea being readied for combat, ca. June 1951. John Boyd piloted the F-86 during the waning months of the Korean War. Defense Imagery Management Operations Center

was promoted to first lieutenant in January 1953, and he finally reached an active combat theater in Korea by March.[21] While the Korean War was still hot at this point, it also was winding down, and Boyd only accumulated 29 missions and 44 combat flight

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[21] Boyd official military records.
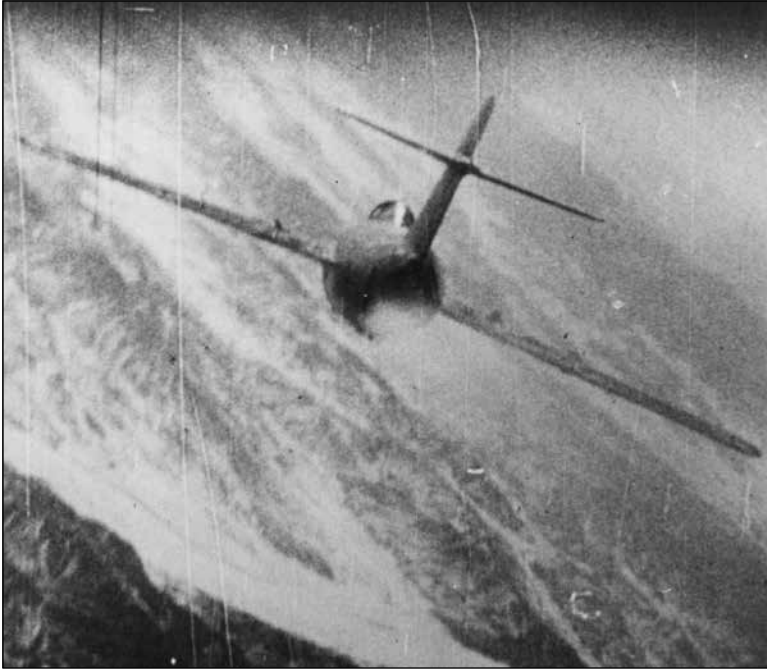
Gun camera photo of a Russian-built MiG-15 as an Air Force F-86 Sabre piloted by Capt Manuel Fernandez, 334th Fighter Interceptor Squadron, 4th Fighter Interceptor Wing, attacks from the rear, ca. 1952–53. The difference in performance between the MiG-15 and F-86 during the Korean War resonated with Boyd. Boyd revisited the disparity as he studied historical examples of mismatches and fast transient maneuvers during his development of "Patterns of Conflict."
National Museum of the U.S. Air Force

hours before the signing of the Armistice.[22] This limited experience meant that Boyd lacked the flight time to earn a leadership position as a shooter. His relatively junior position meant that he flew as a wingman, providing cover for the senior flight leaders who would maneuver themselves into position for the kill.[23] Not that Boyd never tried to get a kill himself; not given the opportunity to shoot down a Russian Mikoyan Gurevich (MiG) fighter jet, he characteristically manufactured his own. Boyd recounted

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[22] Boyd official military records.
[23] Coram, *Boyd*, 53.

a mission he flew with a Royal Air Force (RAF) exchange officer, crossing the Yalu River into Manchuria—a practice officially forbidden, though unofficially performed by many American pilots—hunting for Communist aircraft. The mission was only partly successful; Boyd and his counterpart did indeed find a swarm of MiGs to engage, but his wingman's aircraft suffered a complete electrical failure that prevented the RAF pilot from firing back. As a result, both spent the whole engagement wildly maneuvering to avoid getting shot down themselves.[24] While Boyd never recorded an enemy kill, the contrast in performance between Soviet and American fighter aircraft resonated with him, and he would revisit it later as he developed his warfighting theory.[25]

LESSONS IN THE CLASSROOM

After the Korean War ended, Boyd was reassigned to Nellis Air Force Base in Nevada in March 1954, as an F-86 instructor pilot.[26] As he had in flight school, Boyd continued to experiment on his own with fighter tactics, and his reputation as a tactician garnered an invitation to instruct at the Fighter Weapons School (FWS) that same year.[27] Boyd was unimpressed by the quality of instruction he found at FWS, deriding it as a "gunnery school"—not that gunnery was unimportant to the fighter pilot; but Boyd believed that "we had to get these guys in a position so they could use the guns." This required training beyond simply aiming at a large plastic target banner strung placidly behind an aircraft flying straight and level. He saw an urgent need to "tweak up the tactics" taught at FWS, and so he approached the commanding officer with an offer to volunteer for an undesirable billet in the academics department if he were allowed the freedom to teach tactics as he saw fit.[28] Boyd received permission to do things his way and began experimenting with both the ground and flight curricula to see what worked best.

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[24] Boyd Air Force oral history, 17–21.
[25] Coram, *Boyd*, 55–56.
[26] Boyd official military records; and Boyd Air Force oral history, 22.
[27] Boyd Air Force oral history, 22–23.
[28] Boyd Air Force oral history, 22–25.

As he did this, his sharpening process again manifested itself as he figured out the best way to teach his students. At the time, a prevalent attitude at FWS drove instructors to give their students an initial win to build their confidence. On the one hand, Boyd did not think this valuable, as a student simply handed a win would not learn anything; on the other hand, it was equally worthless to let instructors use their superior skills to constantly beat up on students. He "had the feeling that if you just kept beating a guy, that you would destroy him."[29] Instead, Boyd tailored the curriculum to the strengths and weaknesses of the individual student when that student showed a true willingness to learn. If a student thought they already knew all the answers—an attitude Boyd called the "obstruction"—Boyd took them into the air, and "as soon as I would spot him, I would cut his balls off in 10 seconds." He called this giving the "hardheads who did not want to learn . . . the 2 by 4."[30] Boyd continually gave those who refused to open their minds to new ideas the same treatment throughout his life.

While tweaking the academic curriculum, Boyd did not neglect his aerial combat skills. His time at Nellis gave birth to the legend of "40-Second Boyd." He had a standing bet that he would meet any pilot over a preselected patch of ground, get on his tail for a kill within 40 seconds of the engagement commencing, or pay the victor $40.[31] No pilot ever collected on that bet.

By 1957, Boyd—now a captain—and his fellow instructors had amended the academic program to their satisfaction and found ways to share this information with the wider fighter community. They leveraged a preexisting training bulletin, which was transformed into the *Fighter Weapons Newsletter*. The first edition of this new circular was published in June 1957, and it became the preeminent forum for exchanging ideas on tactics.[32] This newsletter showcased two more of Boyd's trademark characteristics. The first was the free sharing of ideas; he would always take extra time

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[29] Boyd Air Force oral history, 28.
[30] Boyd Air Force oral history, 29.
[31] Coram, *Boyd*, 87–88.
[32] Boyd Air Force oral history, 36.

A Martin B-57E Canberra towing an aerial gunnery target banner similar to those used at the U.S. Air Force's Fighter Weapons School. Boyd believed that there was more to air-to-air combat than pointing one's guns at a target flying straight and level, such as these plastic banners. Boyd's desire to improve upon air combat tactics would lead him to build the new mental framework found in the Aerial Attack Study.
Official U.S. Air Force photo

and effort to pass on what he knew to those without the obstruction that impeded real learning. The second was his refusal to accept the rigid, checklist-type approach to problem solving that was common in the military. Instead, he strove to build a repository of experience and knowledge from which one could draw any number of solutions, depending on the unique nature of the problem. Boyd used the newsletter to demonstrate that there was more to aerial combat than "just going up there and turning inside and hosing him down, [when] other maneuvers could be applied."[33] Boyd repeatedly argued this point with inspectors tasked to evaluate and standardize his tactics program, stating that "you cannot tell us how to do a maneuver. *Those things vary according to circumstances.*"[34] There was no such thing as the perfect maneuver that would always work. He recounted an attitude pervasive during his time

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[33] Boyd Air Force oral history, 36.
[34] Boyd Air Force oral history, 37, emphasis added.

at Nellis, where pilots had "this so-called last-ditch maneuver, but what if that doesn't work? What are you going to do, die? You've got your favorite maneuver, it didn't work. I said, Christ, that's narrow, guys, you better have a repertoire of maneuvers . . . so if you only got one thing you can do and the guy gets wise, that's the end of the line for you."[35] No pilot could accept dying as a viable option; better to have a catalog of options available to make things as difficult as possible for an adversary, even if one got beaten in the end. The newsletter was Boyd's first attempt to leave behind such a repertoire for those who did not have the benefit of his personal instruction. His second attempt soon followed and forecasted how he would later think about wider realms of conflict.

In 1959, Boyd's time at FWS drew to a close as he applied for and was selected to the Air Force Institute of Technology's (AFIT) scholarship program at the Georgia Institute of Technology (Georgia Tech). Determined to prevent the tactics program from languishing after his departure, he decided to codify his own manual on fighter tactics.[36] The resulting *Aerial Attack Study* was such a thorough piece of work that no significant contributions have been made to fighter tactics since its publication.[37] It also presaged, as did the *Fighter Weapons Newsletter*, how Boyd later approached conflict theory. In the *Aerial Attack Study*, he introduced a new frame of reference—geometric space relationships—that had to be understood to provide context for all the maneuvers that would follow.[38] Boyd came back to this idea in 1976 when he grappled with conflict theory, setting down a new mental framework

[35] John R. Boyd, "Discourse on Winning and Losing," transcript of lecture to USMC Command and Staff College, 25 April 1989, tape 1, side 2 (8 audio cassette tapes/8 compact discs), Archives Branch, Marine Corps History Division, Quantico, VA, 19. Note that the audio transcript is labeled as "Discourse on Winning and Losing," but it is in fact an audio transcript of Boyd presenting his lecture, "Patterns of Conflict." The author has retained the label in citations for ease of use for other researchers.

[36] Coram, *Boyd*, 103.

[37] Coram, *Boyd*, 116; and Burton, *Pentagon Wars*, 12–13.

[38] John R. Boyd, *Aerial Attack Study (revised 11 August 1964)*, box 13, folder 5, Col John R. Boyd Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA, 49.
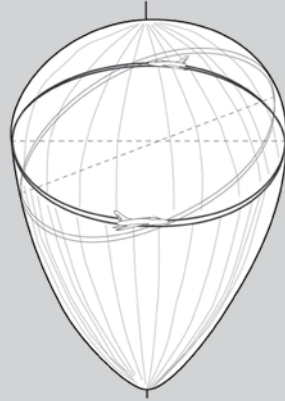
Aerial Attack Study Excerpt

The following excerpt from Boyd's *Aerial Attack Study* describes the new mental framework required to understand the context in which fighter aircraft operated.

FIGHTER MANEUVERS

To acquire an understanding of the science of fighter-versus-fighter combat, a complete knowledge of the spatial relationships involved in this form of aerial combat, is necessary. Before he can achieve this understanding, any tactician must be able to define or imagine a frame of reference, within which he must operate. In addition, he must know the basic tools which he may employ in this frame of reference. Simply stated, this means that the pilot must understand the geometric space relationships and how to apply this insight to a given fighter-versus-fighter situation. Our purpose, in fighter maneuvers, will be two-fold: (1) To define and present geometric relationships needed for fighter-versus-fighter combat, and (2) to show how to properly apply these relationships in fighter maneuvers.

In discussing fighter-versus-fighter combat, it is evident that many pilots believe there are an infinite number of situations and solutions in a given tactical encounter. Such is not the case! The field in which a fighter pilot must operate is three-dimensional and finite. The size and shape of the field is determined by the pull of 1G gravity [g-force] and the performance limitations of the aircraft and its pilot. We can imagine this field to be spherical in shape, with a flattened

FIELD OF MANEUVER. Boyd called this framework "geometric space relationships." This was an early example of Boyd building new mental worlds to better grapple with an idea; he would continue this trend in his essay "Destruction and Creation." Capt John R. Boyd, USAF, Aerial Attack Study (Nellis Air Force Base, NV: U.S. Air Force Fighter Weapons School, 1963), 50.

northern hemisphere and an elongated southern hemisphere. See [figure above]. The spherical shape is generated by a maneuvering fighter's turn and velocity operating through three dimensions. The elongation results from the effect of 1G gravity on the fighter in this three-dimensional field of maneuver. Turn, speed and the force of gravity determine the operating envelopes and we need only understand spatial relationships presented by these factors to develop effective fighter maneuvers. To know how to secure an advantage over an opponent, an attacker need only visualize turn, velocity and G projected onto this spheroid shape. He has no control over the force [of] gravity, of course, but he can exercise complete control over aircraft turn and velocity. As a result, he can maneuver in a manner to effectively use the pull of gravity in a given tactical situation. Thus, in a fighter-versus-fighter situation, the pilot can do two things to gain an advantage over an opponent: Change turn and/or velocity, in respect to his opponent. He can accomplish either or both by maneuvering through both the vertical and horizontal planes by employing either a two-dimensional maneuver through three-dimensional space, or a three-dimensional maneuver (barrel roll).

Source: Capt John R. Boyd, USAF, "Chapter II: Fighter Maneuvers" in *Aerial Attack Study*, box 13, folder 5, Col John R. Boyd Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA, 49.

before turning to the larger theoretical question. Also, as with the newsletter, the *Aerial Attack Study* threw out the dry list of moves and countermoves that lacked context, and instead taught pilots how to think about combat and the reasoning behind each move and countermove.[39] Here again came the emphasis on thinking about the problem and using a wide repertoire of experience as the basis for solving it, rather than simply relying on rote memorization of the standard solution.

As Boyd worked through his engineering degree at Georgia Tech, he discovered (accidentally, in the best scientific tradition) the foundation for a groundbreaking development in aircraft performance. In the course of tutoring fellow students in thermodynamics, Boyd was asked to explain the basics of aviation tactics and maneuvering. To help them understand, Boyd tried to translate pilot speak into something more scientific:

> Well, you treat it like we do in [thermodynamics]. You know we talk about air speed, you square it and get kinetic energy. When you talk about maneuvering you talk about changing altitude, air speed and changing direction. You can change altitude and gain air speed by trading off altitude or vice versa by trading kinetic energy for potential energy.[40]

In physics, kinetic energy refers to an object's energy derived from its current motion, and it depends on the object's mass and speed. Potential energy refers to the latent energy stored in an object as a function of its position; in the case of an aircraft, that is its vertical position or height in relation to the earth or another aircraft. An aircraft in motion always has both kinetic energy, by virtue of its mass and current airspeed, and potential energy based on its altitude. Boyd's point was that aircraft tactics and maneuvers could be looked at as exchanges of kinet-

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[39] Hammond, *The Mind of War*, 47.

[40] John R. Boyd, United States Air Force Oral History Program: Interview #859 with Jack Neufeld, 23 May 1973, transcript, box 6, folder 5, Robert Coram Collection, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA, 3–4, hereafter Boyd, Interview #859.

ic and potential energy. A maneuver like a dive traded altitude (potential) for airspeed (kinetic); an afterburner climb traded the mass of fuel (kinetic) to rapidly build up altitude (potential). A physicist could thus view aerial combat as fluidly changing energy states. Boyd therefore concluded, "If you make a lot of turns you draw down on your potential [energy], or kinetic or both."[41]

Here was Boyd setting up the problem in the context of a new framework. In doing so, he sowed the seeds for a genuine engineering breakthrough. Thinking back on the explanation he had just provided, Boyd had a sudden revelation: " 'Gee I wonder why I hadn't thought of that before?' . . . I had never seen anybody treat it from an energy viewpoint and I had just said it by accident."[42] Boyd scribbled down some initial equations capturing this insight and brought them to his new assignment at Eglin Air Force Base in Florida in 1962.[43]

APPLYING THE LESSONS

Now a major, Boyd continued his inquiry into the relationship between flight performance and energy—aided by government computers to which he gained access under dubious legality—and ultimately codified it as the Energy-Maneuverability (E-M) Theory (figure 1).[44]

The theory allowed, for the first time, the calculation of an aircraft's performance based on its design characteristics; or, conversely, one could calculate the optimum aircraft design required to deliver a desired performance.[45] Boyd tested and refined his theory by comparing performance data from American aircraft against their Soviet equivalents, and he came to a startling conclusion: Soviet aircraft, in most performance realms, were superior to their American counterparts, and nobody on the American side knew it.[46] This revelation was simply the latest shock in a Cold War that,

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[41] Boyd, Interview #859, 3–4.
[42] Boyd, Interview #859, 3–4.
[43] Coram, *Boyd*, 137; and Boyd official military records.
[44] Coram, *Boyd*, 145–46.
[45] Coram, *Boyd*, 148.
[46] Boyd Air Force oral history, 102–5.

$$P_S = V \left(\frac{T\text{-}D}{W} \right)$$

Figure 1. *The equation that represents the Energy-Maneuverability Theory postulated and tested by John Boyd. P_S = Specific excess power; V = Speed; T = Thrust; D = Drag; and W = Weight.*
Adapted by MCU Press

to this point, had been characterized by a repeated underestimation of Russian abilities by American "experts." From the detonation of the first successful Soviet atomic weapon test, *First Lightning*, in August 1949, to the successful delivery of the *Sputnik 1* satellite into orbit via intercontinental ballistic missile in October 1957, to the alarming discovery of nuclear-tipped missiles in Cuba in 1962, the Soviet Union had proven adept at catching the United States off guard in both its technical capabilities and its skill at hiding them. Boyd's study was simply another data point on this alarming trend line.[47]

PUSHING RIGHTNESS ON OTHERS

As always, Boyd wanted to be useful and to win. In this case, he wanted American pilots to understand their vulnerabilities so that, should they ever directly confront Soviet pilots in a conventional fight, ignorance would not cost them their lives. Moreover, he wanted to give American aircraft designers a crucial tool for building airframes that would actually perform as their designers intended. Beginning with his immediate superiors, Boyd briefed his way up to the four-star general level, demonstrating the performance vulnerabilities of American fighter aircraft based on his calculations. Generals and engineers alike cursed him, berated

[47] John Lewis Gaddis, *We Now Know: Rethinking Cold War History* (New York: Oxford University Press, 1997), 100, 238, 241, 267; Gaddis, *The Cold War: A New History* (New York: Penguin, 2005), 35, 68, 77; and Gaddis, *Strategies of Containment: A Critical Appraisal of American National Security Policy During the Cold War*, rev. ed. (New York: Oxford University Press, 2005), 181–82.

him, and even threatened him with a court-martial for stealing government resources to work on this entirely unsanctioned project; but Boyd came through unscathed, because the data provided by his theory proved indisputably correct. While Soviet military capability might again have proven more advanced than anticipated, neither side knew it until Boyd had done the math. Boyd's study gave the United States a chance to correct this deficiency before the Russians even knew it existed.[48]

For the potentially war-winning revelations his theory offered, Boyd received two Air Force scientific awards and reassignment to the Pentagon to troubleshoot problems found in the development of the Air Force's latest fighter design.[49] The latter reward disappointed Boyd, as it countermanded the assignment he originally desired: deploying to Thailand to fly McDonnell Douglas F-4 Phantoms in combat in Vietnam.[50] Yet his E-M Theory had already proven its utility in analyzing the capabilities of existing aircraft; now, Boyd could use the theory to shape the performance of an American fighter plane before it was even built. In October 1966, Boyd reported to the research and development section of Headquarters, U.S. Air Force.[51] His small slice of the Pentagon worked the Air Force F-X project, the follow-on aircraft to the General Dynamics F-111 Aardvark fighter-bomber.[52]

When Boyd arrived at headquarters, the F-X program faced many difficulties. It was a pawn in bureaucratic wrangling between the Navy and the Air Force; the Navy had its own future-fighter project called VFAX and wanted to convince the Office

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[48] Boyd Air Force oral history, 106–19.

[49] Coram, *Boyd*, 183–85.

[50] Coram, *Boyd*, 184.

[51] Boyd official military records; and Boyd, Interview #859, 14.

[52] For a supposedly standardized process, military acquisitions projects have dizzying and inconsistent naming conventions; for the purposes of this book, only a handful deserve extensive description. In the Air Force, research or experimental aircraft designs that were still in an early conceptual phase—no physical airframe yet existed—had an X designator. These designs also had a designator for the type of mission the future aircraft was intended to perform: F for fighter, A for ground attack, R for reconnaissance, etc. Thus, the F-X program would design a future fighter aircraft.

of the Secretary of Defense and Congress to fund its project and make the Air Force adopt it.[53] The Air Force's existing aircraft were already under scrutiny due to their lackluster performance in Vietnam.[54] And Boyd's initial analysis of the F-X led him to believe that it was simply another 60,000-pound behemoth like the F-111.[55] The Navy's VFAX advertised a design weight of less than 50,000 pounds, which meant reduced parts cost and a more congressionally attractive price tag; and on top of that, Boyd had little confidence that the F-X was a substantially better airframe for all its extra weight and cost.[56] Using the experience gained from his E-M-based performance analyses at Eglin, Boyd and his team applied the E-M formula to craft an airframe that could still deliver the Air Force's desired metrics in a lighter and less costly package. His promotion to lieutenant colonel in 1967 gave him a modicum of extra authority to requisition the data he needed from both government and commercial entities.[57] Requisition he did; and so with input from the National Aeronautics and Space Administration (NASA), General Dynamics, and Lockheed-Martin, alongside the analysis of hundreds of different configurations, Boyd's team developed a lightweight and maneuverable airframe that would ultimately go into production as the McDonnell Douglas F-15 Eagle.[58]

HINTS OF THE FUTURE

It seemed natural that, with Boyd's design approved, he would be assigned to an Air Force Systems Command billet to oversee actual production. Indeed, Boyd transferred to Andrews Air Force Base in Maryland in October 1969 to take the F-15 from paper to reality.[59] Surprisingly, he had little enthusiasm for seeing his

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[53] Boyd, Interview #859, 15; and Coram, *Boyd*, 191. The Navy used its own variations for conceptual aircraft design projects. VFAX would develop a future fixed-wing (V) dual-role fighter (F) attack (A) aircraft.

[54] Coram, *Boyd*, 191–92.

[55] Boyd, Interview #859, 15.

[56] Boyd, Interview #859, 15–16.

[57] Boyd official military records.

[58] Boyd, Interview #859,16–22; and Coram, *Boyd*, 221–31.

[59] Boyd official military records.

Two Air Force F-15 Eagles. Developed under the Air Force's F-X program, the F-15 was redesigned by Boyd using his energy-maneuverability equation to reduce the aircraft's weight and increase its air-to-air combat performance.
Defense Imagery Management Operations Center

"baby" born. Despite all of his work, Boyd's Air Force superiors at the Pentagon had insisted on last-minute design alterations that ruined the F-15's E-M-derived performance purity.[60] Supervising a project in which he did not wholeheartedly believe was not useful in his mind; but again, when Boyd was not given the opportunity to be useful, he manufactured one himself. In this case, Boyd busied himself with two side projects. In the first, he became the E-M sounding board for his associate, defense analyst Pierre Sprey, who worked on the contentious A-X project for the Air Force at the Pentagon. A-X—the Air Force's effort to design a dedicated close air support (CAS) airframe—was a schizophrenic project. Air Force leaders were not enthusiastic about the CAS mission, as it took resources away from their real missions of air superiority and nuclear weapons delivery; but they did not want the Army to

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[60] Coram, *Boyd*, 225–31.

take over that mission, because that would also cost the Air Force money, not to mention the humiliation of losing a core mission to a different Service branch.[61] Boyd helped Sprey validate the maneuverability calculations for the aircraft that became the Fairchild Republic A-10 Thunderbolt II. Boyd's immediate impact on the A-X project proved less important than what he took away from it: namely, an interest in German tactics during World War II that arose from his interviews with former Luftwaffe pilots in the course of developing the A-X. This interest would pay dividends in Boyd's work on conflict theory, which is discussed later.

Boyd's second side project was far more ambitious. He still dreamed of building a fast, maneuverable, deadly fighter plane with its performance derived from the purity of the E-M equation and not the bureaucratic fiefdoms of the Pentagon. With the help of a compatriot still at the Air Force research and development office, Boyd was able to sprinkle less than $150,000 in grants to Northrop Grumman and General Dynamics to design a lightweight fighter.[62] From this modest start, the two companies developed prototypes—the YF-17 Cobra and YF-16 Fighting Falcon, respectively—that Boyd steadily and secretly shepherded in his quest to create a mathematically pure fighter aircraft, which ultimately entered production as the F-16.[63] As with his association with the A-X program, Boyd got something else from his lightweight fighter work besides an airframe. The fly-off between the YF-16 and YF-17 introduced him to the concept of mismatches in combat due to *fast transient* maneuvers, which involved rapid changes in energy states. This will be discussed in more detail later, but the key revelation from the fly-off was that it was more advantageous for an aircraft to have the ability to quickly convert potential into kinetic energy and vice versa, rather than simply achieve high raw-energy state benchmarks; for example, the ability to rapidly accelerate or decelerate was more useful than raw airspeed numbers. This concept also influenced Boyd's future con-

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[61] Coram, *Boyd*, 233−34; and Boyd, Interview #859, 25−29.
[62] Coram, *Boyd*, 239−46.
[63] Coram, *Boyd*, 243−65.

Side view of the YF-16 and YF-17 during development, ca. December 1972. Boyd shepherded the design and development of these prototypes in his pursuit of a lightweight fighter generated from the mathematical purity of his E-M Theory. The flight tests of these two aircraft gave Boyd his first insight into fast transients, or rapid changes in the energy state of a maneuvering fighter.
Defense Imagery Management Operations Center

flict theories. By 1971, after years of frenetic work, Boyd was a full colonel, and he showed no signs of reining in either his desire for independence or drive to produce.[64]

GOING TO VIETNAM

In April 1972, Boyd finally got his chance to go back to war, though not in the seat of a fighter plane as he had once hoped. He would deploy to a Southeast Asia combat theater in flux from President Richard Nixon's twin goals of "peace with honor" and *Vietnamization*—that is, American disengagement from the Vietnam War under terms that would not appear as if the years of American commitment and sacrifice had been for nothing. To achieve these goals, the Nixon administration combined gradu-

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[64] Boyd official military records.

al reductions of American troop levels with targeted escalations, such as heavy bombing of North Vietnamese targets, mining the harbor of the North's capital, and greater efforts to interdict the Communist supply lines that ran through neighboring countries.[65] It was to the latter program that Boyd contributed. He was assigned as vice commander for Task Force Alpha, based out of Nakhon Phanom Royal Thai Air Force Base in Thailand.[66] Task Force Alpha monitored an elaborate sensor system set up to track Communist activity along the Ho Chi Minh Trail where it passed through Laos, though the data derived from the sensors was not always useful or actionable. Ever the utilitarian, Boyd helped change that, implementing, among other things, a grid system for sensor emplacement that allowed American pilots to rapidly return fire on Communist artillery positions.[67]

The Ho Chi Minh Trail was a logistics supply line used by the North Vietnamese, first to supply Viet Cong insurgents and then its own conventional forces, for operations in South Vietnam. It ran through neighboring Laos and Cambodia, dumping personnel and equipment into South Vietnam at various points. Initially a footpath through the jungle, by the end of the war the trail was a paved two-lane highway capable of supporting trucks and other large vehicles. The existence of this supply line was a chronic problem facing American forces for the entirety of their presence in Vietnam, and despite regular bombing raids and eventually ground incursions directed against it, one that was never fully solved.

Boyd's Task Force Alpha was the name of the command that oversaw a series of technologically advanced surveillance programs first embraced by Secretary of Defense Robert S. Mc-

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[65] Michael Lind, *Vietnam: The Necessary War* (New York: Touchstone, 1999), 21–23; George C. Herring, *America's Longest War: The United States and Vietnam, 1950–1975*, 5th ed. (New York: McGraw-Hill Education, 2014), 277–331; Phillip B. Davidson, *Vietnam at War: The History, 1946–1975* (New York: Oxford University Press, 1988), 587–732; and John Guilmartin, *America in Vietnam: The Fifteen Year War* (New York: Military Press, 1991), 154–87.
[66] Boyd official military records.
[67] Coram, *Boyd*, 269.

CHAPTER ONE

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Examples of the sensors deployed by Task Force Alpha to detect and interdict North Vietnamese activity along the Ho Chi Minh Trail.
Official U.S. Air Force photo

Namara in 1966. These programs were intended as a substitute for what McNamara saw as repeated failures to interdict, by conventional military means such as bombing, Communist infiltration into South Vietnam. The idea was to create a barrier that combined conventional implements such as fences and mines with advanced sensors, surveillance aircraft, and computers, to identify infiltrations taking place in real time and counter them with aviation and artillery fires. The program's legacy was mixed. On the one hand, verifiable damage was certainly inflicted on Northern Vietnamese forces coming down the trail; the technology showed promise; and Marines specifically cited the value of the sensors in helping interdict Communist forces moving against them during the siege at Khe Sanh in 1968. On the other hand, even at their best, the sensors could only identify a zone or area to strike, as opposed to a specific target; the lack of direct manned surveillance on the Ho Chi Minh Trail made it impossible to accurately verify the quality of strikes directed by information from remote sensors; and the North Vietnamese were well aware that the trail was un-

der surveillance and frequently developed countermeasures to the electronic sensors.

Boyd's arrival at Nakhon Phanom in 1972 coincided with the North's launch of the Easter Offensive, a direct conventional military invasion of South Vietnam. Interdiction of the Ho Chi Minh Trail became more difficult as American aviation was directed north to counter the Communist invasion. Communist traffic on the trail also fell during 1972, as the Easter Offensive was their focus of effort. The histories of Task Force Alpha indicate that the program had petered out by the end of 1972, and given the timeline, Boyd may well have helped close the program out entirely.[68]

CHALLENGES OF COMMAND

In October, Boyd received command of the base itself; and it was in this billet, interestingly, that he had a rare instance of self-doubt. At the time, Nakhon Phanom experienced many of the problems common to American units in Southeast Asia in the twilight of the Vietnam War: drug abuse, racial tensions, problematic sexual liaisons with the locals, and rampant indiscipline.[69] Boyd could not solve these problems with an equation, and previous commanders had a track record of failure. Boyd recalled that this was

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[68] Herring, *America's Longest War*, 83, 341. Boyd's assignment to Task Force Alpha is covered briefly in Coram, *Boyd*, 268–69. For details on the origin and execution of Task Force Alpha's mission, see Maj Philip D. Caine, *Project CHECO Southeast Asia Report: IGLOO WHITE, July 1968–December 1969* (APO San Francisco: Department of the Air Force, Headquarters Pacific Air Forces, 1970); Bernard C. Nalty, *Air Power and the Fight for Khe Sanh* (Washington, DC: Office of Air Force History, 1986); John T. Correll, "Igloo White," *Air Force Magazine* 87, no. 11 (November 2004): 56–61; and Nalty, *The War against Trucks: Aerial Interdiction in Southern Laos, 1968–1972* (Washington, DC: Air Force History Office and Museums Program, 2005). Boyd briefly mentioned Igloo White, the code name for the equipment used by Task Force Alpha, in the audio for "Patterns of Conflict"; see Boyd, "Discourse on Winning and Losing," tape 2, side 1, 38.

[69] Coram, *Boyd*, 268–74. The widespread degradation of good order and conduct among American forces deployed to Vietnam at the end of the war is well documented. See Guilmartin, *America in Vietnam*, 169–73; Herring, *America's Longest War*, 309; Davidson, *Vietnam at War*, 615–19, 631, 661–63; and Otto J. Lehrack, *No Shining Armor: The Marines at War in Vietnam* (Lawrence: University Press of Kansas, 1992), 324–29.

Aerial view of the Ho Chi Minh Trail in Laos, ca. January 1970. Two camouflaged North Vietnamese trucks are clearly visible and appear to be in good condition despite the bomb craters around them. This showed the limits of the sensor system used by Task Force Alpha, which could only identify a general area to strike. The lack of direct manned surveillance on the trail made it impossible to accurately verify the results of strikes directed by remote sensors against precision targets.
Naval History and Heritage Command

the first time in my life when I did not have total confidence. . . . I got up every morning and gave myself a pep talk in front of the mirror for about 15 minutes or a half hour. . . . The base had gone through seven base commanders in something like 2 years, or 18 months. None of them went home with honors. They either were fired or they went home half nuts or disgraced.[70]

Boyd's pessimism was understandable; aside from the grim circumstances themselves, he must have been aware that his career to this point was largely defined by solving scientific problems. No amount of number crunching would solve people. Yet his time at

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[70] Boyd Air Force oral history, 242–43.

FWS and AFIT also showed he had an underappreciated ability to motivate men. That was in the schoolhouse; now came his chance to prove he could do so in the stress of war.

Neither fired nor sent home in disgrace, Boyd served his full yearlong tour, earning performance reviews that commended him for reversing the destructive trends that had stymied previous commanders.[71] He also continued to show his disdain for unthinking, textbook solutions to unique problems, as he related in a more extreme example during his tour. Not long after taking command of the base, he had to organize a search-and-rescue mission for the crews of two downed aircraft. When one of his subordinates said "here's your check list" for the operation, Boyd did not respond well: "I goddamn near fell over. I said, 'What do you mean, checklist?' I took that goddamn thing and threw it, it went out the window." When Boyd asked for a map, that same officer "brought the checklist back in, and I threw it out the goddamn window. . . . I said, 'if I read this, those guys will die of starvation out there before we get to them'."[72] Boyd's disdain for checklists was not universal—he certainly used them as a pilot—but to him they were simply a tool for optimizing interactions with machines. When it came to the larger problems of war, which extended far beyond the mechanical realm, Boyd again sought to apply new mental frameworks tailored to the issue at hand. In other words, he wanted himself and his staff to truly think about the problem. Boyd did not want to be bound by a templated solution, developed in a context and circumstances that might have been very different from the current problem. Checklists were just such a template, and they negated thinking. Boyd's team recovered the downed crews without the aid of checklists.

BACK TO THE BELTWAY

The command tour at Nakhon Phanom proved the high-water mark of Boyd's Air Force career. He returned to the Pentagon in May 1973, as director of Operational Requirements and Develop-

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[71] Coram, *Boyd*, 276.
[72] Boyd, "Discourse on Winning and Losing," tape 2, side 1, 38–39.

ment Plans, a long-range planning department whose unsystematic approach to planning made most of its products meaningless.[73] As Boyd did not find the official work for this billet valuable, he turned his attention to work that was. During his last two years of active service, Boyd continued to guide development of the lightweight fighter he held dear, which ultimately entered service as the F-16; compelled the Air Force to acknowledge gross cost overrun projections for the Rockwell B-1 Lancer bomber program; and, putting his E-M calculations to work one last time, proved that the feared Soviet Backfire bomber was nothing more than a paper tiger.[74] But as had been the case since at least his time at Eglin, Boyd's productivity often occurred in the shadows, in the face of constant conflict with both individual and institutional resistance to change. To him, the Air Force and Department of Defense seemed uninterested in opening their collective minds and learning new things. By 1975, Boyd had evidently tired of being one of the few men who wanted "to do" in a bureaucracy run by those who preferred "to be." In August, he finally retired from active duty as a colonel.[75]

During his first year of retirement, Boyd turned his energy from solving specific engineering problems to the wider realm of fighting and winning wars. He could have rested on his laurels as an accomplished fighter jockey and aircraft designer, but the desire to be useful burned undimmed. He was determined "to prove that I could do something other than just [be] a fighter pilot."[76] Boyd filled that year with an intense amount of reading and research. Since he had first published the *Aerial Attack Study*, many ideas had slowly accumulated and swirled around in his head: the underlying purpose behind fighter maneuver mechanics; the rejection of checklist-based rigidity in favor of assessing and deciding based on circumstance; new conceptual frameworks for thinking; mismatches generated by fast transients; and the intermix of competition and survival.[77] Boyd had explored all these and more in

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[73] Coram, *Boyd*, 280; and Boyd official military records.
[74] Coram, *Boyd*, 283–87, 294–97, 302–11.
[75] Coram, *Boyd*, 311–12.
[76] Boyd Air Force oral history, 84.
[77] Boyd Air Force oral history, 245.

the pragmatic world of dogfighting and engineering, and he now believed that something bigger lurked in the shadows of his mind. It was time to tie it all together. He shifted his focus from building better planes for winning in the air, to building a better mental framework for winning at the grander levels of conflict. Boyd read voraciously on physics, philosophy, and history to find material for his framework.[78]

As stated earlier, Boyd often set up adversarial relationships to sharpen his own thoughts. As frustrating as he found it when his opponents refused to open their minds, he found it very productive when he engaged in that freedom of thought himself. He believed that his success in creating the E-M Theory and in using it to design superior aircraft—as well as the dangers inherent in a Pentagon bureaucracy that refused to embrace new ideas—lay in the willingness or unwillingness to construct new "mental worlds," as he called them:

> Let's say we have an existing situation and we have some problems and there are some people who may not perceive of the idea that maybe it is their world that is causing the problems and they are not too inclined to give up that world. They just keep trying to make their world better and better, but really it never does improve—it just does not work anymore. But these people become so attached to their own worlds, that they cannot change. . . . I could always accept a changing situation and I still can; I love it. I can come up with energy maneuverability and destroy my own mental world. . . . They say, "How did you do that?" I said, "That world was just not good enough, so I decided to create a new one. There was nothing wrong with what I had at that time but I found out there were some other worlds that were more important."[79]

Boyd spent a year building a new mental world for himself, and he used his adversarial sharpening technique to get there; in

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[78] Coram, *Boyd*, 319; and Hammond, *The Mind of War*, 118.
[79] Boyd Air Force oral history, 82–83.

this case, the circle of friends he had accumulated from his time at the Pentagon became the whetstone for his mind. Boyd called them at random times, day or night, and talked for hours about whatever idea happened to be rattling around his brain at the moment. These calls were not confrontational; indeed, Boyd's friends rarely got a word in.[80] Rather, they were like a Socratic dialogue Boyd had with himself. He needed to set himself up against someone to get better, and so his friends became proxies for the conflict raging in his mind.

FINDING LIKE MINDS

In 1976, Boyd finally laid out his year's labor in a short essay that he called "Destruction and Creation." Up to this point, Boyd's career had been defined by challenging his own perceptions and conventional institutional wisdom; adapting his own mental framework to the implications of new information; and being more productive than and outperforming those who either refused to modify their own entrenched beliefs or simply could not update their personal mental frameworks as quickly as Boyd. The proof of this lay in the many groundbreaking outputs Boyd had produced—the *Aerial Attack Study*, the E-M Theory, the high-performance F-15 and F-16 aircraft—from individual effort and self-study, as compared with the dull and lethargic institutional systems actually tasked to develop these things. In "Destruction and Creation," Boyd fleshed out these ideas on perception and adaptability; in essence, the *how* and *why* of deconstructing and building mental worlds. In describing the mechanics of how he, an individual, had lived this process and became more productive—or won, in other words—against the far larger and resource-rich defense establishment, Boyd was un-

[80] Coram, *Boyd*, 319–20; Burton, *Pentagon Wars*, 44; and Spinney, "Genghis John," 43. These calls became a habit Boyd used for the rest of his life. Almost two decades later, when Capt John Schmitt worked with Boyd on Marine Corps doctrine, he too was treated to calls at random times that lasted hours: "When Boyd starts talking, just clear the desk and put your feet up and stick the phone to your ear, because you'll be there for a while." See Maj John F. Schmitt, video of seminar lecture and discussion on *Warfighting*, FMFM-1, Expeditionary Warfare School, Marine Corps University, ca. 1996, catalog #03/757, Archives Branch, Marine Corps History Division, Quantico, VA.

intentionally shaping the answer to another institution's question on how to win a similar victory on the battlefield.

That institution was the United States Marine Corps. In the years following the final withdrawal of American troops from Vietnam, the Corps struggled with the same issues of adaptability, survival, and understanding the new world it lived in. The post-Vietnam threat landscape differed from jungle guerrilla warfare. The Corps needed a mental framework to understand the differences, adapt itself to the new world, and above all, survive and win against a range of new adversaries. These issues raised hard questions that the Corps was forced to answer. The story now turns to how the Marines grappled with the questions to which Boyd, unbeknownst to them, had begun to construct an answer.

Done with the Jungle

The Marine Corps' Near Future after Vietnam

Following the American withdrawal from Vietnam in 1975, the Marine Corps found itself in familiar territory: defending and justifying its utility, even its very existence, in a world changed by war both hot and cold. In this regard, the Corps had developed a remarkable degree of institutional adaptability since the end of World War I. This trait was so strong that the term *adaptability* does not do it justice, as it implies reaction rather than premeditation. In the twentieth century, the Marine Corps developed an institutional drive that looked forward, morphing the organization into what would prove most useful in the next conflict. Though not immediately aware of it after Vietnam, it was this drive that made so many Marines receptive to the ideas of the kindred spirit they found in Boyd. Like Boyd, they had long felt an inherent need to justify the organization's utility and provide a concrete capability now and when called upon in the immediate future. And after Vietnam, the Marine Corps had a great need for fellow travelers to prove its worth against the looming Soviet threat. The post–Vietnam War years forced the Corps to address two key questions: What was it to do, and how was it to do it? The Corps had often drawn proactively on its own internal resources when change came over the horizon; but in this case, as had also occurred in

the past, external pressures forced the issue. By 1976, outsiders seriously questioned the Marine Corps' utility. The Corps, already engaged in its own institutional evolution, was compelled to accelerate the process.

INTERNAL ADAPTABILITY

In navigating post–Vietnam War challenges, the Marine Corps could draw on a long history of readying itself to be useful for future conflicts. Major General John A. Lejeune first made this apparent as Commandant in the crucial years following World War I. Though his wartime service had been in France commanding the Army's 2d Division, he recognized that geopolitical changes in the Pacific would shift the Marine Corps' focus away from strictly land operations back to its naval functions. The likelihood of extensive maritime actions in a future war meant the Corps needed to be ready, so Lejeune initiated a reorganization to make it able "to accompany the Fleet for operations ashore in support of the Fleet."[1] Lejeune's foresight, shared by subsequent commandants, ensured that the United States had a combat organization fully prepared for the intricacies of amphibious combat when war finally arrived in 1941.[2] The end of World War II coincided with the dawn of the atomic age, and it took very little time for the Corps' leaders to realize that "a small number of atomic bombs could destroy an expeditionary force as now organized, embarked and landed."[3] In short order, Marines were experimenting with new doctrine and equipment to keep a landing force dispersed from the effects of nuclear weapons during embarkation and transit, while still providing the mobility to rapidly concentrate on an objective. This included novel use of the newly developed helicopter.[4]

In 1950, North Korea invaded its southern neighbor, turning the still-young Cold War hot and proving the American fear

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[1] Millett, *Semper Fidelis*, 325.
[2] Millett, *Semper Fidelis*, 319–43.
[3] LtCol Kenneth J. Clifford, *Progress and Purpose: A Developmental History of the United States Marine Corps, 1900–1970* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1973), 71.
[4] Clifford, *Progress and Purpose*, 71–78.

that the Soviet Union sought to spread its influence via armed aggression and the use of proxies.[5] The Marine Corps showed its worth by rapidly organizing, equipping, and deploying a brigade of 6,600 men in less than two weeks to bolster the fragile allied line around the Pusan Perimeter.[6] The Korean War drove American politicians and national security experts to the conclusion that future Communist aggression was likely and that the United States needed some type of force ready to respond immediately while the other Services mobilized. In 1952, the Marine Corps was identified as the force best capable of fulfilling this crucial national security task and officially assigned "the mission of readiness for aggression against the United States," trained to "suppress or contain international disturbances short of war."[7]

The 1st Provisional Marine Brigade, hastily thrown together for the defense of the Pusan Perimeter, demonstrated the value of the air-ground team, and so the Marine Corps codified the concept for future use. In 1955, *Landing Force Bulletin* (*LFB*) *17, Concept of Future Amphibious Operations*, first laid out the concept of an integrated air-ground amphibious assault team, composed of "Marine landing forces of ground and supporting air components . . . for the projection of seapower deep ashore at any point on the world littoral."[8] In 1962, Commandant General David M. Shoup signed two orders that gave this combined force the enduring title of Marine Air-Ground Task Force (MAGTF). *Marine Corps Order (MCO) 3340.3, Employment of Marine Air-Ground Task Forces in Future Amphibious Operations*, which superseded *LFB-17*, affirmed that "the most probable employment of Marine Corps combatant forces will be in the execution of force-in-readiness missions in limited wars utilizing modern high explosive weapons of improved lethality." Marine Corps leaders understood the changing character of twentieth-century war, and while amphibious operations were still necessary, they might not resemble their pre-nuclear predecessors.

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[5] Millett, *Semper Fidelis*, 476.

[6] Millett, *Semper Fidelis*, 479–80; and Clifford, *Progress and Purpose*, 82.

[7] Millett, *Semper Fidelis*, 498, 500, 507.

[8] *LFB 17, Concept of Future Amphibious Operations* (Washington, DC: Headquarters Marine Corps, 13 December 1955).

Marines from the hastily assembled 1st Provisional Marine Brigade embarking on the USS Pickaway (APA 222) in San Diego, CA, ca. July 1950. This brigade, thrown together to help defend the tenuous Pusan Perimeter in Korea, demonstrated the value of the Marine air-ground team, which would be codified after the Korean War into the construct known thereafter as the Marine Air-Ground Task Force (MAGTF).
Naval History and Heritage Command

The order identified the MAGTF as the "landing forces in amphibious operations."[9]

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[9] *MCO 3340.3, Employment of Marine Air-Ground Task Forces in Future Amphibious Operations* (Washington, DC: Headquarters Marine Corps, 20 April 1962).
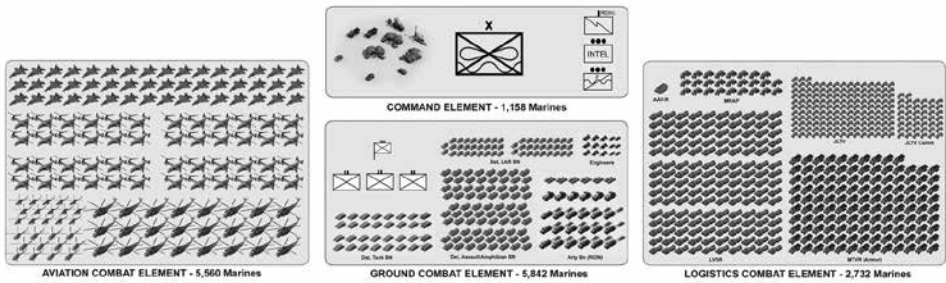
Marine Corps Vought F4U-4B Corsair fighters are loaded aboard the USS Badoeng Strait
(CVE 116) in San Diego to support the 1st Provisional Marine Brigade.
Naval History and Heritage Command

    MCO 3120.3, The Organization of Marine Air-Ground Task Forces,
then laid out the formal organizational construct of the MAGTF
and its tailorable levels, ranging from a battalion-based Marine
Expeditionary Unit (MEU), to division-based Marine Expedi-
tionary Force (MEF), or even a multidivision expeditionary corps.
The nomenclature of these units, though not their scale, changed

several times during the next few decades. The MAGTF was established with the label *expeditionary*, to emphasize its ready, forward-deployed nature. For various reasons, however, this title would be changed between the formal establishment of the MAGTF structure in *MCO 3120.3*, and it also changed in the later reforms of the 1980s, so for clarity's sake these changes are covered here. In 1965, the senior American leadership in Vietnam—Ambassador Maxwell Taylor and General William Westmoreland—insisted that the Marine unit recently deployed in Da Nang change its title to *amphibious* as opposed to *expeditionary*, as in their minds the latter had uncomfortable echoes of the French expeditionary forces that had attempted to reassert colonial control in Southeast Asia after World War II. Thus, the senior Marine command in Vietnam became the III Marine Amphibious Force (III MAF), and smaller units were relabeled the Marine Amphibious Brigade (MAB) and Marine Amphibious Unit (MAU), respectively. In 1988, General Alfred M. Gray Jr. changed the name back to *expeditionary* to again reemphasize the Corps as a force in readiness capable of missions beyond the purely amphibious.[10]

Should the Soviet Union again directly or indirectly threaten to spread Communist influence across international borders with armed might, the MAGTF gave the United States a responsive force, tailorable to the occasion, to convince the Russians to act otherwise. In fact, in 1962, the same year General Shoup signed his directives, the Marine Corps came the closest it ever would to directly facing Soviet forces on a potentially nuclear battlefield when the II Marine Expeditionary Force (II MEF) was mobilized in response to the Cuban Missile Crisis. In October 1962, in accordance with Defense Department plans for aerial strikes and an amphibious invasion of Cuba, Marine units from across the United States were assigned under the II MEF headquarters. Air and ground units, including almost an entire Marine infantry division and air wing, were rapidly moved to Guantánamo Bay, Cuba;

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[10] *MCO 3120.3, The Organization of Marine Air-Ground Task Forces* (Washington, DC: Headquarters Marine Corps, 27 December 1962); and Millett, *Semper Fidelis*, 565, 663.

COMMAND ELEMENT - 1,158 Marines

AVIATION COMBAT ELEMENT - 5,560 Marines

GROUND COMBAT ELEMENT - 5,842 Marines

LOGISTICS COMBAT ELEMENT - 2,732 Marines

Graphical depiction of one variant of the MAGTF, the Marine Expeditionary Brigade (MEB). Despite superficial name changes over the years, the building blocks of the MAGTF have remained unchanged since 1962, when Gen David M. Shoup first laid them out in MCO 3120.3. *Each MAGTF has a command element, a ground combat element, an aviation combat element, and a logistical support element. The MAGTF's size can be scaled up or down and additional elements attached as needed depending on the contingency.*
U.S. Marine Corps Concepts and Programs

Puerto Rico; and Key West, Florida, or embarked on amphibious shipping and aircraft carriers. Had it been executed, the invasion of Cuba—with a quarter of a million American servicemen landed or parachuted onto the island—would have been a larger amphibious operation than the Normandy landings on D-Day in 1944.[11]

While blessed with a number of visionary senior leaders, the Corps enjoyed another asset that would help define the parameters of the post–Vietnam War debate. This was its professional journal, the *Marine Corps Gazette*. This book's introduction has already noted the singular importance of the *Gazette* to the post–Vietnam debate, in general, and the maneuver warfare debate, in particular. Within its pages, all ranks could present ideas and debate their merits. The *Gazette* articles from 1976 onward are a useful yardstick for tracing post-Vietnam reform and the maneuver warfare debate, and they will be regularly referenced throughout the following chapters. Moreover, these articles add evidence to

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[11] Joseph H. Alexander and Merrill L. Bartlett, *Sea Soldiers in the Cold War: Amphibious Warfare, 1945–1991* (Annapolis: Naval Institute Press, 1995), 38–39; and Maj John M. Young, *When the Russians Blinked: The U.S. Maritime Response to the Cuban Missile Crisis* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1990), 3–4, 62, 71–72, 80, 85, 115–77, 197–98.

OPLAN 316
When the Cold War Almost Went Hot

It is difficult for those generations born after the Cuban Missile Crisis to appreciate how seriously President John F. Kennedy, his staff, and the U.S. military took the threat of nuclear missiles staged so closely to their shores. But the vast air, ground, and naval forces assembled are a testament to just how grave a menace American leaders viewed the situation. At the crisis's height, the Pentagon was ready to execute Operation Plan (OPLAN) 316, featuring massive air strikes against Cuban targets followed by airborne and amphibious invasion. The U.S. deployed five aircraft carrier groups with their attendant cruisers, destroyers, frigates, and submarines (in addition to the already considerable naval quarantine force); mobilized more than 25,000 Marines under the umbrella of the II MEF; and readied two Army airborne divisions, one infantry division, and an armored division to either parachute onto Cuba or follow in the wake of the amphibious assault force. That the president was prepared to commit such a force, particularly on a nuclear battlefield with the consequent probability of high casualties, showed how intolerable was the thought of Soviet missiles in America's backyard.

the bottom-up model of innovation, as the *Gazette* was an unrestricted forum for discourse, and many of the writers were junior or middle-rank Marines writing on their own volition.

Going back to the time of General Lejeune, Marines as individuals and as an institution had shown a desire beyond protecting their little fiefdom within America's defense structure. Marines sought to provide a concrete and valuable resource for the nation's protection. They always held the attitude that, as one defense analyst wrote, "the Marine Corps' future lies in being useful."[12] Utility and self-preservation had a symbiotic relationship, and the Corps practiced this organically as it examined itself and its place in the world after each war in the twentieth century. Now, in the post–Vietnam War period, John Boyd was developing ideas that built on this relationship and how it could be turned outward to defeat an adversary. The Marine Corps needed such ideas as it faced a daunting postwar landscape.

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[12] Murray, "The Marine Corps' Future Lies in Being Useful," 24–29.

EXTERNAL PRESSURES

Impressive as this decades-long drive to adapt to the exigency of the moment was, it must be acknowledged that it had an element of self-protection. For almost as long as the Marine Corps had looked ahead, readying itself for wars to come, it had been dogged by attempts to disband it entirely because, as some claimed, it offered no unique value. Indeed, the Corps' reward for driving the Japanese from their Pacific strongholds in World War II was an immediate postwar effort to legislate it into extinction.[13] As political scientist Terry Terriff observed, this and similar initiatives gave Marines an "organizational paranoia," which caused them "to perceive any and all challenges, real or imagined, significant or insignificant, as putative threats to the very survival of the Corps as a service and to react accordingly in a forceful manner."[14]

Part of this landscape was the tremendous strain and turmoil placed upon the Corps by the Vietnam War. In its early stages, the war had seemed like yet another opportunity for Marines to prove their worth. Beginning with a very modest advisory role in 1954, increasing numbers of Marines were deployed to South Vietnam to help stabilize its government against both conventional and insurgent attack from Communist North Vietnam. Marine forces became quite adept at the latter, organizing under their own cognizance the Combined Action Program (CAP), which paired Marine rifle squads with local village defense forces to prevent insurgent infiltration. It was a testament to the CAP's efficacy that no village, once initially stabilized, ever reverted to Communist control. The senior Army commanders in charge of America's overall effort in Vietnam saw the pacification effort as a sideshow to the large-unit search and destroy missions. Such missions sought to annihilate Communist forces in conventional battles, despite the mounting evidence that the Communists would not quit no matter how many casualties were inflicted on them.

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[13] Krulak, *First to Fight*, 17–66. Part 1, "The Thinkers," details the Corps' postwar trials as the defense establishment underwent significant restructuring.

[14] Terry Terriff, " 'Innovate or Die': Organizational Culture and the Origins of Maneuver Warfare in the United States Marine Corps," *Journal of Strategic Studies* 29, no. 3 (June 2006): 484, https://doi.org/10.1080/01402390600765892.

To support all of these missions, the Marine Corps had to rapidly grow in size. This growth caused a decline in the quality of personnel due to the influx of large numbers of draftees and required shifting resources from long-term equipment modernization efforts to short-term combat support. Following President Nixon's Vietnamization policy in 1969, the strain took a serious toll. Despite the success of CAP and proud feats of arms such as the actions at Khe Sanh and Hue City, the Marine Corps in Vietnam became infected with the same problems Boyd later encountered in Thailand. As the end of America's commitment to Vietnam came closer, Marine units suffered indiscipline, drug use, racial tension, poor morale, and questions about why Marines should continue to die for a mission to which their country was no longer dedicated.[15]

As with its sister Services, by 1975, the Marine Corps' experience in Southeast Asia had left a bitter taste in its mouth. Its final missions there—Operations Eagle Pull and Frequent Wind, the evacuations of civilians from Cambodia and South Vietnam, respectively—were relatively bloodless, if sometimes tense, affairs.

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[15] For a detailed history of the Marine Corps experience in Vietnam, see Millett, *Semper Fidelis*, 559–606; Capt Robert H. Whitlow, USMCR, *U.S. Marines in Vietnam: The Advisory & Combat Assistance Era, 1954–1964* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1977); Jack Shulimson and Maj Charles M. Johnson, *U.S. Marines in Vietnam: The Landing and the Buildup, 1965* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1978); Jack Shulimson, *U.S. Marines in Vietnam: An Expanding War, 1966* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1982); Maj Gary L. Telfer, Lt Col Lane Rogers, and V. Keith Fleming Jr., *U.S. Marines in Vietnam: Fighting the North Vietnamese, 1967* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1984); Jack Shulimson et al., *U.S. Marines in Vietnam: The Defining Year, 1968* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1997); Charles R. Smith, *U.S. Marines in Vietnam: High Mobility and Standdown, 1969* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1988); Graham A. Cosmas and LtCol Terrence P. Murray, *U.S. Marines in Vietnam: Vietnamization and Redeployment, 1970–1971* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1986); Maj Charles D. Melson and Lt Col Curtis G. Arnold, *U.S. Marines in Vietnam: The War that Would Not End, 1971–1973* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1991); Lehrack, *No Shining Armor*; and Bing West, *The Village* (New York: Pocket Books, 2003).

Yet Cambodian Communists on Koh Tang Island gave the Marine assault force one last bloody nose as it departed the region for good. In all, as longtime Corps historian and former Marine colonel Allan Millett noted, few "regretted that this particular war was finally over."[16] Then-Commandant General Robert E. Cushman Jr. (1972–75) made this point clear while overseeing the withdrawal of Marine forces from Southeast Asia: "We are pulling our heads out of the jungle and getting back into the amphibious business. . . . We are redirecting our attention seaward and reemphasizing our partnership with the Navy and our shared concern in the maritime aspects of our strategy."[17] This echoed the previous Commandant, General Leonard F. Chapman Jr. (1968–72), who stated that "we got defeated and thrown out, the best thing we can do is forget about it."[18] In time, the Corps' involvement in Vietnam would be reexamined to glean lessons learned. For the moment, the central issue was not dwelling on what the Corps had done but what it would do in the near future.[19]

TYRANNIES OF TIME, DISTANCE, AND TECHNOLOGY

From 1971 to 1976, several disconcerting trends illustrated the

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[16] Millett, *Semper Fidelis*, 606. This general attitude also pervades the pages of the official history chronicling the Corps' last years in Vietnam; see Maj George R. Dunham and Col David A. Quinlan, *U.S. Marines in Vietnam: The Bitter End, 1973–1975* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1990).

[17] Col John Grider Miller, "Robert Everton Cushman Jr." in *Commandants of the Marine Corps*, ed. Allan R. Millett and Jack Shulimson (Annapolis: Naval Institute Press, 2004), 420.

[18] Terriff, " 'Innovate or Die'," 485.

[19] This attitude was by no means universal; Marines outside the circle of senior leadership, such as Col Michael Wyly and Gen Gray, came out of the war determined to find a better way of fighting for the future, and they would later argue that the few successes they saw came from practicing maneuver warfare. Wyly stated this explicitly: "Our quest for a better way began in combat in Vietnam, as did our experiments with fluid tactics and high initiative at the lowest levels. The need for change was clearly visible at junior levels." Col Michael D. Wyly (Ret), "Doctrinal Change: The Move to Maneuver Theory," *Marine Corps Gazette* 77, no. 10 (October 1993): 44. This is discussed in greater detail in chapter 6.

Marine infantry boarding a Marine Sikorsky CH-53 Sea Stallion helicopter during operations in Vietnam, ca. 1967. Despite the admonitions of post–Vietnam War Commandants who insisted that the Corps was "pulling [its head] out of the jungle," the Vietnam War was a formative experience for many key members of the later maneuver warfare movement. Men like Gen Alfred Gray and Col Michael D. Wyly successfully practiced protomaneuver tenets in those jungles, and they would go on to seek a broader theoretical framework that could apply those limited successes across all the types of conflict the Corps might face.
Defense Imagery Management Operations Center

shape of that near future. America's armed forces were wrapping up years of fighting an unconventional and generally low-tech conflict in Southeast Asia. At the same time, the global threat environment appeared to be increasingly conventional, heavily armored and mechanized, fast paced, and generally high tech.[20] While American soldiers had spent much of the Vietnam War chasing light-armed Communist riflemen through jungle and rice paddy, other nations were adding tanks, armored vehicles, and precision munitions—often of Soviet design—to their inventories.

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[20] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 65.

Furthermore, the Soviet Union also reemerged as the preeminent potential adversary. The low-tech adversaries of the past decade, while certainly proxies for Soviet activity, remained just that—proxies. Following Vietnam came renewed American fears of a direct confrontation with Soviet forces, with increased capabilities of the Soviet military standing in stark contrast to reduced American defense expenditures and modernization delays.[21] The effect of these fears on the American defense establishment, to include the Marine Corps, cannot be understated.

The Yom Kippur War of October 1973 between Israel and a coalition of Arab states characterized this near future threat. Featuring a conventional fight between armored forces, the war's brevity was exceeded only by its violence. After three weeks, Israel and its Arab opponents had collectively lost 1,500 tanks and 500 aircraft.[22] The speed and savagery of the Yom Kippur War highlighted several issues with which the American military as a whole, including the Marine Corps, needed to grapple as it emerged from Vietnam. The American defense and intelligence communities both viewed the Yom Kippur War as a trial run for a potential conflict between the North Atlantic Treaty Organization (NATO) and Warsaw Pact blocs in Europe. Accordingly, they conducted extensive postwar analyses that were greatly helped by the Israeli government granting American representatives access to the battlefields immediately after hostilities were concluded. The Central Intelligence Agency's report was recently declassified with min-

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[21] Gaddis, *Strategies of Containment*, 318–27; Alexander and Bartlett, *Sea Soldiers in the Cold War*, 87–104; and John M. Collins, *American and Soviet Military Trends since the Cuban Missile Crisis* (Washington, DC: Center for Strategic and International Studies, 1978), xi–2.

[22] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 65.

A destroyed Israeli M-60 Patton tank from the 1973 Yom Kippur War. In three weeks of war, Israel and its Arab opponents lost more than 1,500 tanks. This extraordinary level of destruction in such an abbreviated timeframe highlighted the deadliness of the near future threat that the Marine Corps faced following the withdrawal from Vietnam.
CIA Historical Collection, President Nixon & the Role of Intelligence in the 1973 Arab-Israeli War

imal redactions.[23] Of primary concern were the capabilities of Soviet weapons systems and organizations, employed by both the Union of Soviet Socialist Republics and its client states.

The United States Army took the lead in assessing the Yom Kippur War's lessons for the American military. As head of the

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[23] *The 1973 Arab-Israeli War: Overview and Analysis of the Conflict* (Langley, VA: Directorate of Intelligence, Central Intelligence Agency, 1975); David Rodman, "Eagle's-eye View: An American Assessment of the 1973 Yom Kippur War," *Intelligence and National Security* 31, no. 4 (2016): 490–508, https://doi.org/10 .1080/02684527.2015.1010339; Col Richard M. Swain, comp., *Selected Papers of General William E. DePuy*, ed. Donald L. Gilmore and Carolyn D. Conway (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 1994), 69–111; and Saul Bronfeld, "Fighting Outnumbered: The Impact of the Yom Kippur War on the U.S. Army," *Journal of Military History* 71, no. 2 (April 2007): 465–98, https://doi.org/10.1353/jmh.2007.0096.

Egyptian missile site captured by Israelis during the Yom Kippur War. Aside from its staggering materiel losses, the Yom Kippur War also demonstrated the lethality of modern precision-guided munitions. The United States and the Marine Corps faced a post–Vietnam War world where such deadly weapons were cheap, mobile, and widely proliferated.
CIA Historical Collection, President Nixon & the Role of Intelligence in the 1973 Arab-Israeli War

Army's Training and Doctrine Command, General William E. DePuy performed a comprehensive evaluation of the war at the behest of General Creighton W. Abrams, who was the last senior American commander in Vietnam and was now the Army's Chief of Staff. DePuy's reports specifically included assessments from other U.S. Services, including the Marine Corps, and so between the DePuy documents and subsequent *Gazette* articles, it is clear that Marine Corps leaders took the implications of the Yom Kippur War just as seriously as the Army.

Soviet armor weighed heavily on the Marine mind. After quoting a Russian marshal who stated unequivocally that "tanks are the best means for attaining our objective," Major R. E. Mattingly, an armor officer by trade, dryly observed that "having been thus forewarned of the instrument with which we may be clubbed

about the head and shoulders it seems only prudent to look at the components of Soviet armored and mechanized forces." On a conventional battlefield against either the Warsaw Pact or Russia's many Third World clients, a Marine landing force could expect to encounter heavy armor. At the time, the disparity between American and Russian armored/mechanized units was on the order of thousands. In the Soviet army, "every front-line soldier reportedly rides," and each soldier was backed up by large quantities of tanks, artillery, and heavy mortars.[24]

While contemplating how the Soviets might employ armor generally in a future conflict, the Marine Corps had to consider the specific impact on an amphibious landing. In all likelihood, the Marine Corps would be outmanned and outgunned but still needed to be able to play a role in larger strategic considerations. According to Graham H. Turbiville, a Defense Intelligence Agency (DIA) expert on Soviet and Warsaw Pact operations, the Marine Corps indeed had an important role. In the event of a conflict with NATO, the Soviets worried specifically about an amphibious landing by American and British Marines in the rear of their maritime axes of advance. To counter such a landing, Russian forces would employ not only armor but also specialized motorized rifle battalions. In addition to the main guns of their tanks, these rifle battalions were equipped with heavy artillery, antiaircraft artillery (AAA) and handheld surface-to-air missiles (SAMs), and antitank guided missiles (ATGMs). Tactical nuclear weapons were also within the realm of possibility.[25]

Finally, an American amphibious force might also confront its Soviet counterpart. Soviet naval infantry was armored, extensively trained, and backed by heavy firepower. Soviet naval infantry was a capability that Russia disbanded after World War II,

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[24] Maj R. E. Mattingly, "Defeating Soviet Armor: A Perspective," *Marine Corps Gazette* 59, no. 4 (April 1975): 35–39; and Collins, *American and Soviet Military Trends*, 175, 183–89.
[25] Graham H. Turbiville, "Soviet Amphibious Landing Defenses," *Marine Corps Gazette* 59, no. 9 (September 1975): 20–26. See also Alexander and Bartlett, *Sea Soldiers in the Cold War*, 101, for potential landing areas in the case of a conflict between NATO and the Warsaw Pact.

only to reconstitute in the 1960s following Russia's inability to mount an amphibious response to the U.S. landing in Lebanon in 1958. Though never present in the same numbers as the Marine Corps, Western observers nevertheless considered Soviet naval infantry an elite force; throughout the 1960s and 1970s, Russia built up an impressive array of amphibious and merchant shipping around this capability. Though lacking the aviation component of the MAGTF, Soviet marines still had a robust combined arms capability, including large numbers of amphibious tanks, rocket launchers and heavy mortars for indirect fire, and vehicle-mounted antiaircraft and antitank weapons.[26] In sum, when arrayed against the relatively small and lightly armed Marine Amphibious Unit (MAU) or only slightly larger Marine Amphibious Brigade (MAB), Soviet-style arms and organizations presented daunting challenges.

Aside from Soviet capabilities, the modern development of precision-guided munitions (PGMs) proved such a radical force multiplier that they could drastically change how a MAGTF operated. The range and lethality of PGMs were a sobering matter. As America slogged its way through Vietnamese jungles, the Soviet Union developed and fielded to its clients a wide variety of munitions that were both effective and cheap. And while the arid Middle Eastern battlefield of the Yom Kippur War demonstrated the power of PGMs against land targets, it also forced those in the naval game to consider the new threat PGMs posed to amphibious forces. An embarked MAGTF appeared increasingly vulnerable to land-based antiship missiles, both during an assault and while transiting to it. Certainly a MAGTF's helicopter contingent—with its ability to launch part of the assault force from outside the range of shore-based missiles—gave Marines an advantage not enjoyed in past major amphibious operations, such as the Inchon landing

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[26] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 95–98; Graham H. Turbiville, "Warsaw Pact Amphib Ops in Northern Europe," *Marine Corps Gazette* 60, no. 10 (October 1976): 20–27; Capt Edward G. Lewis, *A Comprehensive Examination of the Soviet Naval Infantry* (APO New York: U.S. Army Institute for Advanced Russian and East European Studies, 1977); and Collins, *American and Soviet Military Trends*, 188.

during the Korean War. Yet the Yom Kippur War also showcased the susceptibility of slow, low-flying aircraft to handheld SAMs. Notably, in Vietnam the United States lost almost 1,800 helicopters in the first five years of the war to small arms and rudimentary AAA systems. A helicopter-borne amphibious assault force, flying into the teeth of a modern SAM defense, could be savaged to the point of uselessness.[27]

Long-range antiship PGMs created a new time-distance headache for the amphibious commander. To avoid these weapons, the U.S. Navy's ships could linger beyond the range of visual or radar detection and launch the amphibious assault force from over the horizon. This would have a limited impact on the relatively long-range and fast-moving rotary- and fixed-wing assault elements. To the lumbering landing vehicle, tracked (LVT), however, crawling through the water at eight knots, an assault over the horizon may as well have been an assault on the surface of the moon. Absent a landing craft capable of matching the speed and range of a helicopter-borne force, PGMs, in forcing amphibious shipping over the horizon, effectively neutralized much of the MAGTF's striking power.[28]

All of this highlighted potential weaknesses in the amphibious mission to which the Corps desired to return. Among those questioning its utility was none other than James R. Schlesinger, the secretary of defense, who asked whether America required "an amphibious assault force which has not seen anything more demanding than essentially unopposed landings for over twenty years."[29] Here, again, the Yom Kippur War became a yardstick against which amphibious capability was measured and found wanting. The sheer speed of that conflict highlighted the new importance of time—especially transit time—in contingency planning. The war lasted three weeks from start to finish. This showed that the American military standard for closure time (30 days) in

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[27] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 66–67.
[28] Col C. V. Hendricks, "Land the Landing Force," *Marine Corps Gazette* 59, no. 8 (August 1975): 33–35.
[29] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 68.

collecting and launching an amphibious force could no longer be regarded as sufficient for influencing an overseas conflict. Future wars could already be won or lost by the time an amphibious force arrived on scene. A long, steady decrease in available amphibious shipping was another strike against such operations. The Navy had fewer ships to carry a Marine force, which, due to post-Vietnam modernization efforts, had larger and heavier equipment and a correspondingly greater support footprint.[30]

RELEVANCE OF AMPHIBIOUS CAPABILITIES

Marines—wary that their political masters might one day swing the seemingly ever-present headsman's axe—responded vigorously to these questions. Amphibious advocates warned against invalidating the utility of an entire form of war simply because it had not been recently employed, or turning transitory force structure issues into a permanent strategic gap. F. J. "Bing" West Jr., a veteran infantry commander from Vietnam and future assistant secretary of defense under President Ronald W. Reagan, noted that the amphibious landing was only one piece in the Marine Corps' toolkit.[31]

The twentieth century provided innumerable examples of Marines performing "such other duties as the President may direct," from relieving the besieged Foreign Legation in Beijing (then called Peking), China, during the Boxer Rebellion, to extensive land operations in World War I and Korea, to counterinsurgency operations in the Philippines and Vietnam.[32] A short bulletin on Marine Corps missions, dating from well before the post–Vietnam debates, noted 11 specified or implied roles for the Corps derived from the National Security Act of 1947.[33] Indeed, amphibious

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[30] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 66–68.

[31] F. J. West Jr., "The Case for Amphibious Capability," *Marine Corps Gazette* 58, no. 10 (October 1974): 22–24.

[32] West, "The Case for Amphibious Capability."

[33] Col Thomas G. Roe et al., *A History of Marine Corps Roles and Missions, 1775–1962* (Washington, DC: Historical Branch, Headquarters Marine Corps, 1962), 19–25.

warfare had not even been the Corps' primary mission until after World War I; until 1900, that had been service aboard Navy ships, and the first three decades of the twentieth century had seen the Corps' focus split between foreign interventions and land warfare in France.[34] Marines had proven they could do much more than simply guard ships and storm beaches.

That said, a specialized amphibious force still held strategic value. An embarked force hovering near the fringes of a NATO–Warsaw Pact conflict in Europe could tie down enemy divisions in a defensive role, or it could be used to reinforce littoral flanks in Norway or Germany. Concerning the time-in-transit issue, while strategic airlift might be faster than sealift, aircraft still required secure airfields at which to land, and could only carry a fraction of the heavy equipment and supplies of which naval shipping was capable. Finally, an amphibious force provided policy makers with the ability to project a visible presence without immediate commitment, allowing escalation or de-escalation as desired.[35]

Others, such as Colonel John L. Tobin, a veteran of both the Korean and Vietnam Wars, pointed out that as a maritime nation, the United States must expect to periodically conduct naval campaigns. These would likely have a land component, which required "specialized, dedicated forces." Tobin argued that such specialization was only possible by a generations-long development and practice of those operational skills as a primary mission; it was unlikely that another branch, assigned such skills as a secondary role, could perform them as proficiently as Marines. Tobin concluded by stating that "the only certainty about the future is its uncertainty; the only insurance against uncertainty is readiness," and thus having an amphibious force in readiness capable of accessing the world's littorals was an eminently wise investment.[36]

Turbiville, the DIA's Soviet operations expert, made the am-

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[34] Roe et al., *A History of Marine Corps Roles and Missions*, 25.

[35] West, "The Case for Amphibious Capability," 22–24; Alexander and Bartlett, *Sea Soldiers in the Cold War*, 92–102; and Collins, *American and Soviet Military Trends*, 373–78.

[36] Col John L. Tobin (Ret), "Why Have a Marine Corps?," *Marine Corps Gazette* 59, no. 6 (June 1975): 28–40.

phibious argument in reverse. While his analysis of Soviet amphibious landing defenses made for a sobering read, it also highlighted how much the Russians feared such interference. The Soviets thought such landings could disrupt "the offensive momentum of Pact forces advancing along maritime axes." If the Soviets harbored such concern over amphibious landings that they devoted considerable resources to defending against them, surely having the capability to threaten such landings was worth America's while.[37] In considering the many scenarios for future warfare—be it littoral combat, open-plains mayhem as in the Yom Kippur War, or something not yet imagined—warnings such as Tobin's to hedge against uncertainty seemed wise.

Finally, while for some the Yom Kippur War offered only lessons in obsolescence for the Marine Corps, others were not as pessimistic. Lieutenant Colonel G. H. Turley noted that the conflict "reconfirmed many principles of Marine tactical doctrine." As much an expert on modern warfare as any thanks to his key leadership against the North Vietnamese during the Easter Offensive of 1972, Turley identified "the combined arms concept specifically built around the integrated use of air and ground elements" as the most significant lesson. In future conflicts, "combined arms force, possessing an integrated command, control communications system will be mandatory for any military force to effectively operate in an electronic battlefield."[38] Turley's judgment on the importance of combined arms was entirely in line with the post–Yom Kippur War assessments of the U.S. Army and the CIA.[39]

Of all the Service branches, only the Marine Corps boasted a ready-made combined arms team in the MAGTF. More important, properly trained and equipped infantry were not necessarily helpless against massed armored formations. The Israeli mental resilience noted in American post–Yom Kippur War analyses rep-

[37] Turbiville, "Soviet Amphibious Landing Defenses," 26.
[38] LtCol G. H. Turley, "Time of Change in Modern Warfare," *Marine Corps Gazette* 58, no. 12 (December 1974): 20.
[39] *The 1973 Arab-Israeli War*, 109; and Swain, *Selected Papers of General William E. DePuy*, 76, 86–102.

resented a tantalizing missed opportunity that might otherwise have contributed to the later maneuver warfare debate. DePuy, the CIA, and others specifically cited Israeli adaptability and flexibility in helping the Israeli Defense Forces (IDF) recover from the initial surprise achieved by the Arab forces and quickly change ineffective tactics left over from the Six-Day War of 1967. The Israeli tank crews were repeatedly noted as being very well trained, and the quality of this training more than compensated for the overwhelming numerical superiority enjoyed by the Arabs. One Army general stated that "the best tank on the battlefield is yet the one with the best crew." Yet these analyses did not follow through on the implications of such observations. They did not ask what it was about the Israeli mind-set that allowed them to recover from and then rapidly counter a surprise attack that, by any material measure, should have annihilated both the IDF and the country as a whole. Virtually all of DePuy's recommendations focused on weapon systems and making soldiers more efficient in their use. Discussions of how mental frameworks, rather than materiel lethality, could contribute to victory would have to wait a few more years.[40]

Sharing the concerns of many other Marines writing at this time, as seen above, Major Mattingly pointed out the vulnerabilities of Soviet armored forces. He concluded that "while supporting arms and air will certainly play a major role in anti-armor warfare there should be no doubt that in the final analysis the riflemen and members of the weapons platoon hold some very important cards."[41] Part of the destructiveness of the Yom Kippur War came at the hands of infantry armed with handheld antitank and antiaircraft weapons, the lethality of which neither side truly appreciated until they were employed on the battlefield. In other words, while in a quantitative sense Marines might be outmanned and outgunned against a Soviet-style adversary, Marines armed with the right missiles could significantly even the odds. And, in-

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[40] *The 1973 Arab-Israeli War*, 107–8; Rodman, "Eagle's-eye View," 506; and Swain, *Selected Papers of General William E. DePuy*, 76–111.
[41] Mattingly, "Defeating Soviet Armor," 36–39.

deed, stocks of ATGMs were one area where the United States enjoyed a pronounced advantage over the Soviet military.[42]

The bigger question was whether these advantages offset the apparent vulnerabilities of a lightly armed, slow-moving amphibious landing force. Turley believed that all American forces, the Corps included, required changes to provide a "creditable deterrence" to those threatening the nation's interests.[43] E. W. Girard, an operations analyst for the United States Army, supported a national reemphasis on maritime strategy—in which the Marine Corps would play a vital part—but also could not deny that "our potential adversaries can assemble numerically superior and qualitatively comparable strength against any landing force our ready forces can mount."[44] His conclusion encapsulated the tacit understanding of even the most ardent defenders of the Corps:

> The trick for the Marine Corps will [be] to be integral to the presently undefined and undefinable future force concepts and structures that are attractive to the top in the 1970's and 80's [*sic*], as it was half a century before. . . . What is needed are "grabby" concepts and proposals that will capture the minds of high level national security managers and planners.[45]

A few grabby concepts had begun percolating at this time, as are discussed in chapter 3. But before they could take hold, two analysts dropped a bomb into the middle of the debate. Suddenly, defining the near future for the Marine Corps gained a new urgency.

AMPHIBIOUS IRRELEVANCY

In January 1976, Martin Binkin and Jeffrey Record of the Brookings Institution released a study with the pointed title *Where Does the Marine Corps Go from Here?* Its premise was "whether the Marine Corps is appropriately geared to meet the most likely threats

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[42] Collins, *American and Soviet Military Trends*, 186.
[43] Turley, "Time of Change in Modern Warfare," 20.
[44] E. W. Girard, "Return to a Maritime-based National Strategy for the Marine Corps," *Marine Corps Gazette* 60, no. 11 (November 1976): 40.
[45] Girard, "Return to a Maritime-based National Strategy," 45.

to U.S. national interests . . . and, if not, what should be done about it."[46] Although the document weighed in at less than a hundred pages, its conclusions and recommendations fell like hammer blows. After briefly surveying the Corps' history, doctrine, and force structure, the authors embarked on a global survey of the most likely threats and domestic implications of each. They concluded that "taken together, [the threats] strongly suggest that continued Marine Corps fixation on the amphibious mission is unwarranted in light of foreseeable military requirements and growing domestic political opposition to the use of U.S. military forces in general." While world affairs had moved beyond the ability of an amphibious force to influence them, Binkin and Record offered a silver lining. The obsolescence of the Corps' primary mission now made available "some portion of USMC forces for alternative missions."[47] Each alternative, however, left the Marine Corps more unrecognizable than the last.

Binkin and Record offered four ways to reimagine the Marine Corps in the context of the geopolitical and threat landscape as they saw it. Their first proposal reduced the Corps' active forces by two-thirds, completely demobilized the Reserves, and left the remaining one and one-third MAF to dedicate itself exclusively to the amphibious mission on those rare occasions that called for it. The second had the Marine Corps take over responsibility for land warfare in Asia and the Pacific from the Army. The authors believed that, given the general lack of technological sophistication evinced by enemies in that region, the lightweight and slow-moving Marines would perform well enough against them. The third alternative saw the Marines assume the airborne quick-reaction mission of the Army's 82d Airborne Division. Most of the III MAF, all of the IV MAF (Reserve), and all Marine fixed-wing tactical aviation would be demobilized. The Army did not escape the authors' force structure scalpel; the 82d Airborne would be demobilized too. In the fourth and final alternative, Marine

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[46] Martin Binkin and Jeffrey Record, *Where Does the Marine Corps Go from Here?* (Washington, DC: The Brookings Institution, 1976), vii.
[47] Binkin and Record, *Where Does the Marine Corps Go from Here?*, 41.

Corps units would receive sufficient armor and vehicles to be a viable Army partner for sustained ground combat in Europe. Again stripped of their own fixed-wing tactical aircraft, and handed enough tanks and armored personnel carriers for the task, these newly designed Marine units would be virtually indistinguishable from those of the Army. When the authors were done with it, the Marine Corps had dwindled to something that was neither marine nor a corps.[48]

Concluding that the Marine Corps must either shrink or join the Army, Binkin and Record hammered one final nail in the coffin: "The future of the Marine Corps as an instrument of American military power will depend on a successful resolution of the issues raised in this study. Failure to do so could reduce that part of the Corps that cannot be justified on the grounds of foreseeable amphibious operations to a costly anachronism increasingly haunted by its limitations." Binkin and Record had opened their study criticizing amphibious warfare, in stark contrast to the more optimistic appraisals of Marine officers in the *Gazette,* as an "unwarranted fixation." They closed it with a last stinging judgment: "The golden age of amphibious warfare is now the domain of historians, and the Marine Corps no longer needs a unique mission to justify its existence."[49] In less than a hundred pages, the authors had determined that both an entire class of warfare and the term *Marine* were redundant. Moving well beyond the idle speculation of the defense secretary, they offered apparently well-intentioned recommendations on how the Corps could have a future. It just had to become completely different.

REBUTTALS

The last lines of this report demonstrated a significant misunderstanding of how the Marine Corps viewed itself. Since World War I, the Marine Corps had always carved out its own unique role. This served, in part, as protection from congressmen and Service chiefs from other branches who regularly sought to disband it; but

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[48] Binkin and Record, *Where Does the Marine Corps Go from Here?*, 71–83.
[49] Binkin and Record, *Where Does the Marine Corps Go from Here?*, 88.

also, as discussed earlier, because the Marine Corps prided itself on offering unique capabilities with each change in the global threat landscape. Inherent to the Corps' culture was confidence in the organization's foresight, adaptability, and utility in times of crisis. Binkin and Record's analysis managed to miss this rather important institutional perspective.

Unsurprisingly, Marines disagreed with their assessment. Indeed, shortly before the study was officially released, Commandant General Louis H. Wilson Jr. (1975–79)—Cushman's successor—replied to a journalist's observation on the apparent obsolescence of amphibious warfare that "critics had said that before. They were wrong then and just as wrong now."[50] But specific rebuttals to the Brookings report were not long in coming. Major J. K. Rider, a veteran infantry commander with multiple tours in Vietnam, argued that with the Warsaw Pact countries and Soviet Union expanding their amphibious capabilities, it made no sense to hamstring America's counterweight. He noted that removing an amphibious threat could allow Russia to shift its resources elsewhere against NATO.[51] Rider also dismissed the proposal to give Marines the airborne mission, observing that such a radical shift would rob the new airborne force of institutional memory and actually make it less responsive in the near term due to the need to train Marines in their new tasks. In short, he found that the Brookings study offered a "face-value attractiveness of saving money" but "left too many questions unanswered, too many areas that need further study."[52] And Rider was not alone in his assessment.

Another Vietnam infantry veteran, Major Michael R. Janay, in "The Brookings Smokescreen," countered much of the budgetary methodology behind the Brookings report, as well as sloppy cross-Service comparisons, where such comparisons included equating a Marine Aircraft Wing (MAW) commanded by

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[50] Col David H. White Jr., "Louis H. Wilson 1975–1979," in *Commandants of the Marine Corps*, 429.

[51] Maj J. K. Rider, "An Alternative Marine Corps" (master's thesis, U.S. Army Command and General Staff College, 1978), 46–82. Rider shared the assessment of Soviet antilanding defenses provided by Turbiville.

[52] Rider, "An Alternative Marine Corps."

a major general to an Air Force wing—with half the number of aircraft—commanded by a colonel. His conclusion was less charitable than that of Rider: "It is a well-known fact that any subject, when superficially studied, will furnish agreements in support of any theory or opinion. This is what appears to have occurred with this study."[53] Attacking the methodology and conclusions of the Brookings report could only go so far. The study was simply the most public and polarizing data point in a debate that had been simmering since the Marine Corps began withdrawing major combat formations from Vietnam. It highlighted the uncomfortable fact that, as an institution, the Corps had done a poor job of defining its role in the complex and unfriendly near future world.

CONCLUSION

As had their predecessors from past wars, Marines in the 1970s returned from the battlefields of Vietnam understanding that they needed to ready themselves for the next conflict. Yet they also realized that the trends of the last decade meant that future warfare would not resemble the golden age of amphibious operations during the Second World War. Marines were done with the jungle, but unclear on what would come next. They hoped to retain their unique Service character and offer valuable capabilities, be they amphibious, expeditionary, or something else in nature. Marines celebrated their heritage and track record in battle and were not ready to see their Service or culture completely dismantled. Even though individual Marines understood change was coming, institutional change grinds slowly, and thus Binkin and Record, in a backhanded way, did the Corps a favor. They provided a catalyst for grappling with crucial questions about the Marines' future, which pointedly drove at the Corps' ultimate desire to remain *useful*. While returning officers wrestled with this at the end of the Vietnam War, the late 1970s was the time to answer the Brookings analysts' question. Where would the Marine Corps go from here?

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[53] Maj Michael R. Janay, "The Brookings Smokescreen" (unpublished manuscript, photocopy, Special Collections, Library of the Marine Corps, Quantico, VA), 3–12.

Where Does the Marine Corps Go from Here?

Paving the Way for Maneuver Warfare

In the years following the release of the Brookings Institution report *Where Does the Marine Corps Go from Here?*, thinkers both inside and outside of the Marine Corps engaged in vigorous discussion about the Corps' future. After the end of the Vietnam War, the Marine Corps had to reconsider its role in the face of new global circumstances and international obligations. As mentioned in the previous chapter, the shape of that future revolved around defining the Corps' mission and determining how the Corps would organize and fight to fulfill it. More crucially, it drove to the heart of the Marine Corps' institutional tradition of utility. The outlines of the discussion over the Corps' future could be found in the multitude of articles published in the *Marine Corps Gazette*. These articles were written by both civilians and uniformed Marines, and some of their recommendations were later codified in doctrine, equipment acquisitions, and force structure changes. Yet, as Marines looked toward future war and its challenges, they raised more questions than answers.

THE PATH TO MANEUVER WARFARE
The early years of debate offered some solutions, but to a small cadre of Marines, these proposals felt incomplete. What remained

lacking, they believed, was a holistic vision that could be applied to operations "in every clime and place."[1] As the nation's force in readiness, the Marine Corps already had a physical structure, the MAGTF, which could be tailored according to circumstances. Such contingencies included amphibious operations, a mission many Marines wanted to return to or at least not abandon entirely as a Service capability. Yet this physical flexibility was not coupled to any larger concept that gave the Marine, as an individual, deeper insight into the mental and moral capabilities—and, more critically, weaknesses—of the myriad human adversaries he might face. The veterans involved in the debate saw this intellectual gap as the key to America's costly failure in Vietnam. As leaders looked to the lessons of the last war and their application to the future, they did not want their Marines to pay the price for this deficiency again. By the end of the 1970s, this small group increasingly believed that a concept called *maneuver warfare* offered the holistic vision they sought, and they learned that the foundations of this idea came from the mind of an eccentric retired Air Force colonel named John Boyd.

This was the time when Boyd, now a civilian, was exploring the deeper questions on conflict that had intrigued him while he was in uniform. This exploration first generated his essay, "Destruction and Creation," with its discussion of mental frameworks contributing to survival. Boyd followed this essay with his presentation, "Patterns of Conflict," which applied the insights of "Destruction and Creation" to warfare. It was "Patterns of Conflict" and its robust exegesis on maneuver warfare that, by 1980, influenced the Corps. As Marines became aware of Boyd's ideas, they folded them into their embryonic discussion of victory by maneuver. Other Marines, like a young officer named Stephen W. Miller

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[1] This phrase is taken from the second verse of the "Marine's Hymn," the official anthem of the Marine Corps. The full line is "we have fought in every clime and place/where we could take a gun." It is one of many parts of the hymn that captures the traditionally expeditionary and global character of Marine Corps operations. It has often been cited in official Marine Corps doctrine, mission statements, recruitment materials, and other documents to indicate the Corps' readiness to execute any job assigned to it.

(who will be introduced shortly), were already experimenting with maneuver techniques in the field and found in Boyd's framework a structure to direct their methods, which they previously lacked. As with Boyd, this growing group of Marines understood the need to survive and thrive, and maneuver warfare offered the basis for accomplishing that as an institution and, more crucially, in combat.

THE BIG QUESTIONS

In the post–Vietnam War era, the questions the Marine Corps had to answer were clear: What was the Corps to do, and how was the Corps to do it? Marines and their civilian proponents agreed on the questions, but finding consensus on the answers proved more difficult. In examining these different threads, one can see how John Boyd's ideas—advocated by maneuver warfare proponents with varying degrees of understanding—came to frame and shape what became the Corps' ultimate answer.

Finding a Battlefield

The first question—defining the Corps' mission—required addressing a few other issues. Many Marines and civilians within the Department of Defense believed that the primary mission should continue to be amphibious warfare. In the face of increasingly strong headwinds, however, defending that mission more vocally and with greater persuasion became critical. That defense also required better articulation of the other missions the Corps could perform as the nation's focus shifted from Southeast Asia to the defense of Europe. The Marine Corps needed to show that it could participate effectively in that big game and outline where it could be best deployed to make a difference.

Advocacy of the amphibious mission redoubled during this time. Several of the Brookings recommendations required prepositioning Marine forces in likely future hotspots. Yet critics noted that the United States had neither the resources nor the global political capital to preposition forces for every possible contingency. Deterrence, as a tool for geopolitical purposes, would have to be done more creatively, and creativity had been one of the Corps'

greatest strengths over time.[2] Furthermore, having an amphibious option gave policy makers a flexible, unpredictable, scalable, and politically palatable deterrent that prepositioning could not hope to match.[3] As Boyd's ideas began influencing the Marine conception of maneuver warfare, Marines would adapt them to support the Corps' missions, including amphibious operations. Captain Stephen Miller was one of those Marines and noted another benefit of the amphibious force in an article focused on mechanizing the Marine Corps:

> The mobility imparted by sea power will enable a modern aviation/mechanized amphibious team to penetrate an enemy's extended and, therefore, exposed coastal flanks, reaching into those vital yet vulnerable logistics and command areas far behind the forward combat elements. This force, using flexibility, speed and surprise to maximum effect, will in the destruction of these facilities . . . create a ripple of calamity of ever increasing magnitude and effect.[4]

One sees here, beyond the amphibious argument, a glimpse of the mental and moral aspects inherent to Boyd's theories on maneuver warfare: "the ripple of calamity" inflicted on the enemy's mind had greater importance than the initial physical destruction. As Marines tried to answer the question posed by the Brookings report, they would find in Boyd the intellectual framework for ex-

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[2] Following World War II, several international relations scholars outlined deterrence theory. Bernard Brodie, Thomas Schelling, Lawrence Freedman, and others influenced security studies during the Cold War, but scholars disagreed about the best method of deterrence, especially when it came to the use of nuclear weapons. An example of deterrence theory analysis can be found in Lawrence Freedman, "The First Two Generations of Nuclear Strategists," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, NJ: Princeton University Press, 1986), 735–78.

[3] LtCol Gerald L. Ellis and Maj Gerald J. Keller, "No Doubt; the U.S. Needs Amphibious Forces," *Marine Corps Gazette* 62, no. 2 (February 1978): 27–34.

[4] Capt Stephen W. Miller, "It's Time to Mechanize Amphibious Forces," *Marine Corps Gazette* 62, no. 6 (June 1978): 39.

plaining how the Corps could be a force in readiness with both expeditionary and amphibious capabilities.

Miller, like most Marines, was not ready to abandon the notion of amphibious utility, regardless of Binkin and Record's assertion that it was an outmoded capability. Long-serving infantry officer Lieutenant Colonel Gordon D. Batcheller cited another Brookings Institution study that appeared a year after Binkin and Record's, which highlighted the fact that "naval units were involved in 80 percent of the 215 times military forces were deployed for political impact abroad in the 30 years following World War II." Batcheller attributed this to the unique "ability of naval forces to move on some 70 percent of the earth's surface without the requirement to negotiate an international boundary or signal an irrevocable political commitment."[5] Others outlined the utility of an amphibious capability for the specific purpose of deterring Soviet aggression and expansion abroad.[6]

Amphibious proponents also observed that the airmobile option could actually prove less flexible than the supposedly archaic use of ships, given its requirement for access to airspace and secure airfields, its inability to transport heavy equipment, and its vulnerability to interception.[7] Indeed, noted strategist Captain B. H. Liddell Hart once argued that "strategic movement by air is so *liable* to be blocked or impeded by countries in its path . . . that it is becoming strategically *unreliable* as a way of meeting the worldwide problems of the Atlantic Alliance, which more truly should be called the Oceanic Alliance."[8] Furthermore, the fact remained that, while one could acknowledge the increased risk to a MAF

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[5] LtCol Gordon D. Batcheller, "Maritime Strategy," *Marine Corps Gazette* 65, no. 7 (July 1981): 45.

[6] See chapter 2 for the initial discussion of how amphibious operations and the Marine Corps could be used in Europe during the Cold War. See also John F. Lehman Jr., "Amphibious Capability and Maritime Strategy," *Marine Corps Gazette* 65, no. 10 (October 1981): 38–43; and Dov S. Zakheim, "The Role of Amphibious Operations in National Military Strategy," *Marine Corps Gazette* 68, no. 3 (March 1984): 35–39.

[7] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 134.

[8] Capt B. H. Liddell Hart, "Marines and Strategy," *Marine Corps Gazette* 64, no. 1 (January 1980): 30–31, emphasis in original.

posed by modern PGMs, such an admission did not necessitate dismantling the mission entirely. As defense analyst Russell Murray II observed, "To accept the premise that amphibious assault is finished as a viable mission is to assert that the beaches we might want to attack anywhere in the world are sure to be defended by forces strong enough to defeat a full MAF, even after all the preliminary bombardment or surprise we could possibly muster." True, Marines landing on beaches were more vulnerable than in the past because "precision-guided munitions have benefited the defenders on the beach more than they have the attackers from the sea." But for Murray, this was an "unfavorable trend, rather than a fatal weakness," and like many Marines, he believed the risk could be countered with judicious and creative mitigation and did not require the abandonment of a proven, useful way of war.[9]

Batcheller, Hart, and Murray all touched on a key point about the nature of American geography first raised by Alfred Thayer Mahan almost a century earlier: as an inherently maritime nation, necessity demanded that the United States ensure its own access to vital resources. Echoing Mahan, Batcheller noted that "we are an insular nation with a global economy. Our economic health . . . depends on overseas resources. Our survival is directly tied to our ability to maintain control of the sea and air lines to these resources, and, if necessary, to a capability to forcibly ensure our access to such resources."[10] Batcheller's characterization thus made room for the Marines as well as the Navy. In 1980, a point paper prepared for a General Officers' Symposium captured all of these points—America's maritime nature, limits of prepositioning and strategic airlift, deterrence, and flexibility —and concluded:

> The alleged infeasibility of amphibious assault vis-à-vis modern technology is not based upon fact but rather on faulty scenarios. This amphibious capability is required in a NATO/global war and in a lesser conflict. It provides flexibility to conduct opportune counterstrokes on

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[9] Murray, "The Marine Corps' Future Lies in Being Useful," 26.
[10] Batcheller, "Maritime Strategy," 44.

the flanks, to provide defensive depth, and to retain the initiative regardless of the situation.[11]

One *Gazette* author summed up the amphibious argument with a simple historical truth: "The bottom line, in plain language—amphibious operations work."[12]

The defense of NATO's northern flank—Iceland, Norway, and Denmark—gained significant traction as an ancillary mission for the Corps during this time. A nonnuclear European conflict of any significant duration would require American reinforcements, the disembarkation of which had to be protected by NATO forces operating from Denmark and Norway. Soviet naval forces also had to be denied access to Atlantic convoy routes, and this could not be accomplished if Norway and Denmark were overrun by any of the Warsaw Pact countries.[13] Colonel Richard D. Taber Sr., an experienced fighter from Korea and Vietnam, emphasized that "if there is one place outside the territorial confines of the North American continent where American interests may be regarded as truly vital, that place is Europe."[14] As a European war remained a key strategic factor in U.S. defense planning, the Marine Corps had to be ready to participate.

When the 1976 Brookings report came out, battalion-size Marine forces had already joined in NATO exercises focused on that northern flank; now these forces grew to a brigade-size element, and continually gained regional credibility and experience.[15] The

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[11] "Point Paper #318–80, Viability of Amphibious Assault, 1980–2000," Studies and Reports Collection, Conferences, General Officers' Symposium (August 1980), Archives Branch, Marine Corps History Division, Quantico, VA.

[12] Maj C. L. Armstrong, "The Amphibious Business," *Marine Corps Gazette* 65, no. 7 (July 1981): 47.

[13] Millett, *Semper Fidelis*, 609; LtCol Douglas C. MacCaskill, "Norway's Strategic Importance," *Marine Corps Gazette* 65, no. 2 (February 1981): 28–33; and Cdr James J. Tritten, USN, "The Defense of Northern Norway," *Marine Corps Gazette* 68, no. 1 (January 1984): 28–29.

[14] Col Richard D. Taber Sr., "One Reason Why Marines Should Be in NATO," *Marine Corps Gazette* 61, no. 12 (December 1977): 34.

[15] Millett, *Semper Fidelis*, 609; and Maj Roger M. Jaroch, "NATO: Past, Present and Future," *Marine Corps Gazette* 64, no. 6 (June 1980): 29–40.
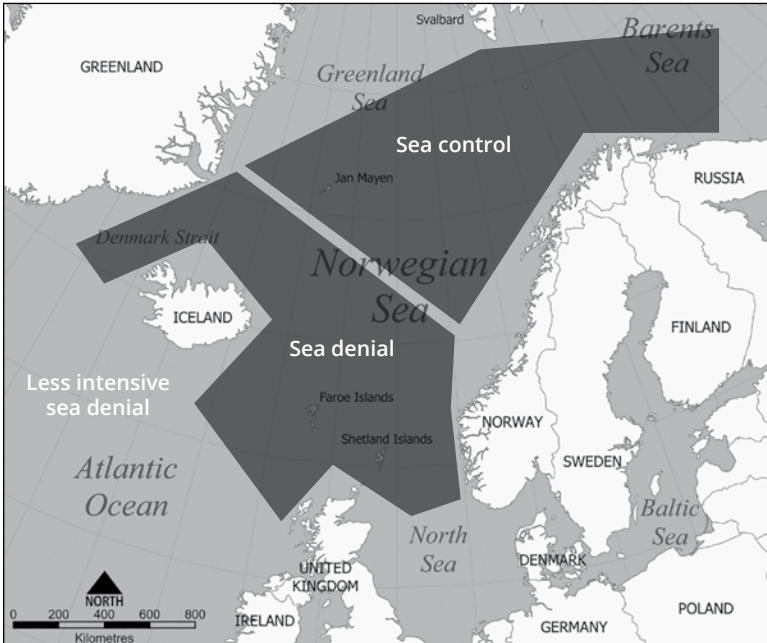
(Top) Map 1. NATO northern flank and projected Soviet invasions. (Bottom) Map 2. Projected Soviet naval activity in the North Atlantic during a NATO–Warsaw Pact conflict. As these maps show, for the Soviet Navy to enjoy freedom of action in the area and prevent NATO forces from sending reinforcements through Scandinavia, it needed to invade and occupy large swathes of Nordic territory. The relative isolation of this northern flank from land routes made its defense by amphibious forces like the Marine Corps a natural choice.
National Intelligence Estimate of 1979, adapated by MCU Press

Marine Corps' option could also help NATO bridge a sensitive gap by ensuring the commitment of these northern countries to the alliance while avoiding the permanent stationing of forces that those countries found domestically unpalatable.[16] During his commandancy, General Wilson supported the northern flank role, noting that as "an ace in the hole," a Marine amphibious force could tie down Soviet forces indefinitely on the NATO flanks. Wilson also reiterated the value of an amphibious force's flexibility and mobility: "There are 8,000 miles of coastline between Europe's North Cape and Greece, and we are the only ones who can project this power ashore."[17]

Despite the Commandant's view, some Marines dissented on the importance of the NATO mission. Major Perry W. Miles, for example, argued that accepting the northern flank mission would require a disastrous organizational reorientation against a threat whose likelihood was probably exaggerated. A MAF would not arrive in time or with the force of arms necessary to make much of a difference against a determined Soviet offensive. The Marine Corps was better used as a responsive and flexible force defending international maritime trade routes against lower-tier, but no less dangerous, adversaries that it could actually overpower.[18] But high-ranking dissenters were few, and so by 1982, the Marine Corps had adopted the northern flank mission, prepositioned equipment in Norway, and developed the necessary training and tactics.[19] Thus, as of 1982, Marine Corps leaders had prepared their Service to participate in the European main event, and in a way that gave the amphibious mission new vitality.

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[16] Frank Uhlig Jr., "The Marine Corps' Future May Lie North of the Arctic Circle," *Marine Corps Gazette* 64, no. 2 (February 1980): 32–38.

[17] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 71; and White, "Louis H. Wilson 1975–1979," 429–31.

[18] Maj Perry W. Miles, "Finding Better Use for the USMC than Commitment to NATO," *Marine Corps Gazette* 61, no. 12 (December 1977): 31–34.

[19] Col M. D. Cerreta Jr., "Cold Weather Conference in Norway," *Marine Corps Gazette* 66, no. 7 (July 1982): 19–21; Millett, *Semper Fidelis*, 609; and Alexander and Bartlett, *Sea Soldiers in the Cold War*, 127–28, 139–41.

To Heavy Up or Not to Heavy Up

Answering the second question—how the Corps would organize and fight to fulfill its future mission—focused on whether or not a light infantry force remained useful on the modern battlefield. Others had already argued that the Yom Kippur War offered evidence for its continued utility. But the many concerns raised in chapter 2 still required analysis: namely, how a relatively small MAU or MAB, lightly armed and mostly infantry, could hope to win against a larger, mechanized opponent armed with a plethora of PGMs. Many argued for a technological solution to this issue, searching for weapons and vehicles that combined tactical mobility with heavy firepower.[20] The debate quickly turned to whether the Corps should mechanize or *heavy up* (add armored vehicles, such as armored personnel carriers [APCs] and tanks), to what degree, and what impact such an effort might have on the already limited amount of sealift available.

Amphibious mechanization offered many advantages in the realms of mobility and firepower.[21] Added to this was the psycho-

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[20] Millett, *Semper Fidelis*, 617.

[21] William S. Lind, "Proposing Some New Models for Marine Mechanized Units," *Marine Corps Gazette* 62, no. 9 (September 1978): 34–38; Maj James R. Williams, "Wheeled Combat Vehicles Offer a Possible Solution to the Marine Corps' Ground Mobility Problem," *Marine Corps Gazette* 62, no. 10 (October 1978): 41–48; Col Larry R. Williams, "More Mobility for Today's Threat," *Marine Corps Gazette* 64, no. 7 (July 1980): 32–36; Col Thomas T. Glidden, "Establishing a Permanent Mechanized MAB," *Marine Corps Gazette* 64, no. 7 (July 1980): 43–48; Capt S. W. Miller and Capt R. A. Stewart, "New Fighting Vehicle Options," *Marine Corps Gazette* 64, no. 10 (October 1980): 47–53; Col Larry R. Williams, "Acquiring New Armored Vehicles and Weapons," *Marine Corps Gazette* 64, no. 12 (December 1980): 28–33; Capt Edwin W. Besch (Ret), "Light Armored Vehicles—Needs and Candidates," *Marine Corps Gazette* 64, no. 12 (December 1980): 34–44; Besch, "Light Armored Vehicles: Part II Uses and Organizations," *Marine Corps Gazette* 65, no. 1 (January 1981): 55–62; Capt Richard A. Stewart, "A Light, Medium, and Heavy Approach to Marine Corps Operations," *Marine Corps Gazette* 65, no. 7 (July 1981): 30–35; Capt Richard G. Carter, "Mechanization: United or Divided?," *Marine Corps Gazette* 66, no. 8 (August 1982): 26–28; Besch, "Infantry Fighting Vehicles: Their Evolution and Significance," *Marine Corps Gazette* 67, no. 7 (July 1983): 50–60; Maj Kenneth W. Estes, "More on Mechanizing Marines," *Marine Corps Gazette* 67, no. 7 (July 1983): 58–59; and Besch, "Adding Perspective to the Light Armor Debate," *Marine Corps Gazette* 72, no. 4 (April 1988): 53–54.

logical impact of the appearance of armor—rumored or real—at an unexpected time and place. Captain Miller appeared in the discussion again, noting that modern armored vehicles made terrain less restrictive, and it "should also be recalled from combat history that because of psychological impact, often the introduction of even a small amount of armor in seemingly impossible terrain will provide a decisive combat advantage in excess of numbers."[22] Once more, Miller hinted that the decisive battlefield lay somewhere beyond the physical one, and this perspective would be very receptive to Boyd's later packaging of maneuver warfare.

Critics cried that mechanization spelled the death of the Corps' amphibious nature. Yet, proponents pointed out that adversaries' militaries had already successfully merged the two capabilities. Captain Edwin W. Besch, an experienced analyst of both Army and Marine Corps light armored vehicle programs, detailed the nature of modern Soviet naval infantry formations. He noted that the average brigade came with a large light tank battalion and enough APCs to transport every infantryman, and employed amphibious ships that could carry a complete infantry battalion with all of its vehicles.[23] If the Soviets could successfully mechanize their amphibious forces, so could the United States. In the Cold War era, this was a strong argument, especially given Russia's modern record of masking capabilities from American detection and superiority in other conventional military assets, discussed in chapters 1 and 2, respectively. This was a matter of necessity; otherwise, once deployed to the battlefield, infantry and unarmored Marines faced "inherent disadvantages in firepower, mobility, and protection compared to the armored and mechanized infantry forces of Warsaw Pact armies and naval infantry."[24]

Nevertheless, detractors of mechanization argued that tanks

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[22] Miller, "It's Time to Mechanize Amphibious Forces," 40.

[23] Alexander and Bartlett, *Sea Soldiers in the Cold War*, 95–98; Collins, *American and Soviet Military Trends*, 188; and Lewis, *A Comprehensive Examination of the Soviet Naval Infantry*.

[24] Capt Edwin W. Besch (Ret), "Armored and Other Mechanized Forces Can Be Successfully Adapted to Amphibious Operations," *Marine Corps Gazette* 61, no. 4 (April 1977): 47.

were fundamentally incompatible with the amphibious mission, both in terms of the limitations of sealift and the doctrinal tasks required of the amphibious force. One such detractor, Major A. C. Bevilacqua, a veteran of Korea and Vietnam, warned that those seeking full mechanization risked turning the Marine Corps into a second land army. That could lead to the realization of the long-held historical fear of actual absorption by the Army, just as Brookings authors Binkin and Record had recommended in their now-infamous report. Modern threats certainly demanded changes in how Marines executed a forcible entry, but Bevilacqua believed those changes lay in increasing the quantity of artillery, antitank PGMs, and mobile troop carriers available to the landing force. Tanks were the provenance of the Army; when a naval campaign reached the point where tanks were required, that meant it was no longer truly naval and the Army should take over so that the landing force could be withdrawn for use elsewhere. The Corps needed to remember it was an amphibious creature and that "like all amphibious creatures, the farther it gets from water, the closer it comes to death."[25]

Another rebuff to mechanization advocates was the argument that light infantry need not be encased in armored shells to survive and punch back against opposing armor. Antiarmor PGMs—which the Corps had already procured for Marine infantrymen and supporting aviation—could effectively neutralize armored threats without requiring significant mechanization in return. Lieutenant Colonels Ray M. Franklin and John G. Miller noted that, in a world of PGMs, tanks became "big iron boxes rumbling across the battlefield, creating noise, heat, magnetic fields and other distinct signatures, presenting a clear-cut target array for the 'smart' arrows of space-age longbows."[26] Colonel Taber outlined the many antiarmor systems present in the modern MAF, and he

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[25] Maj A. C. Bevilacqua, "Headlong Down the Road to Extinction," *Marine Corps Gazette* 64, no. 1 (January 1980): 44. See also Capt R. B. Walters, "Maneuver, Mobility, and the LAV," *Marine Corps Gazette* 68, no. 6 (June 1984): 50–51.
[26] LtCol Ray M. Franklin and LtCol John G. Miller, "Modern Battlefield Technology Calls for Reinvention of the Longbow," *Marine Corps Gazette* 61, no. 10 (October 1977): 42.

borrowed the perspective of Lieutenant General Robert H. Barrow—then commander of Fleet Marine Force Atlantic—on their use: "What technology has done for the infantryman boggles the mind. The Corps is exploiting that technology and would not be too light for any armor the Warsaw Pact sent against it."[27] Finally, Army Major John P. Gritz argued against the use of a light armored vehicle as an antiarmor option. He believed that the increased requirements it would foist on both strategic and tactical lift, its lack of protection against any weapon larger than a small arm, and its significant logistical footprint offset any possible advantages.[28]

MISSING PIECES

Overall, the pages of the *Gazette* saw Marine Corps officers—with the occasional outside comment from other Services and civilians—trying to adapt to the modern battlefield. These officers could find reasons for and against heavying up, but without an overriding concept (grabby or not) to tie their thoughts together, their voices were a discordant chorus. Major Gritz and others believed that an infantry-centric force like the Marine Corps could still thrive under the right conditions. It was defining those conditions that proved elusive. Gritz argued an infantryman or helicopter equipped with antiarmor PGMs was just as enduring and lethal as another tank on the battlefield. Helicopters could provide required mobility, and in many instances the infantry rifleman, not bound to roads, enjoyed greater mobility than a tank or APC. A compromise of sorts was reached between the mechanizers and infantry-philes in the light armored vehicle (LAV) program that began in 1980 and fielded a Canadian eight-wheeled variant in 1983.[29] The LAV offered the greater mobility and firepower that mechanization advocates wanted—as it could cross rough terrain, travel fast on roads and flat ground, and featured a 25mm chain

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[27] Taber, "One Reason Why the Marines Should Be in NATO," 37.
[28] Maj John P. Gritz, USA, "Light Armored Vehicles or Light Armored Victims?," *Marine Corps Gazette* 66, no. 8 (August 1982): 36–42.
[29] Millett, *Semper Fidelis*, 619.

An LAV-25 transports Marines through the Norwegian countryside during Operation Cold Winter 1987, a NATO-sponsored military exercise. The LAV offered the additional firepower and mobility desired by mechanization advocates in a package that did not overwhelm amphibious lift capability. Its employment in Norway also demonstrated its utility in helping the Marine Corps execute the assigned task of defending NATO's northern flank.
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gun—without overwhelming amphibious lift capacity, thus addressing the concerns of officers who wanted to keep the MAUs and MABs relatively lightweight.

As shown here, in the aftermath of Vietnam and the 1976 Brookings report, the Marine Corps enjoyed what Lieutenant General Paul K. Van Riper called an "intellectual renaissance" as it grappled with its place in the modern world.[30] This was in addition to many other positive changes in an era of reform that tackled many of the problems suffered by the Corps at the end

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[30] Gen Alfred M. Gray Jr., LtGen Paul K. Van Riper, and Maj John F. Schmitt, "Warfighting Discussion Panel with Gen Alfred M. Gray, LtGen Paul K. Van Riper, and Maj John F. Schmitt," moderated by Twayne Hickman, 24 February 2015, video and transcript, 1:23:29, hereafter Gray et al. interview.

of Vietnam, such as indiscipline, racial tension, and aging equipment.[31] But as stated at the beginning of this chapter, for some Marines thinking and writing about the topic, these arguments still felt incomplete. The niche mission on NATO's northern flank was high profile but did little to prepare the Corps for the many other locations where it might fight. Although the LAV was a good piece of gear, the sheer variety of possible missions and terrain in which a MAU might operate meant it would not always be employable. Moreover, while revalidating the amphibious mission provided continuity to the Corps' golden past, the fact was that Marines were often called on to perform nonamphibious tasks.

As arguments progressed about what vehicle to buy or which NATO mission to adopt, a few Marines looked for a more satisfying and holistic answer to the question: Where does the Marine Corps go from here? They sought a unifying concept compatible with the Corps' larger tradition of being "first to fight . . . in any clime and place." Regardless of the particular weapons employed, adversary to be faced, or whether a beachhead was even part of the equation, some thread was needed to tie the Corps' multifaceted operations together to eliminate any perception that, as an organization, it was disjointed, anachronistic, or redundant. This thread also needed to reilluminate the human elements of conflict. The Combined Action Program's success had come from its emphasis on understanding the Vietnamese people and what things could separate them from the Communist insurgents. The grand failure of Vietnam derived from the higher leadership's refusal to substitute such attempts at understanding, more difficult though they might be, for the conventional large-scale operations that were easier for American leaders to wrap their minds around. Yet, search and destroy was of little import to Communist leaders who knew that the decisive battlefield was the mind, and the key to victory lay not in body counts or the seizure of terrain but in swaying the perceptions of both the Vietnamese and American populace.

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[31] Millett, *Semper Fidelis*, 607–35; and Packard, "The Marine Corps' Long March," 38–229. Packard offers particular detail on the extensive personnel reforms undertaken by Marine Corps leadership in the post–Vietnam War years.

Primacy to the People

While these Marines did not yet know it, their sense that the contemporary institutional debate was incomplete mirrored a personal mantra held by John Boyd and expressed frequently throughout his life. Whether building an organization or fighting a war, Boyd believed the human element always deserved primacy: "People, ideas, hardware—in that order."[32] Technology and concepts should empower the person, not the other way around. And these Marines felt intuitively that the arguments taking place during the late 1970s inverted such priorities. Things (mechanized and armored vehicles, force structures, missile systems) and ideas (amphibious and other missions, the NATO flank) were getting the most consideration. There was little discussion of the people who would always be present in a way vehicles and terrain might not. Those people were the Marines and their adversary; surely, then, the central discussion should focus on the mental and moral factors that needed to be strengthened for the former and undermined for the latter. From that, missions and hardware could be better tailored for both.

Consequently, the unifying thread these Marines sought had to do many things. Contrary to the conclusion reached by Binkin and Record, it had to be unique. The idea required a distinctiveness that matched the singular history of an American naval infantry organization that had adapted itself, along with its homeland, to the ever-changing requirements of a world power. The idea had to be adaptable, for the Marine Corps was mandated by law to be infinitely flexible as a force in readiness for myriad contingencies. The idea needed a relentless focus on the one constant in a world of infinite threat variables: human beings. It had to be useful. It had to be, as E. W. Girard labeled it, grabby. The nascent concept of maneuver warfare seemed to meet these criteria. As Marines saw that it did, it became the vehicle by which John Boyd infiltrated the Marine Corps and found a home for his ideas on conflict.

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[32] Coram, *Boyd*, 354, 382; and variations of this statement are also found in Hammond, *The Mind of War*, 12, 110, 193.

Maneuver warfare did not enter the postwar debates fully formed or with great fanfare. It came in hints and whispers, often—as seen in several of the articles cited above—as a tangent to some other central point. It gained greater prominence as the debates wore on, because those Marines dissatisfied with the Corps' performance in Vietnam increasingly found that arguments over equipment and mission sets missed the larger deficiency: understanding one's enemy. Adding more tanks to a table of organization or claiming custody of a northern flank did nothing to address the intellectual analysis required to figure out why an enemy fought and what would make him quit. The maneuver debate soon brought the cognitive and spiritual elements into focus.

THE FIRST MANEUVERISTS

Stephen Miller's name has long been associated with the early stages of the maneuver warfare debate.[33] His *Gazette* articles hinted at its various aspects and later became the first attempts at a detailed description of its many facets. However, little is known of his background or how he came to the ideas later credited with igniting a historic institutional discussion; this deficiency deserves a detailed correction.

Commissioned in 1971, Miller joined the Marine Corps at the tail end of its involvement in Vietnam. Assigned as a tank officer, his high Basic School class ranking allowed him to receive his initial training at the U.S. Army's tank school at Fort Knox, Kentucky.[34] There, Miller was introduced to some of the raw elements that later coalesced into the maneuver versus attrition arguments that will be examined in chapter 5. Miller became interested in the armored cavalry concepts that the Army experimented with at Fort Knox, which melded light tanks with a combined-arms force using mortars, infantry, and reconnaissance elements. This force enjoyed greater maneuverability and mobility than a heavy tank

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[33] Damian, "The Road to FMFM–1," 30–31; Packard, "The Marine Corps' Long March," 316; and Terriff, " 'Innovate of Die,' " 477, 495–99.

[34] Stephen Miller, telephone interview with author, 11 November 2016, hereafter Miller interview.

force, bringing a variety of firepower options to bear against the slower, one-trick tank opponent. Thus, in his earliest periods of training, Miller had been exposed to the basics of a warfare style where the application of arms could be tailored based on analysis of the enemy's vulnerabilities.

Just as this trial piqued Miller's interest, he watched the Army abandon it in favor of a traditional heavy tank force designed to slug it out with Soviet armor. Miller recounted that "it was the Fulda Gap in Europe, that was the Army's focus. How many tanks can we kill before we get overrun? Not really a maneuver concept."[35] Maybe the Army could afford to match the Soviets tank for tank; but that was not an option for the smaller, less armored Marine Corps. Along with many other thinkers within the Corps, Miller sought ideas for how Marines could win without being deeply rooted in, and dependent upon, elements in the physical dimension. It is worth noting that Miller's motives for doing so echoed Boyd's mantra of "to be or to do." Miller stated that "nobody comes in the Marine Corps to get good chow, or just stick it for twenty years. They want to do something."[36] Taking his observations from Fort Knox to his first tank platoon at Camp Lejeune, North Carolina, Miller looked for that *something* to do.

At Camp Lejeune, Miller's tank battalion generally operated by itself, and as a platoon commander he enjoyed a great degree of independence. He decided that the bright yellow lettering on the side of his tanks' otherwise green paint made little tactical sense and, painting over the yellow, began experimenting with camouflage patterns. From this one relatively small change, Miller made a fascinating discovery. He found that, in addition to the tactical advantage of better camouflage, "the Marines got a morale advantage . . . this was more like [being] a warrior, more like combat, not a parade with dirt on the side. Simply changing the paint scheme gave a morale advantage."[37] From the tactical and psychological advantages gained by his own Marines, Miller con-

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[35] Miller interview.
[36] Miller interview.
[37] Miller interview.

sidered the comparable disadvantages that camouflage and other deception methods might inflict on an adversary. Using his tank training as a building block, Miller combined his inquisitiveness with experimentation to create what Boyd would have recognized as new mental worlds.

At the end of 1975, the young but innovative then-lieutenant Miller published these thoughts in a *Gazette* article that proved a remarkable foreshadowing of the arguments that came years later during the maneuver warfare debate of the 1980s. Miller acknowledged that the Marine Corps faced "overwhelming forces in almost every possible deployment area" but argued that this disadvantage could be offset with "the application of deception at all levels."[38] Deception caused confusion and hesitation within an enemy, which could buy crucial time for a smaller friendly force. Miller described time itself as a weapon, observing, "Time is the essence. Time to react, to gain surprise, to enhance our own survivability and increase the effectiveness of the combat power presented to the enemy."[39] His conclusion is worth quoting at length:

> An enemy who does not know the dispositions or intentions of his opponent is greatly disadvantaged. He must spread his efforts or choose one course of action without sufficient supporting intelligence. It is our option to choose where, how, and when we will act. To mass our forces against his weakest point and with speed and surprise smash the force opposing us before they can react. Thus, through camouflage and deception, we can take the advantage. Though disadvantaged in numbers and faced by sophisticated weapons systems it is still possible to negate their effectiveness, minimize our losses, and increase our decisive combat power to win.[40]

Here, Miller applied on a larger scale the lesson he had learned

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[38] 1stLt Stephen W. Miller, "Camouflage and Deception," *Marine Corps Gazette* 59, no. 12 (December 1975): 25.
[39] Miller, "Camouflage and Deception," 26.
[40] Miller, "Camouflage and Deception," 29.

from repainting his tanks. The physical element—in this case, quantity of tanks—was less vital than how it could be leveraged to exploit mental and moral elements. Deception and ambiguity, based on understanding an adversary's perceptions and thinking, could undermine the enemy's ability to effectively use his preponderance of forces while enhancing the power of the friendly side's limited resources.

The extent to which the elements of the debate and ultimate solution to come were present in Miller's article is extraordinary. He captured the problem—winning while outnumbered and outgunned—and forecast the kernels that Boyd supplied to undergird maneuver warfare doctrine: time as a weapon; using decision making to deceive, confuse, and slow an enemy's response; launching unexpected strength against critical weaknesses to make an enemy unravel. These parallels are even more remarkable considering that Miller, by his own admission, was not yet familiar with Boyd, Boyd's ideas, or any of the other individuals who later played key roles in the maneuver warfare movement.[41] Regardless, Miller exemplified the small but growing group of Marines who wanted the Corps to be useful on future battlefields and who, up to that point, remained dissatisfied with the proposals about how the Corps could be so. Increasingly, Miller and Marines like him proved their readiness to think about a grabby concept because such concepts seemed to work. However, the grabby concept still needed more intellectual heft, which John Boyd would provide.

At least among the postwar generation of Marines, Miller's article on camouflage and deception first hinted at this type of warfare, where surprise, speed, and mass at a specific weak point could cause a numerically superior enemy to fall apart.[42] Following this article, and with increasing regularity, Marines discussed victory by maneuver while addressing tangential subjects such as tactical mobility. Major James Williams's article on wheeled combat vehicles provided an example of how these two ideas intertwined. He discussed using off-the-shelf light-armored and wheeled vehi-

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[41] Miller interview.
[42] Miller, "Camouflage and Deception," 25–29.

cles to increase the infantry's mobility. While doing so, he provided another nascent view of the maneuver warfare concept. He began with the common contemporary view of modern war: "I believe our future battlefield will be marked by a density of weapons, an intensity of firepower and a confusion of maneuver and control never before seen in battle. The Marine Corps . . . must expect to be substantially outnumbered on most battlefields." He then asked, "How . . . can a force which is outnumbered in men and materiel gain victory over such an enemy, on such a battlefield?" Williams offered: "The only acceptable alternative is to equip and educate ourselves to seek victory by maneuver where combat, fighting and losses will likely be less."[43] In other words, employing victory by maneuver, Marines could be outmanned and outgunned, but they could offset these disadvantages with an agile mental framework that would still let them win.

Like Miller, Major Williams captured what would become the standard *attrition versus maneuver* dichotomy later offered by maneuverist proponents. Several pages later, he argued that armored vehicles permitted "the commander of a numerically inferior force to move his men about the battlefield, concentrating them at a decisive time and place, thus seeking a victory of maneuver, as opposed to a set-place battle of attrition."[44] As will be seen, this language was strikingly similar to the maneuver tenets that would be debated in the years to come. This suggests that Williams, as with a growing circle of other Marines, had become familiar with Boyd's theories through Boyd or one of Boyd's many advocates. It was also possible that the gravitation toward the intangible elements of war was a natural outgrowth from rejecting the Vietnam metric of victory by body count. Either way, the movement toward these ideas and the parallels in language demonstrated that, as the Marine Corps sought new direction after Vietnam, Marines would be receptive to a thinker like John Boyd. Boyd could pull all the bits and pieces together, as he did in "Destruction and Creation" and "Patterns of Conflict."

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[43] Williams, "Wheeled Combat Vehicles," 42–43.
[44] Williams, "Wheeled Combat Vehicles," 44.

Maneuver in Practice

Stephen Miller again took center stage in the discussion, as his mind continued to refine these ideas after he left Camp Lejeune. He was ultimately assigned to the Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, California. As the Corps' premier live-fire, large-scale training facility, the MCAGCC offered Miller a front-row seat for analyzing how various commanders succeeded or failed in the face of live adversaries.[45] He watched as senior Marine leaders actually practiced how they would fight against a larger, heavily armored Soviet force. And he came in contact with two men who, in the following decade, helped drive the Corps to officially adopt maneuver warfare. Miller watched General Gray take the lessons he learned about maneuver from his time in Germany (see chapter 6) and use them to great effect, employing only light vehicles and aircraft in unconventional ways in the California desert. Miller became familiar with Boyd's works through William S. Lind, who often observed the exercises at Twentynine Palms. The central point here is that Boyd's ideas were being proliferated, and Marines like Miller found those ideas to be the answer to the deficiency of vision that lay at the heart of the Corps' institutional troubles.

Observing all this, Miller had his own vision of how the maneuver concept could address the two questions and their ancillary problems—light forces fighting heavy mechanization, the Corps' amphibious character, the existence of PGMs, and demands on mobility—discussed in the last two chapters. He saw the need

> to build a concept of employment of how the Marine Corps could operate in a mechanized environment with just a few tanks and light vehicles. You do that with maneuver warfare. This also ties into the amphibious side. The beach is not the objective. In the maneuver warfare concept, the beach is a line of departure, you don't even need a beach head. [In the MAGTF, you already have] this self-sufficient organization, vehicles that can go 400 miles on one tank of gas, organic fire support . . . infan-

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[45] Miller interview.

try, command and control, this self-contained entity, I don't need a beachhead any longer, I move to the objective . . . quickly, not waiting on the beach for everybody. Maneuver warfare is now being executed, I can land places where the enemy doesn't know where I'm landing. That mitigates going against massive armored forces with PGMs.[46]

Miller laid out this vision in a two-part article that elaborated on victory through maneuver. The first article mirrored Major Williams's characterization. Miller stated that history's great commanders regularly won battles while outnumbered and in hostile territory by using maneuver to exploit their adversaries' weaknesses. Surprise and deception threw their enemies off balance into a state of disorder and uncertainty. Despite all quantifiable factors seemingly arrayed against them, the great commanders used moral ascendancy as a decisive equalizer. Miller then applied these tenets to a meeting engagement between an assaulting amphibious force and defending Soviet regiment. His concluding paragraphs covered many additional rough-hewn tenets of maneuver warfare that would later find more cohesiveness and detail in Boyd's briefings in the 1980s. First was the use of ambiguity and deception to counterbalance force size and strength: "The goal of the landing force is to sow confusion and disorder. Uncertainty and fear must be fostered among the enemy commanders and troops." Second, Miller turned the perceived weaknesses of Marine units into a strength by using their mobility, as an adjunct to ambiguity and deception, against forces weighed down by their heavy, mechanized equipment: "Through the high tempo of operations, constant shifting of forces and fluid, flexible action by ground and air elements working in close harmony, the Soviet-styled enemy will rapidly lose control, cohesion and momentum." Understanding that the Soviet system was inflexible and centralized, a flexible, decentralized, and ambiguous attacker could inflict "disorder and

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[46] Miller interview.

paralysis," thus "leading to panic and a collapse of the Soviet opponent's capacity and will to resist."[47]

Enter John Boyd

Miller's second article showed that by now he had come into direct contact with Boyd's ideas, and they were shaping his own thoughts.[48] Miller concluded the second article with an assertion that brought Boyd's name out of the shadows and into the light of the Corps' professional discourse. He observed that "the origin of maneuver doctrine is not recent. It was the basis for the successes of both Alexander [the Great] and Genghis Khan." While certain modern authors had revisited this type of war, its best contemporary expression was "in the unpublished works of Col John Boyd, USAF (Ret.), father of the energy management approach to air combat tactics."[49] Only a few months later, William Lind—the vector by which Miller had encountered Boyd's ideas—reiterated the centrality of Boyd to the maneuver concept. Lind stated that Boyd had "organized and expanded" ideas about maneuver warfare "into an overall theory of conflict." Lind called it the "Boyd Theory" and unequivocally said that "the Boyd Theory is the theory of maneuver warfare."[50]

READY FOR BOYD

The 1970s had closed with a discussion about what the Marine Corps was to do. The 1980s opened by adding a new thread to the argument about why the Corps should embrace maneuver warfare. The rationale came from maneuver proponents who noted that the Marine Corps was already tasked as a force in readiness,

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[47] Capt Stephen W. Miller, "Winning through Maneuver: Part I—Countering the Offense," *Marine Corps Gazette* 63, no. 10 (October 1979): 35–36.

[48] Capt Stephen W. Miller, "Winning through Maneuver: Conclusion—Countering the Defense," *Marine Corps Gazette* 63, no. 12 (December 1979): 57–63.

[49] Miller, "Winning through Maneuver: Conclusion," 63.

[50] William S. Lind, "Defining Maneuver Warfare for the Marine Corps," *Marine Corps Gazette* 64, no. 3 (March 1980): 56. See also William S. Lind, *Maneuver Warfare Handbook* (Boulder, CO: Westview Press, 1985), 5, for a slightly expanded version of this perspective.

and as such had to be flexible and adaptable to any threat. The Corps enjoyed physical flexibility and adaptability in its tailorable MAGTF. Maneuver warfare would give it the mental and moral flexibility to win in the human dimension, just as the MAGTF gave flexibility in the physical realm. And while it might seem strange that a discussion first characterized by arguments about equipment and venues for battle should suddenly shift to one characterized by the mental and moral aspects of war, it does not seem so strange when looked at in the larger context of an institution perennially driven by a desire to be useful. That Marines such as Miller and Williams turned in this direction indicates the seriousness of that desire, heightened by the sense that their institution had missed that mark in Vietnam. And the proffered solutions of tanks and terrain seemed to echo the same mistaken focus from that war. The American military had not lacked for vehicles or troops in Vietnam. It had applied overwhelming numbers of both to rack up body counts and control the ground in South Vietnam, though its efforts proved futile. What was missing in Vietnam, and in the debate that followed, was consideration of the enemy's human aspects.

If the Marine Corps could focus on those aspects as avenues for success in future wars, then arguments about tanks and terrain became far less relevant. Technology and battlespaces would vary tremendously from war to war, but the presence of a human adversary would not. Maneuver warfare offered a framework for understanding an adversary's mind and will and how that mind and will could be subdued. Such a framework would prove useful in fights everywhere, because adversaries with minds and wills were everywhere. By 1980, as Miller's articles showed, Marines thirsted for precisely that kind of concept. Boyd gave it to them. This book now turns to Boyd and the theories that the Marine Corps found so attractive.

CHAPTER FOUR

Unveiling the Character of Conflict

Boyd Builds a Theory

The 1970s ended with many Marines seeking answers to the questions of survival and conflict that confronted them after Vietnam. John Boyd was working out his own approach to these problems at about the same time. He did so by first building a new mental framework for analyzing how perception and decision making contributed to survival on an individual level; this became his essay, "Destruction and Creation." Boyd then applied this framework to national survival in the face of military conflict in a presentation called "Patterns of Conflict." As more Marines became familiar with Boyd's presentation, they found its ideas answered their questions in the cohesive manner that they sought.

"Destruction and Creation" did not enjoy the wide proliferation of "Patterns of Conflict," but the ideas of the former laid the intellectual foundation of the latter work, and so it still had an influence on the Marine Corps. "Destruction and Creation" spoke to the Corps' institutional character with its description of adaptation in service to survival when confronted with external change. Marines could appreciate this based on their own history in the face of inter-Service and political challenges to their existence. "Patterns of Conflict" then took that process of internal adaptation, flipped it, and turned it toward wrecking an external adver-

sary's ability to survive and adapt. Thus, the great gift of "Patterns of Conflict" to the Marine Corps was the conceptual framework of conflict called maneuver warfare. It was rooted in history and emphasized the mental and moral—that is, human—aspects of war that American leaders had, as Boyd and many Marines saw it, ignored in Vietnam.

The historical evidence of Boyd's ideas showed that maneuver warfare was not merely interesting on an intellectual or theoretical level but also that it was a concrete and lethally effective way for a military force to win. The human emphasis demanded that one understand the adversary's mental and moral framework. In Vietnam, the American side had—despite notable exceptions like the Combined Action Platoons—largely dismissed this calculus, with its focus on searching physical terrain, destroying physical material, and indifference to whether such physical attrition mattered at all to the Communist side. The historical and human emphases combined to demonstrate that while the physical elements of war, such as terrain and technology, could vary greatly over time, the most successful military commanders won by mentally and morally "ungluing" their opponents. These successes came from common methods that repeatedly worked across the centuries precisely because they did not focus on defeating weapon systems, but instead focused on the one element present in every war in every age: the human will. In a world of opponents ranging from low-tech insurgents to modern *morskaya pekhota* (Soviet naval infantry), one begins to see why the Marine Corps—tasked by law to potentially face any or all such adversaries—became drawn to a conflict theory rooted in the universal humanity of the operators behind the weapon systems rather than the weapon systems themselves.

THE GREAT ACCIDENT

Boyd had not intended to spend his retirement developing theories of warfare; it was, by his own admission, "an accident."[1] Yet, that is where his restless mind led him. Two key events catalyzed

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[1] Boyd Air Force oral history, 123.

the intellectual journey that ultimately coalesced in "Patterns of Conflict." The key events were the flight tests of his YF-16 prototype fighter and his work with Pierre Sprey on the Fairchild Republic A-10 Thunderbolt. These events covered the two realms Boyd explored in his presentation—the conceptual and the histor-

Two early-model Fairchild Republic A-10 Thunderbolt II close air support aircraft, ca. June 1977. Boyd's consultations with Pierre Sprey on the A-X project that developed the A-10 led Boyd down the path of historical research that became one of the cornerstones of "Patterns of Conflict."
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ical—and the events themselves were important because their implications sparked his imagination and set him on a path to answer the questions that emerged.

The fly-off between Boyd's YF-16 fighter prototype and the YF-17 in early 1975 triggered his conceptual interest in fast transient maneuvers and tempo as factors in survival. The test pilots who participated in the fly-off unanimously declared the YF-16 superior in almost all flight regimes. This contradicted the E-M calculations done on both aircraft prior to the flight tests, which predicted that the YF-17 should have performed better in certain flight envelopes. After talking to the test pilots, Boyd determined that the discrepancy resulted from thrust-to-weight design characteristics in the YF-16 that allowed it to shed and regain energy far more quickly than the YF-17.[2] Boyd labeled these traits *fast transient maneuvers*, and he found that they granted the YF-16 pilots quicker responsiveness and a faster operating tempo, repeatedly generating favorable mismatches against the less responsive YF-17. The notion of mismatches contributing to one's success and survival—of using agility and tempo to overwhelm an adversary's perceptions and reactions, thus causing his perceived reality to diverge from actual reality—stuck with Boyd, and he revisited it in a study on air-to-air combat he completed for NASA in 1976.[3] Boyd considered an entirely new conceptual framework through which survival might be viewed.

Boyd's collaboration with associate Pierre Sprey on the development of the A-10 close air support (CAS) aircraft sparked his exploration of history. The project was Sprey's, with Sprey consulting Boyd on performance analysis, E-M Theory, and views on warfare in general. When designing the A-10, Sprey had to determine what aircraft features provided the firepower and loiter time required by ground forces, while also granting survivability against the enemy ground fire that would inevitably be directed against

[2] Spinney, "Genghis John," 45–46; and Coram, *Boyd*, 305–6.
[3] John R. Boyd, "New Conception for Air-to-Air Combat," 4 August 1976, box 3, folder 11, Col John R. Boyd Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA; Osinga, *Science, Strategy and War*, 26–27; and Boyd Air Force oral history, 125–26.

it.[4] The German *Wehrmacht* had pioneered both the design and employment of dedicated CAS aircraft in World War II. Thus, Sprey and Boyd interviewed experts on and former members of the *Wehrmacht*, especially Hans Rudel, a Junkers Ju-87 dive bomber, or Stuka, pilot credited with more than 2,500 CAS missions and 500 kills against Soviet tanks.[5]

From this, the inquiring mind that had developed the *Aerial Attack Study* and E-M Theory again went into action. Sprey had focused on the aircraft and tactics that made German CAS missions successful. Building on that, Boyd, in his first year of retirement, broadened the scope to examine German tactics and strategy in World War II, and then worked his way back to the time of Sun Tzu as he studied history's most successful military commanders.[6] Initially, Boyd did not relish this journey; after it dawned on him that the results of these various tests and engineering projects might be expanded into the wider realm of military conflict, his first reaction was: "Oh, god [*sic*], I don't want to do this. I will have to read history books and everything else."[7] But his mind refused to leave the scintillating possibilities of this avenue unexplored. If something useful to his emerging concept of survival within conflict existed in the realm of history, then Boyd would study history back through its earliest chroniclers.

MOVING BEYOND THE PAST

To derive the most value from the questions raised by his engineering projects and historical research, Boyd knew that he must first flesh out his conceptual framework. He wanted a new framework because he believed that the uncritical adoption of older mental models deliberately deprived one of new data that could be

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[4] When applied to aviation, the term *loiter* refers to a phase of flight in which combat aircraft remain in the vicinity of a specific area or target. Loiter time is generally a function of the aircraft's fuel capacity and weapons load.
[5] Hammond, *The Mind of War*, 121; Coram, *Boyd*, 235; Burton, *Pentagon Wars*, 24–25; and Osinga, *Science, Strategy and War*, 26.
[6] Boyd Air Force oral history, 147–49; Hammond, *The Mind of War*, 121–22; and Osinga, *Science, Strategy and War*, 26.
[7] Boyd Air Force oral history, 126.

useful to one's decisions and actions. As he put it in his opening remarks in "Patterns of Conflict": "For those people [who] use Clausewitz as the lens filter to look at the problem, you're going to make a horrible mistake. . . . All you've told me is your thinking hasn't proceeded beyond 1832, and a lot of things have happened since 1832."[8] The same could be said of Antoine-Henri Jomini, Alfred Thayer Mahan, Giulio Douhet, B. H. Liddell Hart, or any number of other military thinkers through the ages. Boyd's point was not that their ideas lacked merit; Boyd incorporated elements from many of them in his own concepts. But he believed that one must not halt one's own thinking by deciding that Clausewitz or someone else had gotten military theory the most right, to the point where that thinker's framework should shape all future theory. Because military history did not end at the time of *On War*'s publication, one's thinking could not end there either. Clearly, significant changes in the character of armed conflict occurred since Clausewitz's time. And, as Boyd noted, Clausewitz did not have all of his own ideas straightened out.[9] One's mental framework needed to account for all this. To this end, Boyd built his own framework, incorporating all of the developments in the military, psychological, and scientific realms up through his own time.

Destroying and Creating New Foundations

Boyd's initial energy went into developing his framework in "Destruction and Creation." The pages of this short essay underlay all of his future work about the nature of war, and thus—arguably even more so than "Patterns of Conflict"—were where Boyd's unique contribution to military studies resided.

Underlying Boyd's discussion in "Destruction and Creation" is the fundamental assumption that all human activity is shaped by the goal of ensuring survival on one's own terms. Survival demands constant and repeated action. An action that supports the

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[8] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 3. Note that this source is in fact a recording of Boyd presenting "Patterns of Conflict."

[9] Boyd, "Discourse on Winning and Losing," tape 1, side 2, 27–28; and tape 4, side 1, 114–15.

goal of survival must be influenced by a proper decision. Such decisions are formed by constructing "mental concepts of observed reality," and changing these concepts when reality is perceived to change. Boyd argued that these mental concepts were derived in two ways: general-to-specific (deductive) and specific-to-general (inductive). The essence of deduction is destructive, as it smashes one or more larger "domains" into smaller constituent elements. Induction is constructive; it finds the commonality among a multitude of free-floating elements and builds them into a new domain or concept.[10]

Using these methods, an observer could thereby change their perception of reality and then verify the internal consistency of this new perception and the degree to which it matched reality. Satisfied that their new concept was internally consistent and corresponded with what they were seeing, the observer would then focus inward to further refine the concept and merge it with reality. Here, Boyd argued, lay the potential for a dangerous divergence. This self-satisfaction tended to block out any "alternative ideas and interactions" that might "expand, complete, or modify the concept." The mental block created by this inward refinement meant that a "mismatch" was created between "new observations and the anticipated concept description of these observations."[11] Obviously, a discrepancy between actual reality and perceived reality was detrimental to taking actions necessary to ensure one's own survival.

To prove this decision-making concept, Boyd merged three concepts from the realms of mathematics and physics. The first came from Austrian mathematician Kurt Gödel's proof that the consistency of a system cannot be proved from within the system; one needed another system beyond it to do so. Boyd adapted the second concept from Werner Heisenberg's uncertainty principle, which held that the very presence of an observer introduced an element of uncertainty into the system being observed. This, as

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[10] John R. Boyd, "Destruction and Creation," in *A Discourse on Winning and Losing* (Quantico, VA, 1987), 1–3, hereafter "Destruction and Creation."
[11] Boyd, "Destruction and Creation," 4–8.

Boyd noted, made it difficult to "determine the character or nature (consistency) of a system within itself." The deeper an observer injected themselves into the observed system, the more erratic the behavior they would see, of which they were, in fact, the cause. The final concept came from the second law of thermodynamics: that all observed processes create entropy, a "low capacity for taking action or a high degree of confusion and disorder."[12] Entropy increased within closed systems. This made it impossible to determine the system's consistency from within itself as it was always moving toward a higher state of confusion and disorder.

How did Boyd relate all of this to his decision-making concept? Per Gödel, one cannot determine the true nature of a system from within the system. Heisenberg and the second law of thermodynamics showed that any inward-directed attempt to do so only increased the uncertainty and disorder of that system, pushing it further away from the true nature of the reality observed. Thus, once an individual made a decision and chose an action, clinging to this decision and attempting to refine it without any additional external input would, over time, make that decision less and less suited to reality. That action would not contribute to survival and therefore be potentially self-destructive. The solution to this dilemma went back to Boyd's initial *destructive deduction* and *creative induction* concept. The observer could never be satisfied that their most recent observation of reality was, in fact, final. They had to break it down again and again, using both the broken pieces from within the system and new observations outside of it to build an even newer perception.[13] This never-ending decision-making process was the only way to ensure that an individual made survival choices with the most accurate perception of reality possible.

In "Destruction and Creation," Boyd finally had the mental framework required to wrestle with the other ideas that had danced about in his mind for years. "Destruction and Creation" gave his ideas a foundation: "All of a sudden everything I had done before

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[12] Boyd, "Destruction and Creation," 8–13.
[13] Boyd, "Destruction and Creation," 13–15.

jelled into this kind of thing."[14] Boyd turned that "thing" into a presentation covering the history of war and national survival laid out over the framework of "Destruction and Creation," which he named "Patterns of Conflict."

Finding Patterns of Conflict

In developing this presentation, Boyd first went back to lessons learned from the YF-16 fly-off; namely, that there was something uniquely advantageous in having "a fighter that could both lose and gain energy more quickly [while out]-turning an adversary."[15] Boyd had termed this rapid energy shift a *fast transient*. The fast transient gave its user an edge in the realm of timing or tempo, suggesting that "to win or gain superiority, we should operate at a faster tempo than our adversaries, or if you want to put it in another way . . . get inside our adversary's observation-decision-action time scales."[16] Previously, Boyd had looked at this as simply a mechanical phenomenon in an aircraft. "Destruction

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[14] Boyd Air Force oral history, 127.
[15] Boyd Air Force oral history, 129.
[16] Boyd Air Force oral history, 132.

and Creation" pushed him to view the phenomenon from the other extreme—the purely conceptual. Boyd now looked at a way to apply it at a practical level, between the purely mechanical and conceptual.

With a new mental framework in hand, Boyd saw that the pilot's exploitation of the mechanical energy shift in a fighter aircraft was simply an example of the perceptual decision-making activity of "Destruction and Creation." The true advantage lay not in the characteristics of the weapon system, but in understanding the mental framework; understanding that both oneself and one's adversary used said framework, even unconsciously, to make decisions; and using that knowledge to find ways to degrade the adversary's framework while enhancing one's own. This was particularly effective if the adversary already suffered a poor or incomplete comprehension of the framework compared to oneself.

Knowing this, one acted against an opponent to degrade their perception of a conflict scenario, with their subsequent actions and reactions becoming more and more divergent from reality— precisely the dilemma presented in "Destruction and Creation." Boyd stated the net result: "I am going to tend to become a bit uncertain because your actions appear ambiguous to me. I become a little uncertain and pretty soon I am confused, disordered, and going into a panic situation. You have unraveled me, and that is what you wanted to do." Success was measured by a confused and disoriented opponent saying, "What happened?"[17] Boyd found this to be in line with his conclusions drawn from Gödel, Heisenberg, and the second law of thermodynamics.[18] As an engineer, Boyd knew that proving an idea required running tests and collecting evidence. But his study of history told him "that those tests have been run"; the evidence had already been collected in a millennia's worth of recorded history.[19] It simply required examination in the context of his new concept.

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[17] Boyd Air Force oral history, 134–35.
[18] Boyd Air Force oral history, 139.
[19] Boyd Air Force oral history, 139.

Past Proof

Boyd reviewed the historical evidence and found the results startling. His work with the A-10 had familiarized him with the German blitzkrieg; he now returned to it through the lens of his concept. In "the very first history book I picked up," which concerned the French experience in 1940, Boyd read that the French Army facing the blitzkrieg became "uncertain, confused, disordered—almost like I had said it, I felt like I had written the goddamn passage."[20] Unfortunately, Boyd did not give the title or author of this "very first history book" on the German conquest of France in World War II. At the time of Boyd's oral history interview, however, an extensive historiography existed on the subject. John Cairns provided a detailed survey of the works extant only a few years prior to Boyd's interview, and it is possible the book Boyd read is somewhere on Cairns's list.[21]

The most recent detailed analysis of the French reaction to German tactics is by historian Julian Jackson. In his book, *The Fall of France: The Nazi Invasion of 1940,* Jackson both explained the weaknesses in the historiography available to military historians in Boyd's time and supported Boyd's interpretations. Jackson described the mental shock inflicted on the French that so impressed Boyd and that has been a standard explanation for the rapid collapse of the French Army in 1940. Jackson quoted French soldiers who acknowledged that they "had lost the operational initiative"; they never recovered it, and so they felt like they were "moving in a kind of fog." French surprise at the unexpected locations of the *Wehrmacht's* thrusts—bypassing French fortifications along the Maginot Line and sending armor through the supposedly impassable Ardennes forest—was compounded by mental unpreparedness for the style of war the Germans used.[22]

In the interwar years, the Germans experimented with new

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[20] Boyd Air Force oral history, 140.
[21] John C. Cairns, "Some Recent Historians and the 'Strange Defeat' of 1940," *Journal of Modern History* 46, no. 1 (March 1974): 60–85.
[22] Julian Jackson, *The Fall of France: The Nazi Invasion of 1940* (New York: Oxford University Press, 2003), 219–27.

ways to fight the next war; the French, on the other hand, tried to perfect the tactics of static lines from the previous war. One sees the parallel between the two mental systems Boyd described in "Destruction and Creation": the closed system, with the self-satisfaction that it was good enough and so only looked at how to further refine it; and the open system, receptive to new information that could improve its survivability. French doctrine focused on *methodical warfare*, using a highly centralized command structure to maintain sufficient control over what had become, by 1940, an amateur army of conscripts and reservists leavened only by a small cadre of professional soldiers. This meant that the officers charged with making key decisions were behind the front in static command posts, awaiting enough information about the big picture to properly maneuver their inexperienced troops. This situation stood in stark contrast to German doctrine, whereby senior leaders were regularly at the front, empowered to take the initiative and make key decisions on their own without seeking permission from higher up the chain of command. French leaders also had not absorbed the implications of improved mobility since World War I; they believed that the initial German advances, rapid though they were, would soon bog down due to fatigue and logistical problems, affording the French enough time to react. Overall, this methodical mind-set was badly shaken when the invading *Wehrmacht* refused to act with equal deliberateness, and as the Germans kept the pressure on, the French never recovered. This was summed up in the description of one French general's reaction: "He gave . . . the impression of a man whose brain had ceased to function . . . the blows that had fallen on us in quick succession had left him 'punch drunk' and unable to register events."[23] The Germans, however, operated smoothly and rhythmically, pushing the French where the pressure would most likely cause them to collapse. The Germans understood the framework; the French did not.

Next, Boyd looked to his own experience as an F-86 pilot and aircraft designer. The F-86 had regularly outperformed its MiG-

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[23] Jackson, *The Fall of France*, 219–27.

15 counterpart; now, Boyd better understood why. The F-86 had a bubble canopy and superior window heating system, which granted its pilot a greater ability to observe external conditions. It also had a hydraulically powered flight control system, which allowed the pilot to transition more quickly from one maneuver to another. Boyd noted that this transition and his fast transients were clearly related.[24] Finally, Boyd examined the 1976 Israeli hostage rescue at Entebbe airport in Uganda, Africa. The Israeli operation was conducted so rapidly from start to finish—"they were in, they were out"—that the only response then-President Idi Amin and his soldiers could muster was to wonder, "What happened?"[25]

The further back Boyd traveled through history, the more he found "a whole body of evidence that supports this idea that I am talking about, of getting inside the other guy's observation-decision-action time scales."[26] But nobody had examined this evidence the way Boyd did; that is, in the context of the lessons gleaned from "Destruction and Creation." Boyd applied these lessons and concluded that "knowing and having this information plus . . . the idea of fast transients or faster tempo, together with the synthesis here, associated with Gödel, Heisenberg, the Second Law . . . suggest[s] a new conception . . . for waging war."[27] Here was the core of Boyd's new conception:

> Generate a rapidly changing environment, quick clear observations, fast tempo, fast transient, quick kill; or you can turn it around the other way, to inhibit an adversary's capacity to adapt to such environment [*sic*] . . . suppress or distort his observation by suppressing or distorting your signatures. . . . Always try to remain somewhat inconspicuous, at least more inconspicuous than he is . . . unstructure [*sic*] your adversary's system into a hodge-podge of

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[24] Boyd Air Force oral history, 142; and Spinney, "Genghis John," 46.
[25] Boyd Air Force oral history, 143–44. A detailed history of the Entebbe raid can be found in Saul David, *Operation Thunderbolt: Flight 139 and the Raid on Entebbe Airport, the Most Audacious Hostage Rescue Mission in History* (New York: Little, Brown, 2015).
[26] Boyd Air Force oral history, 144.
[27] Boyd Air Force oral history, 145–46.

confusion and disorder [thus] causing him to . . . under- or overreact to your activity, which appears uncertain, ambiguous, and chaotic to him.[28]

With his mental framework and historical study, Boyd now had a *how* for thinking about war. But "Destruction and Creation" demanded that Boyd ask himself a fundamental question that necessarily preceded the *how*; that is, "Why do you even have a war?"[29] To properly construct the answer to *how*, he needed to deconstruct the complexity behind *why*.

In "Destruction and Creation," Boyd had already introduced the assumption that human activity was shaped by the goal of ensuring survival on one's own terms and had examined this on an individual level. But, of course, there were many other individuals in the world with this same goal, and therein lay the potential for conflict, or to use another word, war. As he explained it in his oral history, "It is this drive for survival on our own terms—to improve our capacity for independent action with limited resources; and when you improve your capacity for independent action and deny somebody else's, there are arguments. If the arguments get violent enough, there is clubbed warfare." This was an old story, reaching back through two world wars, centuries of European conflict, the Mongol conquests, and past the eras of the ancient Romans and Greeks to the time of Sun Tzu. Boyd took the old tale and retold it through the lens of his new mental framework to derive the most useful common lessons. And that was the purpose of his presentation, "Patterns of Conflict." The need to survive as a nation when in competition with other nations raised questions that he wanted to ask and answer: "How do we realize such a goal by waging war?" and "Does history give any insight or suggest any useful patterns?"[30]

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[28] Boyd Air Force oral history, 145–46.
[29] Boyd Air Force oral history, 149.
[30] Boyd Air Force oral history, 149–50.

Presenting "Patterns of Conflict"

Understanding both the *how* and the *why*, Boyd now laid out his synthesis of the conceptual and the historical in a slide-based lecture. The first few iterations—or *warps*, as Boyd termed each revision in deference to his children's love of *Star Trek*—he kept to himself and a few friends at the Pentagon. In 1976, Boyd presented his first public version of "Patterns of Conflict," nicknamed "WARP-4," at the United States Air Force Academy, and still was "not even too happy with it."[31] But he continued to refine it, and these later warps were the ones that spread his influence throughout the Marine Corps.[32] From 1976 onward, he delivered this lecture hundreds of times to a wide variety of audiences and repeatedly revised it until just before his death. This is no exaggeration. His monthly planners dated 1980–84 tell the story: he delivered "Patterns of Conflict" 37 times in 1980 and 54 times in 1981. After 1982, he shifted to briefing "Organic Design for Command and Control" more often, or combined it with "Patterns of Conflict." He presented one or both 62 times in 1982, 54 times in 1983, and 25 times in 1984. This was in addition to a very robust speaking and meeting schedule each year.[33]

Life before PowerPoint

Before examining the content of "Patterns of Conflict," the experience of being briefed by Boyd deserves comment. In a modern era when the military briefing has become synonymous with a PowerPoint presentation (a.k.a. "death by PowerPoint" when in the hands of a less-skilled presenter), it becomes difficult to envision an hours-long presentation lacking a computer screen. Yet, this is precisely

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[31] Boyd Air Force oral history, 127–28.

[32] Damian, "The Road to FMFM 1," 35. As discussed in chapter 3, proponents of an amorphous maneuver concept existed before Boyd's ideas were promulgated. As Damian points out here, and as is discussed later, when maneuverists sought details to flesh out their concept, they went to Boyd and "Patterns of Conflict."

[33] Coram, *Boyd*, 384, 431. Boyd's monthly planners also show when many of the key figures who will be discussed in later chapters received his brief of "Patterns of Conflict." See box 22, Col John R. Boyd Papers, Personal Papers Collection, Archives Branch, Marine Corps History Division, Quantico, VA.

Did Boyd Influence the Army?

Beyond demonstrating the time Boyd spent with his Marine and civilian audiences, Boyd's calendars also show that he met with several of the U.S. Army officers who sought to reform their own Service. For instance, he briefed General Donn A. Starry, then head of the Army's Training and Doctrine Command, in February 1981. Lieutenant Colonel Huba Wass de Czege, selected by Starry to revise the Army's own capstone doctrine, got a brief from Boyd in November 1982. Additionally, Boyd's calendars show that from 1980 to 1983, he presented his lectures to the Army War College, Army Command and General Staff College, and U.S. Military Academy at West Point. However, there exists a separate debate about to what degree, if any, Boyd's ideas influenced the Army's development of AirLand Battle doctrine, which has been held up as another version of maneuver warfare. Long-time Boyd devotee James Burton accused the Army of directly copying Boyd's work without attribution. While it is demonstrably true that some Army reformers heard Boyd's presentation, and that Boyd briefed at Army schools as part of his yearly speaking schedule, the links between Boyd and the AirLand Battle doctrine are far murkier. Air Force major Todd Larsen analyzed the literature on the subject and concluded that Boyd's presentations to Army officers were under the rubric of a larger reform dialogue already underway within that Service. While other historiography offers tantalizing potential evidence of Boyd's influence—such as the sudden introduction of German concepts like *schwerpunkt* (main effort) into AirLand Battle's language, or an evolutionary sketch of maneuver warfare that virtually mirrors the historical synthesis in the first part of "Patterns of Conflict"—Boyd was certainly not involved in the development of AirLand Battle to the same extent he influenced *Warfighting*. Moreover, there were far fewer Army officers who acknowledged Boyd as an influence, and the institutional Army never made a public claim on Boyd's contribution, as the Marine Corps did after Boyd's death. Nonetheless, Boyd's engagement of officers across the Services was a further example of his own desire to flesh out his ideas by sharpening them against the minds of as many people as possible, and his free willingness to share his thoughts with any interested stakeholders.

Source: Burton, *Pentagon Wars*, 51–54; *Operations*, FM 100-5; Maj Todd M. Larsen, USAF, *John Boyd and the AirLand Battle Doctrine* (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2012); John L. Romjue, *From Active Defense to AirLand Battle: The Development of Army Doctrine, 1973–1982* (Fort Monroe, VA: Historical Office, U.S. Army Training and Doctrine Command, 1984); Douglas W. Skinner, *Airland Battle Doctrine* (Alexandria, VA: CNA, 1988); and Robert Leonhard, *The Art of Maneuver: Maneuver-Warfare Theory and AirLand Battle* (Novato, CA: Presidio Press, 1991).

how Boyd delivered his lecture. Indeed, perhaps *performed* is a better description, as Boyd fired out his material with all the movement and energy of an actor on stage. He anchored "Patterns of Conflict" on a stack of 200 slides, each of which was typed onto a plastic

transparency sheet. A transparency projector displayed the material on a screen behind him; part of the brief's frenetic nature came from Boyd's constant movement to and from the projector, shuffling and changing transparencies, frequently with barely enough time for the audience to read one slide before he replaced it with the next. Boyd had no interest in simply letting his audience read the slides or showing a slide and then reading its contents verbatim back to the audience in the death-by-PowerPoint style of modern briefings. As often as not, the slides were a point of departure for discussion. Sometimes the discussion focused on the slide, but it frequently sidetracked on tangents that Boyd allowed if his audience seemed interested or that he generated himself.

The slides also were only part of the content Boyd delivered; most of "Patterns of Conflict" came from talking points that Boyd carried in his head and never wrote down. This likely proved problematic for diligent notetakers in his audience, as Boyd talked through his material very rapidly, often interrupting himself many times in the same thought to explore new ideas as they came to him or to answer audience questions. "Patterns of Conflict" was no university hall lecture, with quiet students packed into a room to be placidly fed by a professor behind a podium; Boyd expected and encouraged continuous audience engagement. Some slides consisted of one or two questions that Boyd forced the audience to openly answer and discuss before moving on to the next. He would also immediately pause in his prepared delivery to answer audience questions, which he did thoroughly and with complete disregard for

the overall timing of his presentation. This partly explains why his briefs sometimes took more than 10 hours, across multiple days, to deliver in full; certainly a stark contrast to modern military education programs experienced by Marines today. Boyd also briefed the same way that he argued with coworkers at the Pentagon or talked on the phone—loudly, gesticulating energetically with his hands and arms, and interjecting a hefty dose of profanity as his oral history has already illustrated. All told, Boyd's delivery and audience interactions, as much as his slides, were what left their impression on those who experienced "Patterns of Conflict" in person. And this may explain the difficulty for people today, having only Boyd's essay and slides to examine, in understanding Boyd's outsized influence on the Marine Corps at the time.[34]

EXPLAINING THE NEW CONCEPTION

The period immediately following the writing of "Destruction and Creation" was Boyd's most dynamic in his exploration of conflict. From the slides and audiotapes, one sees the output of this dynamism captured under the umbrella of "Patterns of Conflict." Here, Boyd viewed warfare as a struggle for survival writ large. "Patterns of Conflict" surveyed concrete historical examples wherein the concept of "Destruction and Creation" was successfully used. From these examples, one could "make manifest the nature of the *Moral-Mental-Physical Conflict*; . . . discern a *Pattern for Successful Operations*; . . . help generalize *Tactics and Strategy*; . . . find a basis for *Grand Strategy*" and ultimately "unveil the character of conflict, survival, and conquest."[35] Though "Destruction and Creation" is not explicitly cited in the presentation, its influence is clear from Boyd's opening comment that the goal of humans is

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[34] The Archives Branch of Marine Corps History Division holds a complete audio recording of a brief presented to a primarily Marine Corps audience in 1989, as mentioned in chapter 1. This author completed a written transcript of the 1989 audio recording with slide annotations to partially remedy the complaint that Boyd never wrote anything down and aid in following the audio, which is of generally poor quality. This transcript is also available from the Archives Branch and Marine Corps Heritage Foundation.

[35] Boyd, "Patterns of Conflict," 2, emphasis in original.

to "survive, survive on [our] own terms, or improve our capacity for independent action."[36] Because war was the greatest survival struggle of all, it required decisions and actions from both the individual and the group. As stated above, Boyd saw history as the laboratory for his ideas, and wars and battles as his test data. In this way, he took his audience through many historical examples of war and different methods for making decisions and taking action. Beginning with Sun Tzu, he surveyed ancient times through Greek and Roman conflicts; the Mongol invasion and pre-Napoleonic European battles; Napoleon and his two most famous interpreters, Carl von Clausewitz and Antoine-Henri Jomini; and detoured briefly into the clash between nineteenth-century economic systems. Eventually returning to conventional warfare in World Wars I and II, he ended the survey with contemporary guerrilla conflicts before extrapolating the elements of success common to each of these eras.[37]

Unconventional Lessons

Noting that the blitz/guerrilla style of war appeared to garner the greatest success throughout history, he outlined some common characteristics.[38] These characteristics aligned with Boyd's new conception derived from "Destruction and Creation" in attacking what he saw as the key to survival—the mental framework for perception and decision making—and not unnecessarily wasting energy, lives, and materiel attacking the opponent physically, in the blind pursuit of conventional battle. The blitz/guerrilla style avoided pitched battle, striking instead at those things that gave an enemy cohesion. The friendly force repeatedly used ambiguity, mobility, and violence to generate surprise and shock. Finally, it mopped up the enemy fragments isolated by shock and lack of cohesion. By the end, an adversary would be paralyzed and collapse.

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[36] Boyd, "Patterns of Conflict," 10. In the audio recording, Boyd very briefly mentions the influence of Gödel, Heisenberg, and the second law of thermodynamics on his thinking, but "Destruction and Creation" is not referred to by name; see Boyd, "Discourse on Winning and Losing," tape 1, side 2, 18.

[37] Boyd, "Patterns of Conflict," 10–97.

[38] Boyd, "Patterns of Conflict," 98.

Boyd used these lessons as building blocks for the next segment of the presentation, which elaborated on this style of war and gave it a name (see appendix A).[39]

Successful blitzers and guerrillas practiced what Boyd characterized as *maneuver conflict*, and a comparison showed the similarities between the two. In maneuver conflict, one generated and used ambiguity, deception, novelty, fast transient maneuvers, and focused thrusts to severely degrade an adversary's ability to act coherently. Boyd explained further that the aim of maneuver conflict was to "generate many non-cooperative centers of gravity, as well as disorient, disrupt, or overload those that the adversary depends upon, in order to magnify friction, shatter cohesion, produce paralysis, and bring about his collapse; or equivalently, uncover, create, and exploit many vulnerabilities and weaknesses, hence many opportunities, to pull [the] adversary apart and isolate remnants for mop-up or absorption."[40] The efficacy of maneuver conflict was borne out in the laboratory of history, tied as it was to long strings of both blitzkrieg and guerrilla victories.[41]

Fingerspitzengefühl and the Glue

At first glance, these ideas apparently required an unnatural degree of prescience and internal cohesion on the friendly side. To operate in this amorphous manner, one's own force had to quickly identify key enemy vulnerabilities, rapidly exploit them, and break apart enemy cohesion without discombobulating its own soldiers in the process. German military tradition had a label for the key enabler of this style of war: *fingerspitzengefühl*, which literally meant "finger-tip feeling."[42] This was an intuitive ability to look at a given situation, immediately grasp the essentials, and rapidly act. A few

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[39] Boyd, "Patterns of Conflict," 101.
[40] Boyd, "Patterns of Conflict," 117.
[41] Boyd, "Patterns of Conflict," 89, 97. While some critics would later argue that Boyd's lists were highly selective in their twentieth-century focus, Boyd also showed that blitzkrieg was really the conceptual culmination of trends going back millennia, which he had already covered in the first half of his presentation. See Boyd, "Patterns of Conflict," 84.
[42] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 15.

rare individuals enjoyed fingerspitzengefühl as a natural gift, yet it could be developed in most people by giving them constant and repeated hands-on experience under a variety of conditions to build a repertoire of responses and, just as importantly, inculcate decision making and action as a habit. Boyd appreciated this German concept because, as chapter 1 showed, he had already spent most of his life living it. From flight school to the *Aerial Attack Study*, from the YF-16 fly-off to his time in Nakhon Phanom, he had cultivated in himself a predilection for variety and bias for action. Fingerspitzengefühl simply gave his habit a name. Throughout "Patterns of Conflict," Boyd hammered on the need for warriors to use fingerspitzengefühl to be "adaptable and unpredictable . . . because the moment you start becoming rigid or non-adaptable and predictable, you know the game's over."[43]

The friendly force required a glue to maintain its own cohesion while simultaneously disorienting its enemy. This glue was a deceptively simple but essential element: trust. Trust, between both superior and subordinate and laterally between different units, derived naturally from the process of building fingerspitzengefühl in the first place. Both individuals and units developed this sense by being exposed to a repertoire of experiences in training.[44] In due course, leaders could observe the strengths and weaknesses of individual and unit fingerspitzengefühl and use that knowledge to build and direct their teams in a way that made individual and collective abilities complement one another.[45] The result of this process was an organization trained to achieve the objectives given to them by their leaders, but free to do so using the experience of individual and unit fingerspitzengefühl to decide the best means of going about it based on the circumstances. Consequently, those fighting did so with the knowledge that their leaders, having observed them individually and collectively, would not entrust them with a task beyond their own capabilities. As Boyd said, "you not

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[43] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 15; tape 2, side 1, 47; tape 2, side 2, 54–58, 60; tape 3, side 2, 94–95, 106, 110; tape 4, side 2, 130, 140; and tape 5, side 2, 168–71.

[44] Boyd, "Discourse on Winning and Losing," tape 2, side 2, 54–58.

[45] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 15.

only want to have individual fingerspitzengefühl, in a sense you want to have organizational fingerspitzengefühl."[46] Done properly, one's organization thus developed a "whole organic philosophy, so you can operate as a family . . . you really want to operate like a family, and you're a very large family . . . the whole family's got the fingerspitzengefühl."[47] As members of a family can predict or sense how other family members will react in various situations, fingerspitzengefühl and trust allowed implicit communication and understanding in the absence of written or verbal orders. When these practices were employed by a friendly force, they disrupted an adversary's responsiveness as they attempted to process apparently concurrent yet disjointed threats. But thanks to the peacetime development of fingerspitzengefühl and trust between leader and subordinate on the friendly side, the disjointed actions all aimed toward the common end state desired by the overall commander.

It is worth noting here the extent to which Boyd discussed guerrilla conflict. Later critics often argued that Boyd's theories were not applicable beyond the realm of air-to-air or conventional ground combat. Anyone who sat through the brief or examined the slides could see this was flatly untrue. In fact, Boyd argued that guerrilla war, with its focus on the populace upon whose support both the military and government depended, was a more total form of warfare than the blitzkrieg that became synonymous with

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[46] Boyd, "Discourse on Winning and Losing," tape 3, side 2, 94.
[47] Boyd, "Discourse on Winning and Losing," tape 4, side 2, 140.

"total war" in the twentieth century.[48] Boyd analyzed several insurgencies to demonstrate that his conflict theories applied to all types of war.[49] This was one more reason why Boyd appealed to the maneuver warfare movement.

THE ENDGAME

Boyd's wrap-up tied the threads of "Destruction and Creation" and "Patterns of Conflict" together. In war, the game was to generate multiple thrusts and mismatches—some real, some false—directed against the moral and mental bonds that allowed the enemy to act as a cohesive whole. Severing, or at least degrading, those bonds would reduce an enemy to discordant, uncooperative elements, induce paralysis, and "collapse his will to resist." One accomplished this by getting "inside [the] adversary observation-orientation-decision-action loops (at all levels) by being subtler, more indistinct, more irregular, and quicker—yet appear to be otherwise" (see slide 175 in appendix A).[50] Here again was the new conception, the culmination of the threads of Boyd's theories. In "Destruction and Creation," Boyd warned of the danger inherent in a mismatch between perception and reality. In war, the goal was to create precisely such a mismatch for the enemy. One had to prevent the enemy from gleaning the benefit of the continuous destructive/creative decision-making cycle. The adversary's focus had to be kept inward on a deteriorating observed system that was increasingly disconnected from actual reality. Their decisions and actions would be less and less useful to their own survival, until the entire system finally collapsed and they were rendered incapable of any decision or activity.[51] War should target an enemy's decision-making system; maneuver conflict provided the mental framework for analyzing how best to attack that system.

Maneuver conflict did not require a specific technology, timeframe, or battlespace, but rather a relentless focus on tearing apart

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[48] Boyd, "Discourse on Winning and Losing," tape 3, side 1, 86; and tape 4, side 1, 127.

[49] Boyd, "Patterns of Conflict," 64–65, 69, 90–97, 107–8.

[50] Boyd, "Patterns of Conflict," 175.

[51] Boyd, "Patterns of Conflict," 141.

an adversary's ability to do those things necessary for their own cohesion and survival. That Boyd considered things like terrain and technology almost irrelevant when compared with the mental-moral focus on the adversary cannot be overemphasized; indeed, he hit that point at the very beginning of his presentation and repeated it throughout: "Terrain does not fight wars. Machines don't fight wars. People do it and they use their minds. So you better understand the people, because if you don't understand them, you ain't gonna make it, period." Concerning war's physical elements, Boyd added that "terrain is just the means through which you operate. The machines are just tools that you use."[52] The only objective that mattered was the enemy's mind.

One example Boyd provided of using terrain as a medium for mentally unhinging an enemy, and not simply as a military objective in itself, came from Field Marshal Erich von Manstein's "Donetz counterstroke" against the Soviet Red Army in World War II. Manstein deliberately took a "long step backward," giving up large swathes of territory to make the Soviets overconfident and overextended.[53] When Manstein finally counterattacked, the surprise caused complete mental and moral disorientation on the part of the Russians, netting Manstein all the territory he had voluntarily surrendered and, more important, large numbers of Russian prisoners.[54] For a Marine Corps that would rarely enjoy a preponderance of forces and thus the ability to control wide swathes of terrain, this mentally focused perspective showed that a smaller force, properly oriented, could still be highly lethal and victorious.

Boyd demonstrated throughout "Patterns of Conflict" that this mental attitude—and not bigger cannons, faster jets, or hordes of soldiers—had enabled the successes of history's greatest commanders, often when those commanders faced adversaries

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[52] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 3. Boyd repeats this point at tape 1, side 1, 16–17; tape 3, side 1, 82; tape 4, side 2, 134; and tape 5, side 1, 151.

[53] Boyd, "Discourse on Winning and Losing," tape 3, side 1, 81.

[54] Boyd, "Discourse on Winning and Losing," tape 3, side 1, 81–82; and tape 5, side 2, 165–66.

who enjoyed significant physical and materiel advantages. The test data from millennia of human conflict, tried in history's laboratory, bore Boyd out. This same focus made his ideas attractive to a Marine Corps that would rarely enjoy purely physical dominance, and thus needed something more than a magic bullet with which to win on the future battlefield.

FRICTION POINTS

Before assessing the impact of Boyd's works on the Corps, there are two areas that deserve further commentary, as they became friction points for the maneuver warfare movement later on. Boyd had a complex interpretation of conflict, and his nuances were not always appreciated by his proponents, let alone his critics. The friction was not just because Boyd and his critics disagreed but because his ideas were often interpreted by friends who missed his deeper points or simplified them too much, especially as they concerned attrition and the OODA loop.

The American Way of War

The first friction point centered on a general misunderstanding of the relationship of an even higher level of warfare—which Boyd called *moral conflict*—to the overall argument presented in "Patterns of Conflict." It is important to note here that Boyd did not define *moral* in the strictly ethical sense of *right* and *wrong*. By his own admission, he did not actually define it at all in "Patterns of Conflict," but did in one of his shorter presentations called "The Strategic Game of ? and ?."[55] In "The Strategic Game," Boyd defined the moral realm as "the cultural codes of conduct or standards of behavior that constrain, as well as sustain and focus, our emotional/intellectual responses."[56] However, despite the absence of a working definition in "Patterns of Conflict," Boyd offered many different examples of the moral realm's characteristics in the presentation. *Moral strength* was the "mental capacity

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[55] Boyd, "Discourse on Winning and Losing," tape 4, side 2, 137.
[56] John R. Boyd, "The Strategic Game of ? and ?," in *A Discourse on Winning and Losing* (Quantico, VA: August 1987), 35, hereafter "The Strategic Game."

to overcome menace, uncertainty, and mistrust."[57] He saw *moral victory* as "the triumph of courage, confidence, and esprit over fear, anxiety, and alienation, when confronted by menace, uncertainty, and mistrust."[58] Moral elements were those things that permitted individuals to operate harmoniously as groups, organizations, or societies. Consequently, Boyd characterized moral conflict as a style of warfare that sought to deliberately fray or sever those bonds in a way that reduced an opponent to a chaotic assortment of frightened, mistrustful, and isolated individuals.

As chapter 5 will show, the maneuver warfare debate was often reduced to a binary choice between attrition and maneuver. Maneuver proponents argued that, up through Vietnam, an attritionist philosophy characterized the American "way of war": the United States preferred to build up massive military strength to throw against an opponent, with the goal of causing more materiel damage to them than to American forces. Maneuver warfare mitigated the cost of this exchange in blood and treasure, especially as materiel advantage was no longer a given. While Boyd never explicitly claimed that American warfare was attritionist—indeed, he gave several examples of American commanders skilled in maneuver conflict—he did believe that the United States generally measured victory in physical terms, such as quantities of materiel produced or number of battles won.[59]

While the Marine Corps had its own practical reasons for seeking a nontechnological advantage, Boyd determined that, on the whole, technology had replaced thinking in the American way of war. From his research, he identified unique trends in the military focus of various nations. Boyd found that historically, the British excelled at the strategic level of winning wars; the Germans were superior at the operational and tactical level of winning battles; and the Russians' only real strength in war came from a large population that was used as cannon fodder. For Boyd, America's

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[57] Boyd, "Discourse on Winning and Losing," tape 4, side 2, 138.
[58] Boyd, "Discourse on Winning and Losing," tape 4, side 2, 138.
[59] Boyd, "Patterns of Conflict," 111.

great contribution through much of modern history was providing "widgets, gadgets," but after World War II this materiel emphasis no longer guaranteed dominance.[60]

The situation had changed after the Second World War. In Vietnam, Boyd believed that American leadership's myopic materiel fixation blinded its understanding of what was needed to win that war. The American focus was entirely physical, searching for and physically destroying Communist forces with physical firepower on solid ground. America's obsession with conventional means in an unconventional war ignored the fact that North Vietnamese leaders also fought, and ultimately won, a battle of ideals and public opinion. This was an asymmetric battle on a mental-moral plane that the United States entirely conceded to the Communists. As a result, while some Americans could claim that the United States won all the physical battles, it lost the moral battle on the home front; and that was the only battle that mattered.[61]

Interestingly, Boyd left no evidence that he was familiar with the chief work that posited a uniquely American way of war, written by Russell Weigley. Weigley's *American Way of War* does not appear in the source list at the end of "Patterns of Conflict" or in the appendix of Burton's *The Pentagon Wars*, which details the reading list of Boyd's acolytes. Boyd's personal paper collection at the Marine Corps History Division's Archives Branch contains hundreds of books that he studied and annotated; Weigley's is not among them. But it seems likely that Boyd would not have disputed its thesis, which was that the history of American combat arms began with a strategy of attrition. It is important to note that Weigley's definition of *attrition* was not that of the later attrition versus maneuver debate, which defined it as the application of strength against strength with the goal of inflicting high materiel damage on an enemy. Rather, Weigley's attrition was the strategy of the weak or the guerrilla, which characterized the American

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[60] Boyd Air Force oral history, 234–36.
[61] Boyd, "Discourse on Winning and Losing," tape 2, side 1, 43; tape 3, side 1, 88; and tape 4, side 1, 115.

military effort during the War of Independence against Britain. For Weigley, attrition meant "exhaustion, or erosion . . . employed by a strategist whose means are not great enough to permit pursuit of the direct overthrow of the enemy." About the time of the Civil War, when the United States had increased its industrial might, American strategists adopted the goal of annihilation, seeking the utter destruction of an adversary's military forces and the complete overthrow of the adversary. Weigley argued that this strategy sought to fulfill Clausewitz's admonition that the annihilation of an enemy's force "is the leading principle of War."[62] While technological advancements and industrial might grew over time, he found that the cost of a strategy of annihilation reaped diminishing returns. Eventually, America's adversaries benefited from those same advancements as well.[63]

Weigley's thesis dovetailed with the criticisms made by Boyd. Moreover, from the beginning the maneuverist school had savagely attacked the wastefulness of throwing one's strength against an opponent's strength. Weigley's definition of *annihilation* closely matched the one of *attrition* that was used in the later debate about maneuver warfare. In all likelihood, Boyd would have agreed with Weigley's conclusions and maintained his own position that such a national strategy deserved to be abandoned as quickly as possible.

MORAL CONFLICT

Part of the problem in the maneuver debate came from misinterpreting Boyd's position on maneuver and attrition. Boyd never presented the two styles as a binary choice. Moreover, a close reading of the "Patterns of Conflict" slides and transcript reveals that maneuver warfare only captured two-thirds of Boyd's full concept of conflict. Maneuver conflict, while operating at a higher mental level than attrition warfare, still aimed its effects primarily at an adversary's military and the political leaders directing the military.

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[62] Russell Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (Bloomington: Indiana University Press, 1973), xxii.
[63] Weigley, *The American Way of War*, xxii.

This ignored the crucial support base for both the military and government: the people. A holistic theory of conflict needed to target the people as well; indeed, perhaps even more so than the military or government, because absent the people's support, both the military and government became "useless overhead . . . they have nothing to run. [They] wither away."[64] This is why Boyd argued that guerrilla warfare was more total, because it deliberately targeted the population base.

Boyd recognized the fundamentally destructive nature of maneuver conflict, and he understood the futility of trying to win over a population by smashing everything around it.[65] One could not secure the support of one's own people or win over adversaries exclusively through devastation and ruin. There had to be something more on the table, something positive and constructive to "pump up" friendly resolve, drain the adversary's resolve, and attract the uncommitted to one's cause.[66] This integrated concept of war required that one "know your enemy, you know yourself, and also, those third parties out there. It's not just a two-cornered stool, it's a three-cornered stool."[67] Moral conflict reflected this totality. It employed the destructive aspects of maneuver warfare at the lower levels of tactics and strategy, focusing on the adversary's military and political leadership; at the higher level of a nation's willpower and moral resolve—provided by the people—it offered a "grand ideal," a unifying vision of existence "so noble, so attractive that it not only attracts the uncommitted and magnifies the spirit and strength of its adherents, but also undermines the dedication and determination of any competitors or adversaries."[68]

The most effective way to exploit the moral power of the grand ideal was to place it in the context of trust that Boyd had

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[64] Boyd, "Discourse on Winning and Losing," tape 4, side 1, 126.
[65] Boyd, "Patterns of Conflict," 134–37.
[66] Boyd, "Patterns of Conflict," 139; and Boyd, "Discourse on Winning and Losing," tape 5, side 1, 153.
[67] Boyd, "Discourse on Winning and Losing," tape 5, side 1, 153.
[68] Boyd, "Patterns of Conflict," 143–44.

already discussed in maneuver conflict. If trust was the glue that held an adversary's organization—or a people—together, then one should seek to dissolve that glue by spreading mistrust. And the simplest way to generate mistrust was by highlighting the hypocrisy of those in positions of authority; by calling out, in Boyd's characteristic phrasing, "those dirty bastards, they say one thing and they do another."[69] Guerrillas were particularly adept at analyzing and exploiting such discrepancies. Boyd noted, "If you want to subvert or pull apart a guy's center of gravity . . . you want to find out what are those bonds, those connections that permit that organic whole to exist." Boyd believed that in larger social organizations, such as a government or military, "people aren't glued together" by the same kind of direct blood bond found in a family or tribe. Rather, they are held together artificially with "certain bonds or connections of rules of conduct, codes of conduct, standards of behavior." Successful guerrillas were the ones who could identify the artificial bonds holding an organization together, and then publicly highlight how the organization's leaders were failing to adhere to or uphold those standards. For Boyd, this was a way to weaponize ethics. The guerrilla could prove to the target population that they were "goddamned getting screwed," which in turn built up "mistrust and discord" between the populace and its leaders. Driving this wedge between the leaders and the led was how the guerrilla turned a cohesive society into "many non-cooperative centers of gravity," thus ungluing the artificial bonds that held it together.[70]

Violence, strategically applied, helped accelerate this ungluing, but if moral conflict were executed properly, then the grand ideal's potency would have already undermined an adversary's cohesion, leaving military violence as a last hammer tap to shatter the whole. And while guerrillas were good at this, it could be used in conventional conflicts too. Boyd observed that, prior to World War II, Adolf Hitler understood this, mixing threats and promises to isolate individual countries, paralyze the international commu-

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[69] Boyd, "Discourse on Winning and Losing," tape 1, side 2, 30.
[70] Boyd, "Discourse on Winning and Losing," tape 2, side 2, 70–71.

nity, and expand the Third Reich's territory well before his armies invaded Poland.[71]

Failing to understand moral conflict had caused some of the twentieth century's greatest military disasters. Hitler's initial insight inverted itself as World War II went on. Rather than fomenting distrust among his adversaries, he poisoned the internal trust between him and his generals.[72] Hitler assumed more and more direct authority for military decisions, and he denied it to his commanders. This disrupted the *Wehrmacht*'s entire decision-making process, corroding its flexibility and adaptability so that it became less able to achieve national goals despite its consistent successes at the operational and tactical levels. A greater flaw, more so even than his micromanagement of combat operations near the end of World War II, was Hitler's unwavering commitment to Nazi ideology. Nazi racial theory, in its implications and implementation, was so utterly repellent that it became an antigrand ideal, driving support away from him and into the hands of the Allies. Critics of maneuver warfare would often attribute Germany's ultimate defeat to a fatal flaw in the *Wehrmacht* model, but Boyd understood where the true flaw lay and addressed it in his briefs. A nation could absorb and recover from battlefield mistakes, but no amount of military acumen could offset a broken national strategy.[73] This critique will be examined further in chapter 5.

Similar flaws underlay America's problems in Vietnam. American leaders appeared increasingly untrustworthy with their claims that victory hovered just around the corner. It was not difficult for the North Vietnamese to counter that narrative with well-timed offensives and a steady stream of American body bags coming

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[71] Boyd, "Discourse on Winning and Losing," tape 3, side 1, 89. Author William Shirer discussed in detail the Nazi machinations that successfully garnered Hitler the territories from Austria and Czechoslovakia without resistance between 1937 and 1939. See William L. Shirer, *The Rise and Fall of the Third Reich: A History of Nazi Germany* (New York: Touchstone, 1990), 323−454. See also Mark Mazower, *Hitler's Empire: How the Nazis Ruled Europe* (New York: Penguin Books, 2008), 53−62.

[72] Boyd, "Discourse on Winning and Losing," tape 4, side 1, 117.

[73] Boyd, "Discourse on Winning and Losing," tape 4, side 2, 141−42; tape 5, side 1, 153−56; and tape 5, side 2, 167.

home.[74] Furthermore, for all its firepower, the United States could not articulate the grand ideal for which it was supposedly striving, beyond countering Russian influence in the Cold War. And even this ideal was being accomplished in other parts of the world without hundreds of thousands of boots on the ground and massive bombing campaigns. Boyd used this as a prime example of the disparity between word and action. The North Vietnamese, however, could offer a grand ideal in their supposed desire for national independence and self-determination. Their disingenuousness on the subject was beside the point; their grand ideal was easily understood, marketable, and sympathetic in the face of a superpower's might.[75] Here again, the influence of "Destruction and Creation" could be seen in Boyd's lecture; whether in the realm of individual or national survival, one could not destroy a worldview without building a new one to replace it. Listening to the audio of "Patterns of Conflict," it is clear that Boyd's audiences were engaged and enthusiastically absorbed his material. But not all of that material was effectively transmitted beyond the classroom; such became the case with Boyd's discussion on moral conflict.

A Broken Loop

The OODA loop was another friction point between maneuverists and their critics. The loop remains the most well known of Boyd's ideas, yet even Boyd's acolytes tended to gloss over its nuances as they strove to share it with a larger community of warfighters. From its perceived origin to its application, the OODA loop was often misrepresented. Boyd was clear that the loop's genesis "came from work and anomalies associated with [the] evolution

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[74] Boyd, "Discourse on Winning and Losing," tape 2, side 2, 71; and tape 3 side 1, 87–88. A lack of military progress, increasing casualties, contradictory messaging, and weak leadership from President Lyndon B. Johnson have long been identified as contributing factors to a credibility gap that undermined American support for the war. See Davidson, *Vietnam at War*, 450–54; Herring, *America's Longest War*, 248–52; Gaddis, *The Cold War*, 169–70; and Gaddis, *Strategies of Containment*, 268–70.

[75] Boyd, "Discourse on Winning and Losing," tape 1, side 2, 20; tape 2, side 2, 67, 71; and tape 5, side 1, 153.
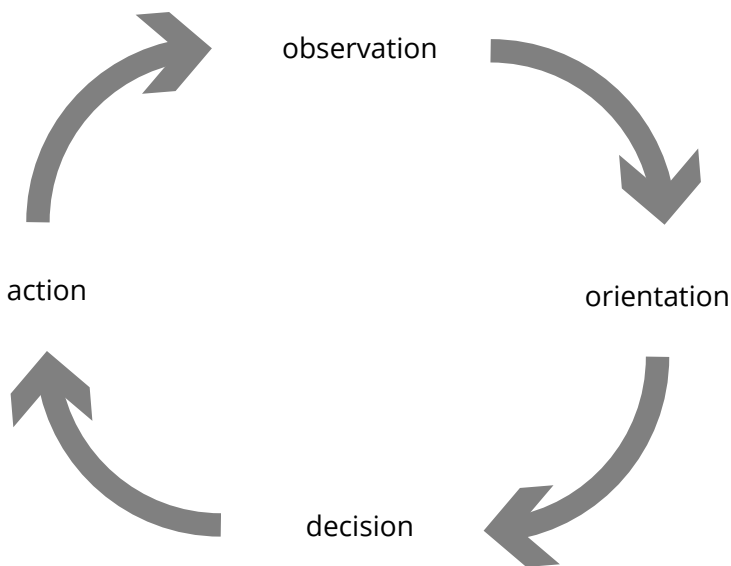
Figure 4.1. *Common OODA loop design*
Adapted by MCU Press

and flight tests of [the] YF 16/17."[76] These flight tests have already been discussed earlier in this chapter, and the kernel of the OODA loop was part of the fruit they bore. The tests drove Boyd to explore the concept of mismatches contributing to one's success and survival, as well as the relationship between agility, tempo, and how one could exploit them to make an adversary's perceived reality diverge from actual reality. To better explain these mismatches, the influence of tempo, and their cumulative effect on perceptions, Boyd broke the process down into the loop that he regularly referenced (though did not visually depict) in his briefings. The OODA loop is commonly depicted as seen in figure 4.1.[77]

The simple four-step decision-making process begins with ob-

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[76] Roger Spiller, "Critique of John Boyd's 'Patterns of Conflict'," undated, folder 9, box 5, Col John R. Boyd Papers, see appendix C for excerpts.
[77] Osinga, *Science, Strategy and War*, 2.

servation: sensing oneself and the world around one.[78] Orientation follows and is the application of many filters, such as culture, knowledge, and personal experience, to the initial observation.[79] Next, potential actions are considered and the observer chooses one. Finally, there is action, or the application of that decision. Seeing the results of that action, the observer then begins the whole process over again.

The Real Loop

The problem with this depiction is that it actually shows precisely the type of closed system Boyd warned against in "Destruction and Creation." Both Boyd's critics and proponents, however, mistook this oversimplification for the full nature of the "Boyd cycle." An example comes from the many written works by William Lind—who helped bring Boyd's work to the attention of the Marine Corps—which rarely tried to go beyond this basic level of understanding. Lind argued that the key to maneuver warfare was going through this decision-making process at a faster absolute speed than one's opponent.[80] Many critics argued that the OODA loop was simplistic and flawed, as the next chapter will discuss. Those critics might have been right, had that been all there was to the loop. That was not the case. Though he often spoke about it, Boyd did not offer a graphical depiction of the OODA loop until two years prior to his death. When he finally did, it was a far richer concept than its four steps implied (figure 4.2).[81]

Here, the loop is not a closed, one-way cycle of seeing, de-

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[78] Osinga, *Science, Strategy and War*, 230.

[79] Osinga, *Science, Strategy and War*, 230–32.

[80] Lind, *Maneuver Warfare Handbook*, 6. Though more detailed than his *Marine Corps Gazette* articles, the *Maneuver Warfare Handbook* still emphasized Boyd's OODA loop almost to the exclusion of everything else. Lind seemed somewhat aware of this, admitting in the first chapter that his summation of Boyd "[misses] some of the subtleties and the supporting historical evidence in [Boyd's] briefing." A comparison between the *Maneuver Warfare Handbook* and Osinga's far more detailed examination shows that, in many respects, Lind missed or omitted Boyd's main points entirely. Regardless, Lind's influence on the maneuver warfare debate cannot be understated.

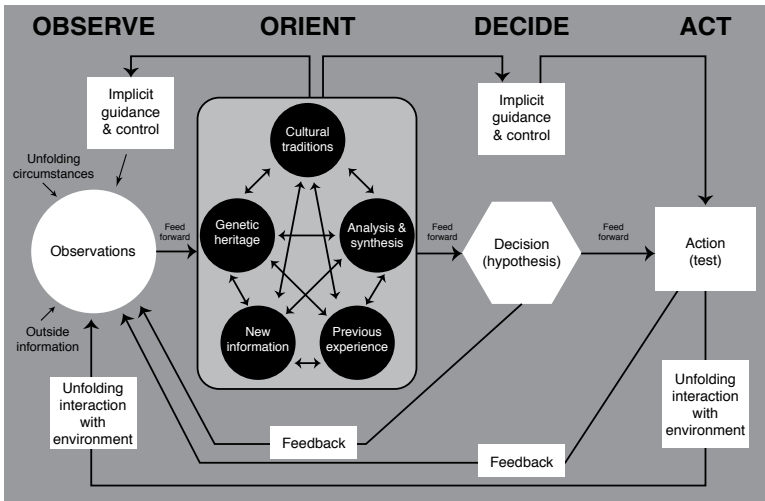[81] Osinga, *Science, Strategy and War*, 231.

OBSERVE   ORIENT   DECIDE   ACT

Implicit guidance & control

Unfolding circumstances

Observations

Feed forward

Cultural traditions

Genetic heritage

Analysis & synthesis

New information

Previous experience

Feed forward

Decision (hypothesis)

Feed forward

Action (test)

Implicit guidance & control

Outside information

Unfolding interaction with environment

Feedback

Feedback

Unfolding interaction with environment

Figure 4.2. *Boyd's complex OODA loop design*
Adapted by MCU Press

ciding, and doing. It is "an ongoing many-sided implicit cross-referencing process of projection, correlation, and rejection."[82] While observation is the first step, orientation is the most important; it "shapes observation, shapes decision, shapes action, and in turn is shaped by the feedback and other phenomena coming into our sensing or observing window."[83] Orientation was where the exhaustive process of cultivating fingerspitzengefühl, trust, adaptability, flexibility, initiative, and cohesion on the friendly side, and analyzing those factors on the adversary's side, paid its real dividends.

CONCLUSION

"Patterns of Conflict" was a monumental work. It synthesized years of personal observation with almost two millennia's worth of historical lessons, all laid over the mental framework described in the equally groundbreaking "Destruction and Creation." Across

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[82] Osinga, *Science, Strategy and War*, 232.

[83] Osinga, *Science, Strategy and War*, 230.

hundreds of slides and days of lecture and discussion, Boyd introduced a concept of conflict that grounded national survival not in materiel strength but in the ability of a nation's people to perceive, think, and adapt. He supported this concept with evidence dating back to the earliest written records of warfare that was tried and tested in the laboratory of history. And he concluded that success came not through overwhelming numbers or advanced weaponry, but through a deep understanding of the human element.

The Marine Corps, bereft of numbers and weapons and struggling with the consequences of misunderstanding its adversary in Vietnam, found itself drawn to Boyd's ideas. In them, Marines saw answers to the problem of what the Marine Corps was to do with itself and how it was to do it. Boyd's audiences started small, but those people listened to Boyd and then spread his message with prophetic zeal. They took and injected Boyd's ideas—or what they understood to be his ideas—into the larger debate of how maneuver theory might serve the future Corps better than simply buying a new tank or adopting a different NATO mission. This book now returns to that debate.

A Killing Game

Critics Enter the Maneuver Warfare Debate

By 1980, John Boyd had presented "Patterns of Conflict" enough times that his ideas on maneuver warfare were discussed both within the Marine Corps and without, among ranks high and low. Within the Fleet Marine Force, company- and field-grade officers made extensive use of the *Marine Corps Gazette* to debate the merits of maneuver warfare and refine and integrate its concepts operationally. Moreover, a handful of officers began mixing maneuver warfare into formal training and education curricula at Marine Corps schools. In the meantime, Boyd and his civilian fellow travelers, especially William Lind, continued their enthusiastic campaign for an institutional adoption of maneuver warfare.

As maneuver warfare discussions proliferated, the concept drew its fair share of criticism, and it still does to some degree today. Such critiques came from (1) a failure to understand Boyd's ideas holistically—sometimes due to intellectual laziness on the part of the critic, but other times because the critic did not have access to Boyd's ideas directly or accessed them through the imperfect interpretation of maneuver proponents; (2) a natural resistance to radical change; and, (3) it must be said, by personality conflicts, often generated by the well-meaning but acerbic admonitions of William Lind. Nevertheless, in the 1980s, the profession-

al discourse of the Marine Corps was increasingly characterized by the argument that a doctrine of maneuver warfare would answer the question of institutional philosophy. Numerous articles in the *Gazette*, other military journals, and public newspapers demonstrated the level to which Marines and their supporters digested Boyd's packaging of maneuver warfare, to the point that the decade ended with its adoption as the Marine Corps' official capstone doctrine.

BOYD'S PRESENT AND THE CORPS' FUTURE

The central debate about adopting maneuver warfare represented a convergence of the two threads examined thus far: John Boyd's personal determination to do rather than to be, which led him to continually generate concrete, useful products; and a similar institutional attitude on the part of the Marine Corps, which felt compelled to offer a useful capability for American defense in a world very different from that which preceded the Vietnam War. The attitude of being useful, of retaining utility, meant adapting to new circumstances as they arose so that one could thrive. This required a mind-set that could recognize when circumstances changed, process that information, and make decisions and take actions to adapt and succeed. This is what Boyd made manifest to the Marine Corps in "Patterns of Conflict" and its concept of maneuver warfare. The Marine Corps had arguably executed this process for decades as it fought for its place in the national defense framework, from acting as the Navy's police and landing force before World War I, to seizing advanced bases and conducting amphibious operations in World War II, to serving as a force in readiness at the dawn of the Cold War, to whatever its new role would be after Vietnam. But the Marine Corps did this subconsciously, on an ad hoc basis, without recognizing the underlying mechanics.

From the Horse's Mouth

Boyd's briefings made manifest the mechanics of maneuver warfare, and he gave the Corps a framework for thinking about its future role. He analyzed and synthesized a "theme for vitality and

growth," showing how it could be used not only in a constructive sense for self-survival, but turned destructively against external threats to survival; a useful turn, as destruction was already the object of a military force.[1] Moreover, Boyd gave the Marines—quantitatively a small force—a potential advantage over a larger one by offering a path to victory that did not depend on the materiel currency of overly physical warfare. Boyd made evident something that the institution already knew and practiced on an instinctual level. His concepts, backed with historical evidence, were the way ahead for an organization seeking a way to win in an unfamiliar world.

The job then, for those Marines and civilians who gravitated to Boyd's insights, was explaining and proving the value of those insights to the institution as a whole. Another challenge was countering the emergent critiques of maneuver warfare that arose as the concept became more widely known. Most critiques came from a poor understanding of Boyd's ideas, caused either by degrees of removal from Boyd or transmission problems from maneuverists. Throughout the 1980s, maneuver proponents had to find a balance between the less-familiar mental and moral aspects of maneuver warfare and the Marine Corps tradition of locating, closing with, and destroying the enemy. As one observer noted, to the Marines, war was not a chess game but a killing game. As a consequence, part of the maneuver warfare debate meant changing the very lexicon of the game; really, war was a victory game that could be fought at many levels, with the physical level and its metric of stacked bodies being less decisive than the mental and moral levels presented by Boyd. This debate now took center stage.

Before Boyd's ideas had spread widely, Marine Corps officers and others outlined a handful of tenets, roughhewn though they were, in attempting to describe maneuver warfare. Once Boyd regularly presented "Patterns of Conflict" in the early 1980s, maneuver proponents suddenly had a very detailed conceptual framework from which to draw. And while Boyd repacked his ideas in

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[1] Boyd, "Patterns of Conflict," 144.

different ways throughout the brief, his wrap-up provided a useful summary maneuverists could use to shape public discussion:

Game

Create tangles of threatening and/or nonthreatening events/efforts as well as repeatedly generate mismatches between those events/efforts adversary observes or imagines . . . and those he must react to . . . as [a] basis to

Penetrate adversary organism to sever his moral bonds, disorient his mental images, disrupt his operations, and overload his system, as well as subvert or seize those moral-mental-physical bastions, connections, or activities that he depends upon, thereby

Pull adversary apart, produce paralysis, and collapse his will to resist.

How

Get inside adversary observation-orientation-decision-action loops (at all levels) by being more subtle, more indistinct, more irregular, and quicker—yet appear to be otherwise.[2]

This summation did not capture all the nuances of a 200-slide, hours-long presentation, but at least it gave those who wanted to spread the gospel of maneuver warfare something to work with. They needed a way to quickly convey Boyd's ideas, because those outside the Washington, DC, area rarely had the chance to hear Boyd in person. This distillation proved problematic as the maneuver debate continued; but the urge to spread maneuver warfare drove its proponents to get at least some of the ideas out in the public realm to be refined later.

Boyd's Loudest Promoter

One such proponent was William Lind, whose already-cited March 1980 *Marine Corps Gazette* article helped frame the debate that fol-

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[2] Boyd, "Patterns of Conflict," 175.

lowed. In one of the first attempts at a precise definition, Lind equated the Boyd Theory, as he called his understanding of "Patterns of Conflict," with maneuver theory. According to Lind, Boyd "observed that in any conflict situation all parties go through repeated cycles of observation-decision-action. The potentially victorious party is the one with an observation-decision-action cycle consistently quicker than his opponent's (including the time required to transition from one cycle to another)." Lind portrayed the loser as the one with the longer cycle, who then found "himself facing ever-widening divergence. Suddenly, he realizes there is nothing he can do to control the situation or turn it to his advantage. At that point, he has lost. Often he suffers mental breakdown in the form of panic and is defeated before he is destroyed physically."[3]

Lind held that the real goal of maneuver warfare was not physical destruction but the "nervous/mental/systemic breakdown caused when [the enemy] becomes aware the situation is beyond his control."[4] Attacking the opponent's mental capabilities worked for the Marine Corps because "in many scenarios Marines are likely to be outnumbered in men and materiel. An attrition contest is not promising for the outnumbered force, while maneuver makes quantitative factors less important by striking at the enemy's mind."[5] Lind believed the Corps' likely future opponents were Third World militaries modeled on their Soviet benefactor; that is, militaries numerically large and well-equipped but "tactically and operationally inflexible."[6] Marines could exploit this inflexibility with a more rapid decision-making cycle, placing initiative and independence of action at the lowest leadership levels. Lind and other maneuverists regularly emphasized the need for such initiative and independence, along with the imperative

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[3] Lind, "Defining Maneuver Warfare for the Marine Corps," 56. It is worth noting that here, in Lind's first attempt to define Boyd's concepts, he omits the orientation step, which Boyd considered by far the most important.

[4] Lind, "Defining Maneuver Warfare for the Marine Corps," 56–57.

[5] Lind, "Defining Maneuver Warfare for the Marine Corps," 57.

[6] Lind, "Defining Maneuver Warfare for the Marine Corps," 58.

to actually train officers and men to act in accordance with that need.[7]

DEFINING AND REFINING THE DEBATE

Maneuver warfare did not require excessive mechanization, as mobile infantry operating in rugged terrain were as well suited to maneuver as were tanks operating in the open.[8] This was not to say that further mechanization could not support maneuver warfare. Captain R. A. Stewart, an evaluator at MCAGCC Twentynine Palms, and the aforementioned Captain Miller, showed several linkages between increased use of wheeled, armored fighting vehicles and exploiting the tenets of maneuver conflict.[9] Such vehicles could wreak havoc in the enemy's rear, keeping them off-balance; their speed allowed the landing force to assault the enemy's weakest points and still maneuver to an objective; they could replace tanks as a mobile reserve force for challenging a counterattack; and they could deceive the enemy as decoys while a commander concentrated their force for decisive action elsewhere.[10] In any case, the specific level of mechanization was less important than the mental framework used to employ it; that is, using initiative and independent action to build a rapid decision-making cycle coupled with sudden and unexpected actions to force the enemy's mental and moral collapse. With some amplification, this summary of maneuver warfare was the one carried forward in the debate.[11]

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[7] Lind, "Defining Maneuver Warfare for the Marine Corps," 58; and William S. Lind, "Tactics in Maneuver Warfare," *Marine Corps Gazette* 65, no. 9 (September 1981): 36–39; CWO-2 Bryan N. Lavender, "Current Training and Maneuver Warfare," *Marine Corps Gazette* 66, no. 2 (February 1982): 63–67; and William S. Lind, "Preparing for Maneuver Warfare," *Marine Corps Gazette* 68, no. 6 (June 1984): 47–55.

[8] Lind, "Defining Maneuver Warfare for the Marine Corps," 58.

[9] Miller and Stewart, "New Fighting Vehicle Options," 53.

[10] For further discussion, see also Col Bruce G. Brown (Ret), "Maneuver Warfare Roadmap—Part I, Trends and Implications," *Marine Corps Gazette* 66, no. 4 (April 1982): 42–47; and Maj James A. Marapoti, "Battlefield Mobility and Survivability of the MAGTF," *Marine Corps Gazette* 68, no. 3 (March 1984): 52–62.

[11] Capt G. I. Wilson reiterates the Lind article with little modification in his own subsequent commentary; see Capt G. I. Wilson et al., "The 'Maneuver Warfare' Concept," *Marine Corps Gazette* 65, no. 4 (April 1981): 49–52. See also Lind, *Ma-*

To Maneuver and Attrite

These amplifications often focused on refining the definition of *maneuver* and quantifying the level of actual physical destruction required during a conflict. In 1980, Major General Bernard E. Trainor, then education director for the Marine Corps Development and Education Command, addressed the topic early. He expanded on the meaning of maneuver by noting that it did not necessarily equate to movement. Trainor stated that maneuver instead meant "physically disposing the enemy at a disadvantage to himself and an advantage to us," and thus "the key to maneuver is not our disposition, but his."[12] This echoed Boyd's admonitions to focus on the enemy rather than on one's own formations or a piece of terrain. In time, maneuver would come to mean any advantageous disposition—be it troop disposition, tempo or timing, or geography—but always in relation to the enemy.[13]

Destruction versus Attrition

There also was considerable debate about the destruction of enemy forces—or rather, what and where things and people should be destroyed. Some maneuver proponents stressed that no matter how brilliant one's maneuvering, parts of the enemy force still had to be destroyed. Trainor stated that "while it has been emphasized that a battle of attrition should be avoided, battle itself must be sought, because war is a killing game, not a chess game." Physical punishment was the only way to finally break an enemy's will.[14] He reemphasized this point elsewhere: "Marines never seem to fight enemies who capitulate when the rules of chess would so dictate. Until we do, I still think it's wiser for an enemy to know that we in-

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neuver Warfare Handbook, 4–6; Lind's section of this work is essentially a summary of his many published articles up to that time.

[12] MajGen Bernard E. Trainor, "New Thoughts on War," *Marine Corps Gazette* 64, no. 12 (December 1980): 50.

[13] Capt G. I. Wilson, "Maneuver/Fluid Warfare: A Review of the Concepts," *Marine Corps Gazette* 66, no. 1 (January 1982): 54–61; Maj G. I. Wilson and Maj W. A. Woods, "Defending Maneuver Concepts," *Marine Corps Gazette* 66, no. 8 (August 1982): 34; and LtCol Michael D. Wyly, "Those Confusing Ms," *Marine Corps Gazette* 67, no. 9 (September 1983): 30.

[14] Trainor, "New Thoughts on War," 50.

tend to kill him, not psych him."[15] Other Marines shared concerns over maneuver warfare's underemphasis on killing. Writing later, infantry officer Major G. S. Lauer believed many maneuverists had still not absorbed Trainor's point. He criticized the maneuverist argument, as he saw it, as "badly flawed." He disliked maneuverists' "explanation of the fundamental nature of war as one in which elegant maneuver can substitute for bloodshed." He argued that maneuver proponents sought to replace both firepower and mechanized assets to an extent that was "neither historical nor logical."[16] In the case of Lauer and others—including proponents—disagreement often grew from ignoring, forgetting, or misunderstanding how Boyd had explained the complexities of maneuver warfare.

Debate over the lexicon of maneuver warfare also became more complex. Some proponents argued that *destruction* should not be confused with *attrition*. Destruction meant attacking those things "he cannot do without," an open-ended definition as compared with attrition, which carried an inherently physical connotation.[17] Then-Lieutenant Colonel Michael Wyly elaborated on this distinction: "We *destroy* the enemy when we destroy his will to resist. We will need much more than attrition to destroy his will, unless he is woefully short on resolve . . . the [body] count doesn't mean anything. *Where* you strike the enemy does." The object of destruction in maneuver warfare was not hunting down every last tank or platoon, but "skillfully selecting objectives [so] you can throw him off balance so that he can't pick himself back up. You can destroy him by attacking his command and control or his logistic lifeline.

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[15] Wilson et al., "The 'Maneuver Warfare' Concept," 54.

[16] Maj G. S. Lauer, "Maneuver Warfare Theory and the Operational Level of War: Misguiding the Marine Corps?" (master's thesis, U.S. Army Command and General Staff College, 1991), 37–41. While proponents at the early stages of the maneuver warfare debate did appear to discount the value of both firepower and heavier mechanized assets, as is seen below this notion was quickly corrected, and so it is curious that Lauer, writing at a later time, does not take this into account. Boyd also never discounted the value of firepower in his briefings. Unlike other critics, at least Lauer referenced Boyd's primary works.

[17] Wilson et al., "The 'Maneuver Warfare' Concept," 52.

You cannot destroy him by attrition."[18] This was but one effort by Wyly and other maneuverists to expand the language of combat beyond the purely physical/attritional level into the mental and moral realm of maneuver warfare. Yet, the challenges inherent in redefining language meant that the opposing sides frequently clung to their own definitions of common terms. Thus, efforts like Wyly's tended to add clarity for the true believers but cause confusion for the unconverted.

Wyly's comments echoed Boyd's own words concerning the view of some American military officials on body counts. In "Patterns of Conflict," Boyd put it this way: "So what we're going to do is, we're going to go out and have an attrition campaign and just pile up body counts and they're going to surrender. That's probably going to make them madder than hell and they won't surrender."[19] Wyly's use of the word *destroy* also matched the few instances within Boyd's brief where he did not use the word in a disparaging sense. At the strategic level of conflict, Boyd argued that the goal was "to destroy internal harmony, produce paralysis, and collapse [an] adversary's will to resist."[20] This reinforced his point that the quickest way to destroy an organization was through its morale, by fomenting mistrust and discord, though it did not entirely discount the need for some measure of firepower, as will be seen.[21] Boyd also employed a singular turn of phrase to define victory—"pull his socks down," or occasionally "his pants"—which emphasized his goal of mental and moral disruption rather than quantitative bloodletting.[22]

Bodies versus Prisoners

Then as now, much of the confusion about maneuver warfare cen-

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[18] Wilson et al., "The 'Maneuver Warfare' Concept," emphasis in original.

[19] Boyd, "Discourse on Winning and Losing," tape 2, side 2, 71.

[20] Boyd, "Discourse on Winning and Losing," tape 5, side 1, 151; and Boyd, "Patterns of Conflict," 133.

[21] Boyd, "Discourse on Winning and Losing," tape 2, side 2, 71.

[22] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 16; tape 1, side 2, 18, 22, 28; tape 2, side 2, 71; tape 3, side 1, 76, 84; and tape 3, side 2, 104, 111.

tered on definitions and metrics. Recently, former Marine Captain Daniel R. Grazier, in addition to his work publicly posting and editing original videos of "Patterns of Conflict," also developed his own briefing that touches on the *firepower versus maneuver* discussion. For those requiring a metric of what victory by maneuver looks like, he provides the following analogy that would likely have aided the maneuverists then and certainly provides some clarity here. In the attritionist view of firepower-oriented warfare, one quantified success by numbers of enemy killed in action—the familiar body count. Kill enough people, and the enemy will give up. In maneuver warfare, success can be quantified by the number of enemy prisoners of war. Prisoners are the result of mental and moral dislocations caused by disorder, confusion, and menace, with the result that individual units can no longer operate as part of a cohesive whole, and in their sense of fear and isolation, surrender. While firepower is still employed and casualties still generated, the object is not to stack bodies but to break apart the things that let the enemy operate harmoniously.[23] This fits well with Boyd's comments, which hinted several times that the capture of prisoners of war was a natural outcome of the mental/moral dislocation caused by maneuver warfare. However, he never explicitly tied the two together, and so the maneuverists were left with the rather more abstract metrics of success that he outlined in his brief.[24]

However, many maneuverists agreed that maneuver warfare did not exclude firepower and physical destruction entirely but rather used them to achieve effects at the mental and moral levels. Captain Gary I. Wilson—one of the original maneuverist true believers, who enthusiastically helped General Alfred Gray implement it in the 2d Marine Division—noted that artillery was particularly crucial to the ground commander operating at the tempo required by maneuver warfare, as mobile artillery could move with the commander and did not require good weather,

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[23] Capt Daniel R. Grazier, "Manoeuvre Warfare," PowerPoint slides, email to author, 5 January 2017, slides 24, 27.
[24] Boyd, "Discourse on Winning and Losing," tape 3, side 1, 76, 78, 81.

as aviation did.[25] Wyly amended his earlier phrasing of the situation to make clear his belief that "firepower is essential to the successful waging of war." His objection, echoed by Grazier, was to the Vietnam-era focus on making the quantity of destruction the sole metric of victory. The objective should not be numbers of people killed or tanks destroyed; but Wyly acknowledged that the enemy will not "throw up his hands by mere token of being outmaneuvered." Maneuver warfare was not bloodless; the killing game remained part of it. For Wyly, "Our threat to him has to be made real through the deadliness of our fire."[26] The maneuverist's argument was that the killing game was not the endgame.

While these arguments seem like semantic exercises, they illustrated the second- and third-order effects of not having direct access to Boyd, and the corollary problem that Boyd never formally published his ideas, either as rebuttal articles or otherwise. For Boyd had, in fact, touched on this very issue. In his oral history, Boyd directly addressed the relationship between firepower and maneuver, saying that some people "maneuver in order to fire and blow people away. My fire is to open things up so that I can get the opportunity to maneuver even though I may fire again." For Boyd, firepower and its effects were not objects in themselves but rather an avenue to the enemy's mind: "In other words, I am trying to put the shock on him by always having things happen very fast. So, my plan would lean more in the direction of fire in order to maneuver."[27] Boyd's concept of firepower did not seek long lists of tanks destroyed or people killed but instead created opportunities for dislocating the enemy. Such dislocation might well be physical; but, as Boyd discussed throughout "Patterns of Conflict," mental and moral dislocation caused greater disorder within the enemy's system.

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[25] Wilson, "Maneuver/Fluid Warfare," 59.
[26] LtCol Michael D. Wyly, "War Without Firepower?," *Marine Corps Gazette* 67, no. 3 (March 1983): 17–18.
[27] Boyd Air Force oral history, 225–26.

MANEUVER FOR ALL

Maneuverists also reassured skeptics that maneuver warfare was eminently adaptable to amphibious operations.[28] But Marines should not get so wrapped up in the landing phase of an operation that they overlooked the need to fight successfully once ashore.[29] As the conversation continued, others pointed out instances in which the Marine Corps had employed maneuver warfare, albeit unconsciously, in historical amphibious operations.[30] One interesting development as the debate matured came from critics who did not question the tenets of the OODA loop or maneuver warfare, although they felt that particular military functional areas had been overlooked and deserved consideration as enablers of the maneuver concept. From armor to artillery, from aviation to command and control, from logistics to the realm of simulation, and even within the Navy, members of each community believed that this new philosophy offered them something useful. Thus, as proponents and critics engaged over the topic, the intellectual terrain expanded with the realization that maneuver warfare's mental framework was not restricted for use by frontline units.[31] Boyd was far more capable of clarifying all these

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[28] Wilson et al., "The 'Maneuver Warfare' Concept," 51; Wilson, "Maneuver/Fluid Warfare," 61; Brown, "Maneuver Warfare Roadmap—Part I," 42–47; and Col Bruce G. Brown (Ret), "Maneuver Warfare Roadmap—Part II: Concepts of Employment and Tactical Applications," *Marine Corps Gazette* 66, no. 5 (May 1982): 80–85.

[29] Wilson and Woods, "Defending Maneuver Concepts," 34; and LtCol Michael D. Wyly, "Thinking Beyond the Beachhead," *Marine Corps Gazette* 67, no. 1 (January 1983): 34–38.

[30] Maj R. J. Brown, USMCR, "Maneuver Warfare at Tinian—1944," *Marine Corps Gazette* 68, no. 7 (July 1984): 51–55.

[31] Williams, "More Mobility for Today's Threat," 35; Wilson, "Maneuver/Fluid Warfare," 59; Capt G. R. Wright, "TWSEAS and Maneuver Warfare," *Marine Corps Gazette* 66, no. 3 (March 1982): 22–23; Capt M. C. Chisum, "Combined Arms Properly Understood," *Marine Corps Gazette* 66, no. 11 (November 1982): 27–30; 1stLt D. H. Berger, "A Traveling Command Post," *Marine Corps Gazette* 68, no. 6 (June 1984): 52; William S. Lind, "Maneuver Warfare and Marine Aviation," *Marine Corps Gazette* 73, no. 5 (May 1989): 57–64; Maj John B. Saxman, USAF, "The Role of Marine Aviation in Maneuver Warfare," *Marine Corps Gazette* 73, no. 8 (August 1989): 58–63; Maj Steven B. Donnell, "The ACE as a

points in person, but they were often watered down by others.

As the firepower argument indicated, maneuver warfare and enabling concepts such as the OODA loop were not universally embraced. Detractors leveled a wide array of criticisms at both the theories and the men who advocated them. These criticisms fell into four categories: maneuver warfare's inapplicability to current and future Marine Corps operations; flaws in the German model often used by maneuverists; shortcomings of the OODA loop; and the polarizing personalities of advocates like Lind. The debate instigated by the veterans of Vietnam provided answers to their questions while creating new ones over which others argued.

The Limits of Maneuver Warfare

Some critics argued that the Corps did not have the mobile assets, command and control capability, or sealift necessary to fight this type of war.[32] Others believed maneuver philosophy was not applicable to the low-intensity conflicts the Corps would most likely face. Lieutenant Colonel Gary Anderson, a Marine infantry officer, detailed the failures of other high-tech nations in low-intensity theaters, such as Afghanistan and Lebanon, and then observed,

The Marine Corps has adopted maneuver warfare as its

Maneuver Element," *Marine Corps Gazette* 73, no. 8 (August 1989): 64–66; Capt Richard A. Menton, "Airpower on the Maneuver Battlefield," *Marine Corps Gazette* 73, no. 8 (August 1989): 67–69; Capt Peter R. Violette, "Critical Parts for Maneuver Warfare," *Marine Corps Gazette* 74, no. 2 (February 1990): 26–27; LtCdr Terry C. Pierce, USN, "Maneuver Warfare: The 'Gators Play Too," *Proceedings* (U.S. Naval Institute) 115, no. 11 (November 1989): 50–52; Col John R. Moore, "Communications and Maneuver Warfare," *Marine Corps Gazette* 74, no. 3 (March 1990): 29–30; Col Kent O. Steen, "Artillery in Maneuver Warfare," *Marine Corps Gazette* 74, no. 7 (July 1990): 31–32; and LtCdr Terry C. Pierce, USN, "The Tactical Strategic Link," *Proceedings* (U.S. Naval Institute) 116, no. 9 (September 1990): 66–69.

[32] LtCol R. H. Voigt, "Comments on Maneuver Warfare," *Marine Corps Gazette* 66, no. 3 (March 1982): 20; LtCol Gordon D. Batcheller, "Reexamining Maneuver Warfare," *Marine Corps Gazette* 66, no. 4 (April 1982): 22–23; Maj J. D. Burke, "Maneuver Warfare and the MAGTF," *Marine Corps Gazette* 66, no. 9 (September 1982): 67–71; and Maj Edward J. Robeson IV, "MAGTFs and the Tactical Defense," *Marine Corps Gazette* 67, no. 4 (April 1983): 24.

doctrine, but it is also currently advertising that its most likely scenarios for employment in the next 10 years will be in low-intensity conflicts. On the surface, this appears to place the Marine Corps in the position of having adopted a doctrine not applicable to its most likely form of employment.[33]

Lieutenant Colonel H. T. Hayden, a logistician with extensive counterinsurgency experience in Vietnam and Central America, agreed with Anderson, arguing that "the basic tenets of maneuver warfare . . . have no place in most forms of low-intensity conflict." He believed that the American military made counterinsurgency operations harder than they had to be because "we do not understand the *enemy*. We do not understand *his* doctrine, *his* tactics and techniques, *his* basic organizations, nor do we understand how *he* organizes *his* assets to fight *his* kind of warfare."[34] Here again came the fallout from not having direct access to Boyd for, as previously demonstrated, Boyd commented specifically and extensively on operations later termed *low intensity*. Furthermore, Boyd even agreed with Hayden's perspective on failing to understand the insurgent, specifically calling out that failure in Vietnam. But Hayden missed Boyd's point on orientation as the crucial counter to such misunderstanding, for a proper orientation drove one to assess precisely those aspects of an adversary Hayden outlined to successfully attack the linkages that allowed the enemy to operate cohesively.

Copying the Losers

The German military, particularly the *Wehrmacht* of the Second World War, was regularly held up as the maneuver warfare ideal. With appropriate caveats, the *Wehrmacht* model was potentially quite useful, as Boyd regularly referenced *Wehrmacht* operational

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[33] Anderson, "When Maneuver Fails," 57.

[34] LtCol H. T. Hayden, " 'A Marine for All Seasons?': Maneuver Warfare Versus Low-Intensity Conflict," *Marine Corps Gazette* 73, no. 9 (September 1989): 55–57, emphasis in original.

successes in "Patterns of Conflict." But the omission by maneu-verists of Boyd's clear caveats on German failures at the moral level unnecessarily weakened their overall argument. Lind often pointed back to the Germans as true maneuverists; as he put it,

> In the West in this century, Germany was the only country to *institutionalize* maneuver warfare . . . [, and they] en-deavored to make every element of their military—their education system, officer selection, officer promotion, the way their army made its choices and decisions, etc.—sup-portive of maneuver warfare.[35]

To his credit, Lind added a few qualifications to this conclusion:

> We must not assume German practices were always the best . . . we must acknowledge that the practice of ma-neuver warfare on the battlefield was not uniquely Ger-man—only the institutionalization of maneuver warfare was . . . we must point out the failures in the German system. While the Germans were consistently superior to their opponents at the tactical and operational levels, German strategy and grand strategy in both World Wars were poor. They were sufficiently poor that Germany lost both wars.[36]

Nevertheless, criticism of the German model abounded. Ma-jor Lauer, as a Marine student at the Army's prestigious School of Advanced Military Studies, argued that, contrary to the maneu-verists' assertion, the *Wehrmacht* indeed sought annihilation and not disruption of the enemy. He believed that German concepts of momentum and tempo focused directly on "the concept of the primacy of destruction and the speed of destruction."[37] Some noted that the Germans were not as freewheeling as proponents claimed, with much tighter control and integration—especially

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[35] William S. Lind, "Why the German Example?," *Marine Corps Gazette* 66, no. 6 (June 1982): 60, emphasis in original.
[36] Lind, "Why the German Example?," 63.
[37] Lauer, "Maneuver Warfare Theory and the Operational Level of War," 34.

with aviation—over their supposedly decentralized forces. Lieutenant Colonel Jack W. Rippy, a Vietnam veteran who assessed maneuver warfare ideas while at the Naval War College, cited the reports of two former *Wehrmacht* commanders who appeared to highlight the criticality of "a very close liaison" between the air and ground elements.[38]

The Germans also had an unenviable combat record, losing two world wars when their enemies failed to unravel in the manner maneuverists predicted they should. Marine lieutenant Sean T. Coughlin, a maintenance management officer, argued that "despite all its tactical brilliance and strategic initiative . . . the Wehrmacht took a bad beating" against Russia in World War II.[39] The Germans did everything the maneuverists wanted: focusing combat power against weak points, decentralizing command, and seeking the tactical and strategic unraveling of the Red Army rather than its outright destruction. According to Coughlin, "the Germans simply waited for Soviet capitulation, which should have been the inevitable result of their brilliant successes in the field . . . but the Red Army kept on fighting." Those pockets of bypassed Soviet resistance should have crumbled psychologically, but they simply continued resistance despite the loss of logistics and leadership. Coughlin reminded his audience of Sun Tzu's admonition that surrounded soldiers often fight with even greater fury, as they know that death is the only alternative.[40]

In the *Wehrmacht* model, the maneuverists' failure to explain Boyd's moral conflict and its central grand ideal caused unnecessary confusion, representing perhaps the easiest lost opportunity to correct. As chapter 4 shows, Boyd devoted a significant portion

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[38] LtCol Jack W. Rippy, "The Impact of Maneuver Warfare Strategy/Tactics on the U.S. Marine Corps' Integrated Air/Ground (MAGTF) Doctrine" (master's thesis, Naval War College, 1984), 15–16.

[39] 1stLt Sean Coughlin, "Maneuver? Or Victory?," *Proceedings* (U.S. Naval Institute) 116, no. 9 (September 1990): 70–71. See also LtCol Mark R. Hamilton, " 'Maneuver Warfare' Revisited: A Plea for Balance" (master's thesis, U.S. Army War College, 1986), 6. Hamilton noted that advocates of the *Wehrmacht* model always ended their analyses at the Germans' high-water mark in the summer of 1943.

[40] Coughlin, "Maneuver? Or Victory?," 70–71.

of "Patterns of Conflict" to that specific area. Boyd's discussion of the constructive and destructive foci applied across the high (mental and moral) and low (physical) levels of war, which illustrated the central flaw in Germany's method of warfighting. The problem lay not in maneuver warfare itself but in Germany's failure to link maneuver conflict—fundamentally destructive—to a powerful grand ideal that offered a constructive vision of the future. The grand ideal was supposed to weaken both an adversary's internal national cohesion and its ties with external allies, while giving one's own allies, unaligned third parties, and even the adversary's allies a reason to join one's side. Nazi Germany lacked such a grand ideal, with its racial ideology and the brutality with which Hitler enacted it functioned as an antigrand ideal, pushing existing adversaries farther away and alienating people who might otherwise have willingly joined the Axis side.

Boyd's thoughts on the self-destructiveness of Nazi ideology and brutality were quite clear. He noted several times in "Patterns of Conflict" that the initial reaction of many ethnic groups living in western Soviet territory to the German invasion of World War II was one of welcome. Joseph Stalin had already caused mass suffering there and, through his economic policies, was the cause of millions of deaths in the western Soviet states before Hitler invaded. As hard as it is to imagine today, German rule seemed a relief compared to Stalin's policies. However, Hitler's brutality quickly eclipsed that of Stalin, to the point where Stalin, though viewed by many Russians as "a son of bitch" (according to Boyd), was preferable because he, at least, was Russian.[41]

There exists a wide body of evidence for this argument beyond Boyd's treatment. From the beginning of Hitler's political career to its bitter end, his Germany-centric expansion goals precluded the possibility of virtually all non-Germanic peoples from enjoying the benefits of Reich citizenship (such as they were), and he sought to erase the national identities of non-Germanic peoples as well. In general, non-Germans were afforded no prospects

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[41] Boyd, "Discourse on Winning and Losing," tape 4, side 2, 141–42; and tape 5, side 1, 155.

for advancement in such a system, which gave them no incentive for cooperating with it or helping to defend it. This attitude was compounded by the German tendency to expel non-Germans from occupied territories in the east to make room for German settlers. And this is to say nothing about the mass extermination of those peoples who, according to Nazi racial thought, were both so inferior and dangerous that even forced resettlement was not an option.

It was this attitude that drove the brutality that German invasion forces directed toward Russia. Hitler saw the invasion of Russia as a war of annihilation, seeking both the total destruction of Bolshevik ideology and of the inferior Slavic-Asiatic-Jewish races that promoted it. The Nazi dictator relentlessly pursued this policy, despite the fact that at the outset of Operation Barbarossa many groups—from those who had suffered under Stalin's prewar depredations to those living in countries more recently occupied by the Red Army after 1939—greeted the *Wehrmacht* as a liberating army and occasionally even actively attacked the retreating Red Army to speed it on its way. Hitler thus managed to deliberately deprive himself of a large pool of manpower and resources that might otherwise have been directed against Soviet forces on the eastern front; instead, it directed itself against a Nazi regime even more vicious than Stalin's dictatorship. Part of the German failure came not from an inadequate implementation of maneuver conflict but the refusal to offer a grand ideal to those groups that were primed for it.[42]

Despite Coughlin's admonitions, one wonders how well the remains of the Red Army, along with those bypassed pockets of resistance in occupied Soviet territory, would have continued to fight if the German invaders had made even a half-hearted effort to win them to their side rather than exterminate them. But Hitler and his Nazi cohort made no such effort. America and its western European allies offered the principles of the Atlantic Charter. The charter, initially signed in August 1941 by President Franklin D.

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[42] Mazower, *Hitler's Empire*, 5, 7–8, 85, 139, 142–43, 149, 157–58; and Timothy Snyder, *Bloodlands: Europe Between Hitler and Stalin* (New York: Basic Books, 2010), 160, 162–63, 191–94.

Roosevelt and British Prime Minister Winston Churchill, laid out principles that, with some amendment as the war went on, acted as a governing grand ideal for Allied action. These principles included forsaking territorial expansion and affirming national self-determination, fair trade, and freedom of the seas.[43] Stalin, for all his past brutality, understood the power of ideas well enough to frame the conflict for the Russian masses as a Great Patriotic War against ruthless foreign invaders. All Hitler offered was *Lebensraum* for his own people and the mass extermination of everyone else.[44] Thus tied to a repellent national vision, the *Wehrmacht*'s excellent execution of maneuver warfare at lower levels could only garner partial victory, just as those maneuverists whose knowledge of Boyd failed to encompass moral conflict only had a partial understanding of his whole concept.

Boyd devoted a large chunk of "Patterns of Conflict" to discussing moral conflict, yet this level of war vanished quickly from the maneuver warfare debate. Perhaps this occurred because, as more Marines discussed maneuver conflict, they were naturally drawn toward the parts of "Patterns of Conflict" that used similar terminology. Marines also may have believed that promulgating the constructive grand ideal required in moral conflict was the responsibility of national leaders, with the Marine Corps itself only responsible for the destructive activities in maneuver conflict. Boyd emphatically stated the opposite about high-level national goals: "You, as a military person, better understand that, *particularly if you get caught in a guerrilla operation*."[45] It is particularly ironic that, as the Marine Corps gravitated toward Boyd's ideas as a solution to the mistakes of Vietnam, this specific point, about which Boyd felt strongly, fell by the wayside. Finally, it was possible that the intense

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[43] "Atlantic Charter, August 14, 1941," Avalon Project, Yale Law School Lillian Goldman Law Library, accessed 9 March 2017.

[44] German for "living space." Though the term predated the birth of National Socialism, Hitler and the Nazi Party adopted it as a shorthand for their plan to depopulate Eastern Europe of non-Aryan, and thus racially "inferior" people, to allow for the expansion of the German population and the exploitation of the natural resources in Eastern Europe required to sustain them.

[45] Boyd, "Discourse on Winning and Losing," tape 5, side 1, 153, emphasis added.

and exhausting battle of simply getting the Marine Corps to adopt maneuver warfare, fought over the better part of a decade, made explaining the further nuances of moral conflict too great a task for maneuver proponents.

Whatever the omission's cause, the fact that only a fraction of the Marine Corps could hear Boyd's briefs directly was a contributing factor. Maneuverists without the benefit of personally attending "Patterns of Conflict" or speaking with Boyd might be excused from their inability to counter the criticism leveled against the German model; those who did know Boyd personally and had attended his briefings, however, held the material required for an effective defense in their hands but for some reason never used it. The result, to paraphrase Boyd and the aforementioned Manstein, was a lost victory in the maneuver debate.[46]

(Mis)understanding the OODA Loop

A constant in the debate over maneuver warfare was using the OODA loop as a shorthand device to simplify the ideas from Boyd's complex repertoire.[47] Sometimes this substitution was conscious, sometimes not. General Trainor, for example, did not use

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[46] Field Marshal Erich von Manstein, *Lost Victories: The War Memoirs of Hitler's Most Brilliant General*, trans. Anthony G. Powell (St. Paul, MN: Zenith Press, 2004). One of the German Army's most senior commanders during World War II, Manstein planned both the successful invasion of France in 1940 and several operations against the Red Army on the eastern front. He was eventually relieved of command by Hitler in 1944 for disobeying orders to hold all territory to the last man. Manstein characterized the *Wehrmacht* operations he wrote about on the eastern front as "lost victories" due to Hitler's regular interference in military decision making, which often forced the *Wehrmacht* into untenable and self-destructive situations.

[47] Wilson, "Maneuver/Fluid Warfare," 61; Burke, "Maneuver Warfare and the MAGTF," 67–69; Capt C. A. Leader, USMCR, "Maneuver Tactics and the Art of War," *Marine Corps Gazette* 67, no. 3 (March 1983): 56; Brown, "Maneuver Warfare at Tinian—1944," 53–54; Maj Gary W. Anderson, "Maneuver, Attrition, or the Tactics of Mistake?," *Marine Corps Gazette* 69, no. 9 (September 1985): 73–74; LtCol Gary W. Anderson, "When Maneuver Fails," *Marine Corps Gazette* 73, no. 4 (April 1989): 58–59; William S. Lind et al., "The Changing Face of War: Into the Fourth Generation," *Marine Corps Gazette* 73, no. 10 (October 1989): 23; Maj Craig A. Tucker, "False Prophets: The Myth of Maneuver Warfare and

the term explicitly in his article on maneuver, but his definition of *the initiative* seems to match it: "The principle of the initiative calls for staying progressively ahead of an opponent in both thought and action."[48] Using the loop in this way proved a two-edged sword for proponents in the long run. On the one hand, it served as an easy introduction to maneuver warfare, especially for the vast majority of Marines and other interested parties who had neither the time nor opportunity to attend Boyd's lectures at Quantico or see it employed in maneuver hotbeds, such as in General Gray's 2d Marine Division at Camp Lejeune. On the other hand, detractors often singled out the OODA loop for criticism, misunderstanding its origins and nuances. This problem was exacerbated by the fact that many proponents misunderstood and misrepresented the loop as well.

Critics argued that the loop, supposedly derived from single fighter air-to-air combat, simply did not translate to a more complex ground environment. The fallacy that it was derived from Boyd's air-to-air combat experience in Korea or from a misreading of history was commonly held, even by people who sat through "Patterns of Conflict." A critique by Jay Luvaas, then a military history professor at West Point, claimed that Boyd extrapolated it from historical examples of blitzkrieg; Boyd's handwritten retort on the critique is an emphatic "NO."[49] Roger Spiller, a professor at the Army's Combat Studies Institute, believed that the loop came from Boyd's analysis of dogfights between the MiG-15 and F-86 during the Korean War; yet, as previously mentioned, Boyd made clear that it originated in the "anomalies" he saw in the YF-16/17

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the Inadequacies of FMFM-1 *Warfighting*" (master's thesis, U.S. Army Command and General Staff College, 1995), 24–25; Capt R. S. Moore, "Maneuver Warfare," *Amphibious Warfare Review* (July 1983): 35, found in folder "Sep 1983—2D MARDIV Maneuver Warfare Readings," box 39, Alfred M. Gray II Papers; "Introduction—2D MARDIV Maneuver Warfare SOP," folder 9, box 3, Robert Coram Papers; and Bill Woods, letter to Robert Coram, folder 3, box 8, Robert Coram Papers.

[48] Trainor, "New Thoughts on War," 49.

[49] Jay Luvaas, "Patterns of Conflict in History," 9 March 1981, folder 7, box 5, Col John R. Boyd Papers.

flight tests.[50] Separation from Boyd tended to intensify the criticism. Infantry officer Major Craig Tucker argued that

> despite Boyd's study of selected land campaigns[,] the sterile individual combat between machines maneuvering in the unrestricted environs of space does not translate well to the practical realities of land warfare . . . there is considerable difference between maneuvering a fighter and maneuvering an army . . . the "Boyd Theory"—ignoring the moral dimension of war—fails to recognize that armies, unlike airplanes, are not dependent on the desires of a single individual and may retain a significant amount of cohesion and fighting spirit despite being outmaneuvered.[51]

Army Lieutenant Colonel Mark R. Hamilton, an experienced instructor and administrator, believed that the decision cycle construct was valuable—but only up to a point, and it could not be considered the sole cause of victory. Like Tucker, Hamilton argued (erroneously) that as a concept derived from air-to-air combat, the OODA loop had little applicability to ground warfare:

> Air-to-air combat is essentially few-on-few (even with a wingman). It is three-dimensional . . . land warfare is many-on-many. It is really only two-dimensional even with air whose ordinance [*sic*] is dropped to support two dimensional maneuver or positioning. Trafficability confines and confounds, slows or denies total freedom of movement. Battle tends to be longer than air-to-air; within battles, movements are continuous rather than iterative; and disengagement once battle is joined (even at the recon level) is very difficult without some damage and some expenditure of ammunition.[52]

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[50] Spiller, "Critique of John Boyd's 'Patterns of Conflict'."
[51] Tucker, "False Prophets," 25.
[52] Hamilton, " 'Maneuver Warfare' Revisited," 10–11. See also Barry Scott Zellen, *Art of War in an Asymmetric World: Strategy for the Post–Cold War Era* (London:

These interpretations derived from the problem cited earlier
—lack of direct exposure to Boyd's presentation; Boyd said a great
deal about the moral dimension of war and specifically expand-
ed his view of conflict from individual to collective actions, as
discussed in chapter 4. Boyd clearly believed that even air-to-air
combat involved more than the individual jousts of World War I:
"It's not just one to one air combat up here. It's what pilots like to
say, many upon many. In other words, if you're working over one
guy, somebody else is going to come in and blindside you."[53] Boyd
also stated unequivocally that the loop's origins were not in his
dogfighting experience in Korea but in his later work on aircraft
design.

One problem in the loop's interpretation was injected by ma-
neuverists who talked about the loop's speed in an absolute sense,
as Lind did in the characterization that opens this chapter. Boyd
never made such an argument; as he put it, "Maneuver warfare
is not just a bunch of guys going down the highway at a high
speed."[54] Relative tempo, not time, was the key factor. To remain
unpredictable, one's own timing had to vary to prevent an adver-
sary from recognizing a pattern.[55] Indeed, tempo could include
deliberately slowing down one's own activities, or injecting friction
into an adversary's system to slow him down without necessarily
speeding up oneself. This was similar to football's no-huddle of-
fense or running out the clock, depending on the scenario.

Some maneuverists clung to the idea of absolute speed, say-
ing, "You go fast, you go fast." Boyd responded, "Christ, we'll all
drive each other nuts." Speed for speed's sake was unnecessary.
Relative speed was the key, and this could be achieved by degrading
the adversary: "All I have to do is be faster than my adversary. I
can be slow as long as I slow [him] down even more." Boyd argued
that this is what the Communists had done to the Americans in
Vietnam: "The guerrillas, in a sense, were in effect operating at a

Continuum International Publishing, 2012), 82.

[53] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 10.

[54] Boyd, "Discourse on Winning and Losing," 4, side 2, 134.

[55] Osinga, *Science, Strategy and War*, 235–36.

faster tempo than we were. . . . They were operating very slow, but Christ, we were blundering all over and couldn't even operate at their pace. We were doing things all disoriented."[56]

As with the OODA loop's origins, Boyd's concept of execution came from his previous experiences and observations. In "Patterns of Conflict," Boyd linked the contrast between tempo and speed back to his insights from the aforementioned YF-16/17 fly-off. He found that the key performance parameter for a fighter was not its ability to simply do everything faster than an adversary, but to shift between energy states (fast transients) to give a "choice of engagement opportunities over an adversary." The prevailing wisdom in fighter design at the time was "that you either want to conserve or gain energy while trying to outmaneuver an adversary. But sometimes you may want to dump it overboard very quickly if you want to gain leverage on him." Conversely, "you may want to add it very quickly, or maybe not so quickly depending on the circumstances."[57]

This captured Boyd's emphasis on tempo as compared to absolute comparative speed. Substitute *method of conflict* for *airplane* and one sees the essence of Boyd's theory of conflict and in turn the essence of maneuver warfare. Time and tempo were only two of many factors used against an opponent to render him incapable of activity; one still sought to isolate and neutralize physical and nonphysical strengths and moral bonds simultaneously.[58] All of this was examined during the loop's critical orientation phase, and it was applicable from the grand strategic level down to the tactical level. In sum, Boyd sought many different methods to help describe complex ideas in simple ways, and the OODA loop was an example of this. The farther removed the explanation was from Boyd, the more often his simple explanation of complex ideas was reduced to a simple, unnuanced idea in itself. This is what happened with the OODA loop.

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56 Boyd, "Discourse on Winning and Losing," tape 1, side 1, 12.
57 Boyd, "Discourse on Winning and Losing," tape 1, side 1, 9. Boyd also touches on this idea in his oral history; see Boyd Air Force oral history, 129–30.
58 Osinga, *Science, Strategy and War*, 236.

This book has addressed the counterarguments to these criticisms already, but the point bears repeating: critics often misunderstood Boyd, not only from lack of direct exposure but also because of incomplete interpretation by his proponents, the most vocal of whom was Lind. Major Tucker, who criticized the OODA loop in his 1995 master's thesis, also made extensive references to, and critiques of, a selection of Lind's works. This highlighted the paradox of having Lind as Boyd's functional spokesman: he reached a much wider audience, but he left the nuances of Boyd's briefings behind. Absent the benefit of hearing Boyd's briefing or accessing a Boyd-authored source, Tucker could only interpret Boyd through Lind. Similarly, Lieutenant Colonel Hamilton, writing almost 10 years prior, did not reference any of Boyd's original work, whereas he used two different works by Lind. The constraints of hearing Boyd's ideas secondhand are clear in both Tucker's and Hamilton's theses. Without the nuances of the original presentation, Hamilton did not see that time could be used as a dimension when considering the dimensional aspects of combat in his discussion about the length of time for ground and air engagements. He further confined the contribution of aviation to delivering ordnance, overlooking innovations such as vertical envelopment by helicopter that certainly added a third dimension to a land battlefield.

Boyd's Best and Worst Promoter

Beyond watering down Boyd, Lind was often a focal point of criticism because of his own personal idiosyncrasies. Though his work as a political staffer had not required that he inject himself into the Marine Corps' internal reform movement, he participated in the debate as a member of the larger defense community. Lind first joined the staff of Senator Robert A. Taft Jr. (R-OH) in 1973 and later moved to Senator Gary W. Hart's (D-CO) staff; on both, Lind aggressively pushed for widespread reform within the Department of Defense.[59] He expended great energy on the Marine

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[59] Piscitelli, "The United States Marine Corps Way of War," 24; and Gary Hart and William S. Lind, "Detailed Outline: Military Reform," folder "Bill Lind's Visit to the Naval War College," 1, box 22, Alfred M. Gray II Papers.

Corps, in particular, finding fertile minds in its ranks that felt stymied by stagnant leadership.

Lind did not mince words in condemning both people and their ideas when he found them wanting. For example, an article he wrote for the *Washington Post* was acidly titled "The Marines' Brass Is Winning Its Battle but Losing the Corps."[60] The article's title set the tone for its acerbic content. Lind chastised Marine Corps leaders for not embracing the changes he recommended as a maneuverist and military reformer. He accused commanders of "glossing over deficiencies . . . and of suppressing arguments for reform," with the result that "the Corps risks future Beiruts, possibly on even larger scales." Marine leaders also were engaging in "an assault on the essence of the Corps as an institution."[61] Lind was equally biting in person. Once interrupted during a brief by a Marine officer who groused, "*Schwerpunkt*, bilgepunkt, it's all the same to me," Lind retorted, "Yes, it is. And, unfortunately, it will always be that way for you."[62] Such inflammatory comments illustrate why many critics refused to look past Lind's caustic temperament and entertain his arguments on maneuver warfare.

Nor did his personal appearance ingratiate him with members of an organization who prided themselves on physical toughness. As described by Robert Coram, Lind was a "big fleshy man" who often attended field exercises wearing "an inverness and a deerstalker," thus essentially dressing like the traditional depiction of Sherlock Holmes.[63] Even Lind's supporters acknowledged the effort required to look past his exterior; in the introduction to Lind's *Maneuver Warfare Handbook*, Colonel John Studt took a moment to note that he had "strong suspicions that [Lind] would have difficulty passing the PFT [physical fitness test]."[64]

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[60] William S. Lind and Jeffrey Record, "The Marines' Brass Is Winning Its Battle but Losing the Corps," *Washington Post*, 28 July 1985.

[61] Lind and Record, "The Marines' Brass."

[62] Coram, *Boyd*, 383. Lind reported a similar version of the exchange; see Lind, "Why the German Example?," 60.

[63] Coram, *Boyd*, 383.

[64] Lind, *Maneuver Warfare Handbook*, xi.

William Lind's verbal style and overall bearing, therefore, resulted in an antagonistic relationship with the Marine Corps' senior leaders. General Trainor claimed that "the Marine Corps was not hostile to the ideas behind Maneuver Warfare and the Boydian concepts. Bill Lind was the source of friction." Trainor added that Lind had caused this friction because he "publicly criticized Marine leadership and ascribed to it a calcified commitment to attrition warfare where it did not exist to the degree he claimed."[65] At times, the relationship was so dysfunctional that Lind found himself banned from the grounds of Quantico.[66] This love/hate chemistry had the dual purpose of helping to educate people on maneuver warfare—Lind enjoyed a higher level of public visibility than Boyd and, as mentioned above, often acted as the public conduit for Boyd's ideas. As General Van Riper observed, "Lind was a salesman. He solicited ideas from a lot of different places. He had a good grasp of history. He proselytized the ideas, more

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[65] Piscitelli, "The United States Marine Corps Way of War," 225.

[66] There is conflicting evidence on precisely when Lind became unwelcome aboard Quantico. Lind stated that during the tenure of Commandant Gen Paul X. Kelly—no fan of Lind's—the Quantico base commander forbade inviting Lind to lecture at the military schools there; see Lind and Record, "The Marines' Brass," B1. Terry Pierce cited this particular instance as well; however, he also alleged that Gen Charles Krulak later reinstituted that ban, but Pierce provided no supporting evidence; see Pierce, *Warfighting and Disruptive Technologies*, 91, 94. This claim is problematic because, according to Gen Krulak's own oral history interview, Krulak, though disagreeing with Lind on many issues, found him an intellectual stimulant and invited Lind back to Quantico after Krulak's predecessor, Gen Mundy, had Lind barred once again; see Gen Charles C. Krulak (Ret), interview with David B. Crist, 12 July 1999–11 May 2001, transcript, session XIV (Oral History Division, Marine Corps History Division, Quantico, VA). Because Pierce described Krulak as an energetic supporter of maneuver warfare—to the point where, as will be seen in chapter 6, Krulak ordered that *Warfighting* be revised to keep it relevant—it seems unlikely that Krulak would have deprived himself of a resource like Lind. LtGen Van Riper also substantiated the charge that Gen Kelly proscribed Lind's presence at Quantico; see Van Riper 20 February 2014 interview. At a minimum, it seems fair to say that maneuverist Commandants like Gray and Krulak tolerated Lind's more outrageous statements about the Marine Corps for the sake of fostering intellectual debate about maneuver warfare concepts, while nonmaneuverists such as Kelly and Mundy found Lind a liability to the institution as a whole and treated him accordingly.

than anything else." As with others promoting maneuver warfare, Van Riper saw Lind's role as "bringing Boyd's ideas to our attention, and sometimes helping to interpret what Boyd was doing."[67] Yet, sales technique aside, Lind remained an influential player in the maneuver warfare debate, as the next chapter will show.

CONCLUSION

The maneuver warfare debate was a raucous one. Slowly, but with increasing momentum as the decade drew on, maneuver concepts spread through the Marine Corps, with the pages of the *Marine Corps Gazette* acting as the grand arena for the discussion. As Boyd's ideas spread, a widening circle of Marines found them a useful answer to the problems that their institution faced in the uncertain post-Vietnam world. The debate took several courses, from simply making maneuver warfare more understandable to demonstrating its application to the whole MAGTF.

As with any unfamiliar idea, maneuver conflict took time to explain; and, as the above criticism illustrates, the maneuverists' explanations did not satisfy everyone. Criticism came, in part, from perceived weaknesses in the ideas themselves, but it also came from misunderstanding those ideas. This problem was exacerbated by the fact that Boyd's brief enjoyed a relatively limited direct audience, and his self-appointed salesmen did not always have a full understanding of his ideas in their own rights.

For a time, this debate lacked direction, as virtually anybody with an opinion weighed in, and there was no indication from the higher echelons of Marine Corps leadership about which aspects, if any, the institution supported. But that did not mean the debate was without value. It tilled the earth, so to speak, in the minds of Marines across the Corps, planting new ideas at a time when veteran Marines were disheartened by the old ways that had reaped bitter fruit in Vietnam. As the 1980s came to an end, the seeds sown by this debate bore their bounty. Several key individuals had absorbed Boyd's ideas and tried to implement them within their own limited spheres of influence. Then, in 1989, they found them-

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[67] Van Riper 20 February 2014 interview.

selves in the unique position of being able to make those ideas the very foundation of how the Marine Corps viewed war and planned to win it. The final chapter will focus on those individuals and how they worked to give Boyd's concepts the Corps' official imprimatur.

CHAPTER SIX

"What Do You Think We're For?"

From Argument to Warfighting

The year 1989 marked a watershed moment in the maneuver warfare debate; that was the year the debate became doctrine. The tangle of ideas, people, and institutional search for purpose, having threaded their way through Vietnam's jungles and across the late Cold War years, were finally woven together into a cohesive fabric: *Warfighting*. By 1989, Boyd's conflict theories were widely known (though not always fully understood) throughout the Marine Corps, and those individuals who found in his concept the answer to the future's challenges were finally in positions to institutionalize maneuver warfare. Working from both the highest and lowest levels of the Marine Corps, these individuals transformed Boyd's ideas from debate fodder into policy and made them stick. The worldview expressed in *Warfighting*—for which Boyd's interpretations formed the cornerstone—remains at the heart of how Marines understand warfare, despite continued criticism then and now. The reader should also consider this chapter in the context of the bottom-up model of military innovation discussed in the introduction. As we have seen, the lower-level commanders and Marines who would actually have to execute maneuver warfare on the battlefield generated much of the debate over its nuances. This

chapter demonstrates how several of those men, planted firmly in the same dirt shared by their warfighters, would push from below to adopt a new concept of war that they believed would both grant them victory and husband their men's lives.

Although it is beyond the scope of this work to identify every individual who helped, however incrementally, to cement Boyd's ideas into the Corps' doctrinal foundations, four deserve a detailed discussion. They are the aforementioned William S. Lind, Colonel Michael D. Wyly, General Alfred M. Gray Jr., and Captain John Schmitt. Each performed a key role in assembling the big picture of maneuver warfare. Lind was the promoter; Wyly, the teacher; Gray, the doer; and Schmitt, the writer. Lind and Wyly worked from the bottom up, and Gray and Schmitt worked from the top down, but only after pushing maneuver warfare at the ground level during their earlier time with operational forces. Boyd's mental churn pushed him to perpetually refine his ideas rather than stop and commit them to paper, so it fell to these men to write the book on maneuver warfare.

THE PROMOTER

Ideas do not become military doctrine without buy-in from the senior ranks, but Boyd's concepts would never have entered the equation without voices from below demanding change. Not only did Marines clamor for reform after Vietnam but William Lind, an outsider, crossed civilian-military lines by supporting those Marines' voices and bringing Boyd into the process. Though Lind's influence clearly was not always helpful, there is no denying that, absent his widespread public access and sheer enthusiasm, Boyd's proponents would likely have had a harder time connecting with each other, impeding the cross-pollination of Boyd's ideas, especially at the lower echelons.

As discussed previously, Lind first gained interest in national defense matters as a congressional staffer in the early 1970s. He applied his background in history to various reform movements within the military and gained a particular following among Marines. In 1977, Lind first met Boyd and sat through the "Patterns

of Conflict" brief.[1] Under the aegis of military reform, Lind had already floated some suggestions to *Marine Corps Gazette* readers on modernization and on mechanizing the Marine Corps.[2] Yet Boyd's amassing of historical evidence appealed to Lind. Lind became the promoter. His position in the military reform movement allowed him to straddle both civilian and military worlds. The publicity (or notoriety, depending on whom one asked) he gained from pushing military reform in general and from the particular attention he gave the Marine Corps meant he enjoyed greater access to spread his and Boyd's ideas.

In 1981, Lind was introduced to then-Major General Gray by students of Colonel Wyly; Wyly, as will be discussed shortly, shared Lind's passion for reform. Gray commanded the 2d Marine Division and was implementing his own version of maneuver warfare there. Gray convened a Maneuver Warfare Board that same year to collect and disseminate maneuver ideas, and he placed Lind's *Marine Corps Gazette* article, "Defining Maneuver Warfare for the Marine Corps," on its reading list. Lind was invited to observe and comment on the division's training exercises at Camp Lejeune.[3] The next year, during Gray's famous Fort Pickett, Virginia, exercises, Gray again invited Lind to observe and offer commentary at the end of each training day.[4]

Beyond influencing Gray's activities at the 2d Marine Division, Lind also helped shape a nascent reform effort that Colonel Wyly pursued at the Amphibious Warfare School (AWS) in Quantico. Lind connected Wyly with Boyd, and Wyly would later invite Lind

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[1] Hart and Lind, "Detailed Outline: Military Reform," 1.

[2] Terriff, " 'Innovate or Die'," 491.

[3] "Maneuver Warfare Board at Lejeune," *Marine Corps Gazette* 65, no. 10 (October 1981): 6; and Lind, "Defining Maneuver Warfare for the Marine Corps," 55–58.

[4] John F. Schmitt, interview with LtCol Sean Callahan, 21 February 2013, transcript (Oral History Section, Marine Corps History Division, Quantico, VA), hereafter Schmitt interview.

to lecture study groups at AWS.[5] Lind also became a member of a Washington, DC-based maneuver warfare group, where he actively promoted Boyd's ideas—particularly the OODA loop. When these various study groups wanted more granularity in examining maneuver warfare, they turned to Boyd's concepts through Lind, Boyd's most readily available interpreter. Lind and Wyly eventually collaborated to publish the *Maneuver Warfare Handbook* in 1985, in the opening pages of which Boyd's influence is clearly seen. Though not credited as an author, Wyly allowed Lind to include his lecture notes on practical applications of maneuver warfare concepts as appendices to the book.[6] Lind would play a key role as an editor and interpreter of Boyd's ideas in the development of *Warfighting*, and he continuously promoted Boyd and maneuver concepts both inside the Marine Corps and in other Service branches.[7] As previously mentioned, Lind regularly burned his bridges and became persona non grata aboard Marine Corps Base Quantico. But his ability to connect key people to each other, combined with the force of his enthusiasm for Boyd's work, extended Boyd's reach to new and wider audiences. This was particularly important as Boyd continued his intense lecture schedule with an ever-expanding repertoire of briefs, and he would later (in 1989, a key year) be convalescent in Florida and therefore was not directly available to the maneuverist group.

THE TEACHER

It is clear from the pages of the *Gazette*, and by extension the experiences that shaped the opinions of its authors, that Marines

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[5] Col Michael Wyly, interview with Linda Magleby, 3 July 1991, transcript (Oral History Section, Marine Corps History Division, Quantico, VA), hereafter Wyly interview with Magleby; Michael Wyly, telephone interview with author, 12 May 2017, hereafter Wyly telephone interview; and Damian, "The Road to FMFM-1," 35–36.

[6] Damian, "The Road to FMFM-1," 35; and Lind, *Maneuver Warfare Handbook*, 4–6.

[7] William S. Lind, "The Theory and Practice of Maneuver Warfare," in *Maneuver Warfare: An Anthology*, ed. Richard D. Hooker Jr. (Novato, CA: Presidio Press, 1993), 3–18. Lind's chapter is essentially a repackaging of the main points from his *Gazette* articles and the *Maneuver Warfare Handbook*.

were writing and practicing aspects of maneuver warfare before it became official doctrine. Michael Wyly is an exemplar of these Marines, and his name has permeated this book because of his influence. He proved to be the in-the-trenches teacher that Boyd and Lind, as civilians, never could be. He already boasted an impressive military career before entering the maneuver warfare debate. Wyly received his commission as a second lieutenant in 1962, ran the 1st Marine Division's Counterguerrilla/Counterinsurgency School, deployed to Vietnam in 1965 as a psychological warfare officer, and returned to Vietnam in 1966 as a captain and infantry company commander.[8] His experience as a company commander in Vietnam sparked a desire to preserve the lives of his men by finding less wasteful ways of fighting. There, his Company D, 1st Battalion, 5th Marines, or "Dying Delta," often got bloody lessons on guerrilla tactics. Turning the tables, he began using guerrilla tactics of his own, dispersing his company and then saturating an area with aggressive patrols so that it was the enemy, not his own men, who was off balance and reactive. One of Wyly's men paid him a high compliment on this radical turnaround, saying, "Skipper, we ain't the Dying Delta anymore."[9] Though not conscious of it at the time, Wyly had practiced his own brand of maneuver warfare, and he observed firsthand the effectiveness of its methods in unraveling an enemy. This knowledge, combined with the death of a promising lieutenant under his command, hardened his determination to find a way of winning while preserving Marine lives.[10]

Then-Major Wyly's determination redoubled after returning from Vietnam, when he was assigned as an instructor at The Basic School (TBS) in 1973. To train the new lieutenants, he began with the tactics curriculum he was handed. To his dismay, however, those in charge of the curriculum showed little desire to incorporate any new historical lessons since the Korean stalemate

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[8] "Mike Wyly," Boyd for Business and Innovation Conference, accessed 15 March 2017; and Wyly telephone interview.

[9] Coram, *Boyd*, 375. Michael Wyly confirmed this event in his interview with the author; see Wyly telephone interview.

[10] Piscitelli, "The United States Marine Corps Way of War," 218.

Col Michael D. Wyly, ca. January 1988. Frustrated by stale tactics and doctrine as both an infantry commander in Vietnam and an instructor at several Marine Corps schools, Wyly waged a long campaign to replace old ways of thinking about war. He found their replacement in Boyd's ideas on maneuver warfare.
U.S. Marine Corps History Division

of 1952–53.[11] One particular incident brought this point home to Wyly. A lesson on nonilluminated night attacks included a film reel; Wyly was warned to be careful handling the film, as it was

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[11] Wyly interview with Magleby.

very fragile. He soon understood why the film was fragile: it was the same one he had been shown when he was a lieutenant at TBS more than 10 years prior.[12] It seemed that, with formal schools facing the pressures of churning out new officers for the immediate fight in Southeast Asia, efforts to glean potentially useful lessons from previous operations, even in the not-so-distant past, were neglected.

Wyly left TBS in 1976, frustrated by the training staff's apparent apathy toward history. Deciding that he, at least, would try to learn something from the past, Wyly entered a graduate program in history at George Washington University near the end of his next tour with 2d Battalion, 4th Marines. In 1979, Wyly was promoted to lieutenant colonel and assigned as a support officer for Major General Bernard Trainor.[13] At the time, Trainor directed all professional military education in the Marine Corps (1978–81). Wyly's historical knowledge and tactical acumen, expressed in a paper on Tarawa that he had written for his master's program, impressed Trainor. In August 1979, Trainor decided to make use of these skills by sending Wyly to revamp the tactics program at AWS. Trainor gave Wyly a simple mandate: "Tactics is a flat tire. It's your job to fix it."[14] Wyly quickly learned the truth of Trainor's assessment.

As was typical for a Marine moved to a new billet—and as he had at TBS—Wyly assessed the materials and procedures left to him by his predecessors. He found lesson plans and doctrine dating back to the 1930s, with little effort made to capture the lessons learned in World War II, Korea, and Vietnam. When Wyly questioned the outgoing instructor about one lesson plan on the Battle of Austerlitz during the Napoleonic Wars, it became apparent that the instructor knew nothing about the battle beyond the lesson plan, which he had inherited unchanged from the man before him.[15] At AWS, Wyly found the same indifference to absorbing

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[12] Wyly telephone interview.
[13] Wyly telephone interview.
[14] Coram, *Boyd*, 377.
[15] Wyly interview with Magleby.

the lessons of history that he had found at TBS. Now, however, he had the position and authority to make the changes he desired.

Wyly thus entered the demolition phase of his own process of destructive creation. He trashed ancient lesson plans and replaced them with combat histories. He worked with Trainor to develop a reading list of relevant scholarly books for their students. He replaced planning exercises with tactical exercises, forcing students to make decisions rather than writing long orders.[16] He replaced lectures with war games, giving students a scenario and then placing them in different classrooms with tactical radios to induce friction and inject reality.[17] Wyly applied himself to fixing the "flat tire" but increasingly came to believe that it was the car, not simply the wheels, that needed changing. Taking a crowbar to old methods and ways of thinking was certainly necessary, but Wyly knew that he owed the Marine Corps something new and better to replace the wreckage. He understood the shortcomings in training and doctrine, and he had seen the deadly results of those shortcomings firsthand in Vietnam. He still needed to find what came next.

At this time in late 1979, Trainor told Wyly to show a snarky civilian—Lind—the changes Wyly was implementing at AWS to help "get Lind off the Corps' back" for a bit.[18] Lind found Wyly's methods to be very much in line with what he wanted the Marine Corps as a whole to do. For his part, Wyly found that Lind's articles captured the same institutional problems he had come across at TBS and AWS. Though they made an odd couple, Wyly saw a kindred spirit in Lind; he recognized that they fought the same fight against ossified institutional thinking.[19] Wyly told Lind, "I've read some of your stuff . . . [and] you and I are obviously opposed to the same thing." Both men wanted to replace the Corps' old ways of thinking and do away with the uncritical acceptance of dated tactics and methods that unnecessarily cost lives. Wyly

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[16] Piscitelli, "The United States Marine Corps Way of War," 103.
[17] Wyly telephone interview.
[18] Wyly telephone interview.
[19] Wyly telephone interview.

wanted to provide solutions, not gripes. The remaining question, as Wyly phrased it, was: "What do you think we're for?" Lind replied that he was looking for solutions as well, and he introduced Wyly to Boyd's ideas, explaining that Boyd had built a conceptual framework for conflict that might prove to be the answer to Wyly's question.[20] Lind gave Michael Wyly John Boyd's phone number; Wyly phoned Boyd, learned about the "Patterns of Conflict" brief, and coordinated with Trainor to have Boyd present it at AWS.[21] Boyd's presentation awed the AWS students, but it had a more profound impact on Wyly. It codified what he sought as a replacement for the Corps' stale perspective on conflict.[22]

Thereafter, and until Wyly's assignment at AWS ended in 1982, Boyd became a regular lecturer, and Wyly arranged one of the only publication efforts of Boyd's collected briefing slides.[23] Five of Boyd's presentations previously had been collected in a green-covered book by one of Boyd's friends, Thomas Christie. In 1987, Wyly arranged for a reprinting of Boyd's "Green Book" through the Quantico base printer, with the title *A Discourse on Winning and Losing*. These two editions are the only published versions of Boyd's work. Both Trainor and Wyly moved on to other billets, but Wyly remained engaged in the maneuver warfare debate and

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[20] Wyly interview with Magleby; and Wyly telephone interview.

[21] Coram, *Boyd*, 378; and Wyly telephone interview.

[22] Wyly interview with Coram. Wyly made the point in his interview with the author that he takes issue with Coram's characterization of him as an acolyte, and the implication that Boyd gave Wyly's life a direction that was hitherto lacking; see Wyly telephone interview. The background provided both by Coram and Wyly's interview with the author makes it clear that Wyly was pushing for reform on his own well before he became acquainted with Lind and Boyd. Indeed, in a 1993 *Gazette* article, Wyly explicitly stated that "had there been no . . . Lind or John Boyd, we would have continued our fight for a new style of fighting anyway"; see Wyly, "Doctrinal Change," 44. What form that new style might ultimately have taken, or the success of that fight absent outside influence, Wyly freely admitted was an open question. What those two men provided were historical interpretation, a new mental framework and, perhaps most important, contacts with key people outside the Marine Corps who "could bring pressures where we could not, finding ourselves at every turn 'outranked' "; see Wyly, "Doctrinal Change," 44.

[23] Coram, *Boyd*, 381. A handful of the "Green Books" can still be found in the Gray Research Center in Quantico, VA.

promoted Boyd's ideas in the pages of the *Gazette*.[24] By decade's end, Wyly had another opportunity to bring Boyd, maneuver warfare, and the Marine Corps together under the aegis of the next figure in this discussion.

THE DOER

Alfred M. Gray Jr. used maneuver techniques long before Boyd synthesized his OODA loop. Already a dedicated student of history, two decades of service and combat experience in the Far East brought him to embrace the outlook on war defined by Sun Tzu.[25] In 1965, as a major in Vietnam, Gray applied this outlook by fighting Communist mobility with that of his own. Gray recalled that his unit "came up with a concept that every night I would move the whole unit. . . . I always believed that we could move as well at night as [the North Vietnamese] could." At one base, Gray was ordered to remain inside the wire, which turned his unit into a static target for incoming artillery. Without violating the letter of his orders, Gray nevertheless sent out mobile, mechanized detachments to "move around disrupting things . . . and setting up and continuing to fire all these counter-battery missions and counter-artillery missions." Although the North Vietnamese did not cease all shelling, Gray's unit severely disrupted their accuracy and drastically reduced the number of casualties inflicted on his unit by the Communists.[26]

Following his tour in Vietnam and after completing several other assignments, Gray was assigned as a brigadier general in 1976 to the 4th MAB, where he continued applying tenets of maneuver warfare—surprise, deception, speed, and mobility—in the context of more conventional NATO operations. Before Gray's tenure, Marine participation in NATO exercises was unremarkable. The MAB's relative lack of mobility and firepower meant its influence on the opposing force was negligible. Gray changed this

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[24] For examples, see Wilson et al., "The 'Maneuver Warfare' Concept," 49–54; Wyly, "Those Confusing Ms," 30; Wyly, "War Without Firepower?," 17–18; and Wyly, "Thinking Beyond the Beachhead," 34–38.

[25] Gray et al. interview.

[26] Piscitelli, "The United States Marine Corps Way of War," 38.

Alfred M. Gray Jr. (foreground) as a lieutenant general and commander of Fleet Marine Force Atlantic, ca. March 1987. Gray had practiced maneuver warfare techniques and applied them at each level of command, including his participation here in the NATO exercise Operation Cold Winter, which occurred in Norway.
Defense Imagery Management Operations Center

by adding more trucks, amphibious assault vehicles, and tanks to the MAB. These changes became apparent in the next exercise, where 4th MAB counterattacked and defeated a much larger armored force and then advanced deep into the enemy rear.[27] Gray added deception in other NATO exercises. During one exercise, he placed his howitzers close to the front line, so that the opposing German force, assuming it had reached the Marines' front line, deployed prematurely. Well short of the actual front, the Germans were delayed 24 hours while they regrouped. In another exercise, small groups of three to four Marines with radios were inserted across the training area by Sikorsky CH-53 Sea Stallion helicop-

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[27] Col Gerald H. Turley, USMCR (Ret), *The Journey of a Warrior: The Twenty-ninth Commandant of the Marine Corps* (Bloomington: iUniverse, 2012), 17–19.

ters and instructed to simulate the radio traffic of a full battalion. In a Caribbean exercise, Gray used tactical surprise by executing a nighttime helicopter-borne assault in an era when Marine helicopters did not generally fly at night.[28] The end of Gray's tenure at the 4th MAB coincided with Boyd's first iterations of "Patterns of Conflict," and he became one of the few people willing to sit through Boyd's five-hour extravaganza multiple times.[29]

Combined with his own operational experiences and tendencies, Gray now had Boyd's ideas as a framework along with the maneuver mind-set that he had developed as his career progressed. In 1981, Gray, now a major general, was assigned as commander of the 2d Marine Division at Camp Lejeune. One of his first acts was turning what had been an informal study group into a Maneuver Warfare Board and ordering it to secure Boyd as a lecturer.[30] Within six months of assuming command, Gray convened a collection of 250 officers then aboard Camp Lejeune to hear Boyd present "Patterns of Conflict." When Gray made maneuver warfare the division's official doctrine, his standard operating procedures listed Boyd's OODA loop as the first concept requiring mastery.[31] When Gray requested a talking point paper to be used while briefing journalists and other interested parties about his work inculcating a maneuver mind-set within the division, Boyd's theories were the focal point.[32] Moreover, during the division's *free-play* exercises at Fort Pickett, Gray arranged for surprise events—a paratroop drop by the 82d Airborne Division during one exercise, a chemical

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[28] Gray et al. interview.

[29] Burton, *Pentagon Wars*, 48. See also box 22, Col John R. Boyd Papers. Boyd's 1980 monthly date keeper shows one briefing he gave to Gen Gray on 28 November 1980. Boyd briefed him again 11–12 January 1982. Boyd briefed other Commandants, such as Gens Robert Barrow and P. X. Kelly, though his influence on Gray proved greatest. See Burton, *Pentagon Wars*, 48–49; and box 22, Col John R. Boyd Papers.

[30] Coram, *Boyd*, 382–83. See also "2d MarDiv Maneuver Warfare Study," *Marine Corps Gazette* 66, no. 3 (March 1982): 8.

[31] "Introduction—2D MARDIV Maneuver Warfare SOP," folder 9, box 3, Robert Coram Papers.

[32] "Talking Paper for Use by MGen A. M. Gray," folder "Sep 1983—2D MARDIV Maneuver Warfare Readings," box 39, Alfred M. Gray II Papers.

U.S. Marines from the 6th MAB check a map as they play the role of aggressors during Combined Arms Operation 1-82, Fort Pickett, VA, ca. April 1982. This exercise, conducted by the 2d Marine Division while commanded by Gen Gray, was an example of the free play training Gray encouraged to help his Marines practice and refine their own maneuver warfare proficiency. Gray wanted Marines to have the experience of fighting an independent, thinking human opponent. Adding to the realism, these aggressors are armed and dressed as the Soviet naval infantry that a Marine force could expect to encounter in a conflict with the Warsaw Pact.
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weapons attack during another—to inject unpredictability.[33] Gray did not care whether his Marines came up with the *right* answers at these events. He wanted to see how well his Marines could apply maneuver warfare and adapt on the fly against thinking opponents.

Gray's activities in the 2d Marine Division were not replicated elsewhere. But, as with his work at the 4th MAB, he and

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[33] Schmitt interview; and Coram, *Boyd*, 384. The term *free play* refers to a type of military exercise conducted under wartime or contingency conditions in which the only constraints are necessary safety measures. Both sides are free to make decisions and pursue them without conforming to a training script that artificially forces a desired action. Perhaps most important, the designated adversary or "red" force enjoys the freedom of action and resources to defeat the friendly or "blue" force.

his Marines showed that maneuver concepts were teachable and, more importantly, enabled them to win. The history of his work in both units supports this author's concept (proposed in the introduction) of Gray as a transitional innovator. His rank placed him in an ideal position to hear proponents of grassroots change and to implement some of their ideas in his own limited capacity, and with each promotion he earned, he was able to further spread the emerging doctrine of maneuver warfare. Gray also demonstrated that he was not afraid to impose controversial ideas from the top down when he believed they were the right things to do. He proved this during his commandancy in 1989, when he used his authority to make the maneuver philosophy based on Boyd the cornerstone of Marine Corps combat doctrine. This was a culmination of his many years spent urging Marines to "fight smarter."[34] Wyly, Lind, and a young captain named John Schmitt assisted him.

THE WRITER

John Schmitt received his Marine Corps commission in the early 1980s, just as the maneuver warfare debate took off. As it happened, his first assignment was to the 2d Marine Division in 1982, shortly after Gray took command.[35] While TBS still struggled with the historical apathy Wyly had encountered years earlier, Schmitt, already an avid student of history, consumed the staples of Marine Corps lore on his own during his time there.[36] He arrived at Camp Lejeune to find Gray's maneuver warfare reforms underway. Although an anti-intellectual current prevailed in parts of the officer corps—little reading and "a lot of chewing of Red Man [tobacco]"—others took maneuver warfare very seriously. Among these were Vietnam-era veterans who saw it as a potential fix for that war's dysfunctional mind-set.[37] Schmitt and his fellow junior officers found maneuver warfare, with its emphasis on lower-level initiative, empowering. As platoon leaders during the Fort Pickett

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[34] Millett, *Semper Fidelis*, 633.
[35] Gray et al. interview.
[36] Schmitt interview.
[37] Schmitt interview.

free play exercises, their decisions could directly influence the mission's outcome.[38]

Schmitt only interacted once with Gray during this time, in an after action discussion following one of the free play exercises. Schmitt had commanded a heavy machine gun platoon mounted on jeeps, and because of his unit's mobility he was tasked to conduct reconnaissance through an area marked as contaminated from a simulated chemical attack. His platoon discovered a lane with minimal contamination, which his company drove through to successfully complete its mission. Gray learned of this success from Schmitt's battalion commander and called on him to explain what he did during the after action discussion. Despite the natural distance between the lieutenant and the general, Schmitt nevertheless found the concepts stimulating and became one of maneuver warfare's true believers.[39] He extended his stay with the 2d Marine Division to help form one of the first LAV battalions.

Like Wyly and Gray, Schmitt's experience and ability to think innovatively caused him to gravitate toward billets in which he could study the deeper issues of how Marines viewed conflict. When the time came to move to a new duty station in 1985, Schmitt was sent to the Doctrine Center in Quantico to draft LAV doctrine. Schmitt quickly discovered a problem: he could not build LAV doctrine from the Marine Corps' overall ground operations doctrine because no doctrine existed. Or rather, the Corps' operational doctrine depended on which manual one consulted: three different manuals gave him three different doctrinal flavors. He complained enough about this shortcoming to his superiors that he was finally told to write the ground operations manual himself. This was an unenviable task, as several previous attempts to write the manual had petered out.[40] However, it also presented Schmitt with the opportunity to inject his maneuver warfare concepts into official doctrine. His superiors rebuffed these attempts until the

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[38] Schmitt interview. Schmitt noted that Lind, despite his provocative nature when interacting with senior leaders, developed a following among junior Marines because of his willingness to talk with them and encourage their initiative.

[39] Schmitt interview.

[40] Schmitt interview.

last minute, when General Gray was tapped to assume the role of Commandant in 1987. Schmitt suddenly got the green light to make maneuver warfare a part of the ground operations manual. He did his best, presenting Boyd's mandate to "focus on the enemy, not on terrain objectives" and emphasizing the use of tempo to overwhelm an adversary: "Act more quickly than the enemy can react. Maneuver warfare is as much a mental approach to warfare as it is a physical one. The essence of maneuver warfare is to make and implement operational and tactical decisions more quickly than the enemy." The commander who does this "seizes the initiative and dictates the course of battle until the enemy is overcome by events and his cohesion and ability to influence the situation are destroyed."[41]

Inevitably, the last-minute decision to include maneuver warfare references in the manual resulted in an uneven doctrinal publication, with no effort made by the Doctrine Center to link Schmitt's maneuver warfare chapter to the rest of the book. In a *Marine Corps Gazette* article, Wyly reviewed the final product—released as *Ground Combat Operations*, Operational Handbook (OH) 6-1—and acerbically noted "that OH 6-1 was done by committee is evident."[42] He approved of Schmitt's chapter, calling it "a description of the art of war that should be read and reread by everyone"; he found everything else wanting.[43] Schmitt was keenly aware of *Ground Combat Operations'* flaws at the time, noting, "we shoehorned [maneuver warfare] in to the front of the book. It [had] nothing to do with anything else that's in the book, it just [stood] out like a sore thumb."[44] But this proved only a temporary setback; when General Gray decided that he wanted a new doc-

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[41] Schmitt interview. See also "Fundamentals of Maneuver Warfare: Extracts from OH 6-1," *Marine Corps Gazette* 72, no. 4 (April 1988): 50. This short article highlighted the maneuver warfare portion of *Ground Combat Operations*, OH 6-1. The focus on the mental dimension of war, and the goal of unraveling an adversary, relate back to the details of "Patterns of Conflict" discussed in chapter 4. The emphasis on rapid decision making clearly draws from the OODA loop.
[42] Col Michael D. Wyly, "Operational Handbook 6-1, Ground Combat Operations," *Marine Corps Gazette* 72, no. 7 (July 1988): 30–31.
[43] Wyly, "Operational Handbook 6-1," 30–31.
[44] Schmitt interview.

trinal manual based on maneuver warfare, Schmitt and the rest of the key players were in place.

WEAVING THE THREADS TOGETHER
In 1988, the many threads and personalities of the maneuver warfare debate finally merged and reached critical mass. General Gray was Commandant and had grand plans to make an immediate institutional impact. This included the creation of the Marine Corps University and codification of maneuver warfare doctrine. Michael Wyly had just returned to Quantico with a mandate from Lieutenant General Paul Van Riper to turn Gray's newly founded Marine Corps University into "the kind of institution . . . Gray wants to make it."[45] Lind remained a congressional gadfly in Washington, DC. At the Doctrine Center, Schmitt's superior, Colonel Robert J. Mastrion, was ordered by Gray's office to provide an author for the new capstone book, *Warfighting*, from which all other Marine Corps doctrine would derive. Schmitt was the only man available, and he soon found himself briefing Gray on his contribution to *Ground Combat Operations* in what was actually an audition for writing *Warfighting*. Schmitt, as a true believer in maneuver warfare, momentarily forgot the gulf in rank between them and began lecturing Gray on the importance of giving it more than lip service. He told Gray that unless the Commandant took other requisite steps, such as changing training methods and unit organization, Gray might as well throw the maneuver aspects of *Ground Combat Operations* in the trash. Realizing that he may have crossed the line from passion to presumptuousness with the Marine Corps' top leader, Schmitt braced for a rebuff; Gray only raised an eyebrow. Schmitt believed that this fervor ultimately won him the authorship role.[46]

The informality of this interview belied its historic nature, for it marked a climax in the years of intellectual dynamism that gripped the Marine Corps after the end of the Vietnam War. The maneuver warfare movement began under an institutional culture

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[45] Van Riper 20 February 2014 interview.
[46] Gray et al. interview.

that had long pushed its members to seek new ways of keeping the organization relevant and useful, though the formal organs of that culture—such as senior leaders and training schools—had struggled to sustain that effort in the aftermath of Vietnam. Thus, it fell to individuals who had nevertheless absorbed that tradition to move the ball forward. Maneuver warfare came from Marines' dissatisfaction with the stagnant views on warfare held by those formal organs; coalesced with John Boyd's ideas, which gave maneuver warfare historical grounding and intellectual heft; and accelerated thanks to advocates like Lind and practitioners such as Gray. Now, in 1988, the maneuverists finally had a friend at the highest level of the institution. The bottom-up push for innovation had come full circle. What remained was for a singular mind to take a four-star general's mandate, combined with Boyd's new conception of war, and render it into something understandable by the young Marines that a Lieutenant Miller or a Colonel Wyly might lead. This was now Schmitt's daunting but vital duty.

Writing with Mission-Type Orders

Gray gave Captain Schmitt one hard rule for writing the book: "You have to satisfy me and nobody else. You don't answer to anybody except for me. If anybody tries to unduly influence what you're saying or you're writing, you tell me about it and I'll take care of it."[47] Despite Schmitt's repeated requests, the Commandant refused to give him any other specific instructions. Schmitt only met with Gray twice during the development of *Warfighting*; both times, Gray sidestepped detailed guidance and instead talked in a stream-of-consciousness monologue about his views on war. Schmitt would ask a question or seek feedback on a specific section of the book; Gray would respond with a sea story. Schmitt soon realized just how free a rein he was being given when he told Gray that he planned to open the first chapter by reviewing the principles of war. This was a standard editorial device in writing doctrinal publications. "Which principles are those?" Gray asked. Schmitt was stunned; those principles were among the first things learned

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[47] Schmitt interview.

by new lieutenants at TBS. "You know, sir, MOOSEMUSS," replied Schmitt, referring to the acronym employed as a memory device.[48] Gray grinned, raised an eyebrow, and said, "Oh, those principles of war." Schmitt then realized Gray's point: despite the fact that those principles dated back to 1919 and had been an unquestioned component of American military doctrine ever since, neither they, nor any other traditional idea, were sacrosanct. Schmitt was free to start from scratch, destroying and creating ideas as he saw fit.[49]

Gray's rejection of the rigid adherence to dogmatic principles of war may reveal another subtle example of Boyd's influence on him: it bore a striking resemblance to Boyd's treatment of the same subject in the epilogue to "Patterns of Conflict." Boyd viewed the reduction of war's principles to a short list as the same kind of intellectual laziness or checklist mentality he had fought against since the early days of the *Aerial Attack Study*. This attitude bothered Boyd sufficiently that he devoted several slides on this seemingly unrelated topic at the very end of "Patterns of Conflict."

Boyd first laid out the list of principles from four different countries so that the audience could clearly see that the "concrete" principles of war varied from nation to nation and through time. He then noted that "scientific laws and principles are the same for all countries and tend to change little over time. On the other hand, we note that the Principles of War are different for different countries and change more dramatically over time." In the audio, Boyd observed sarcastically: "So the question is, you know, will the real principle stand up? . . . Newton's second law of motion is not different for different countries, it either fits or the goddamn thing doesn't fit." He also pointed out that even scientific principles were

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[48] The principles summarized by MOOSEMUSS are: mass, objective, offensive, security, economy of force, maneuver, unity of command, surprise, and simplicity. These principles remain enshrined in Marine Corps doctrine today, though not, it should be noted, in *Warfighting*, MCDP-1. See *Marine Corps Operations*, MCDP 1-0 (Washington, DC: Department of the Navy, Headquarters Marine Corps, 2011), A-1–A-4; and Schmitt interview. See also Maj John F. Schmitt, "FMFM-1 Warfighting Discussion" (lecture, Expeditionary Warfare School, Marine Corps University, Quantico, VA, ca. 1996).

[49] Schmitt interview. See also Schmitt, "FMFM-1 Warfighting Discussion."

amended, and sometimes discarded, over time. If the laws of science were not rigid, one could not reduce the inherently more chaotic realm of war to a few inflexible principles.[50]

Boyd further criticized the lists of principles for making no distinction between inputs and outputs (i.e., actions taken by oneself compared to the desired impact of an action on an enemy): "Surprise is what you're getting the other guy, concentration [or mass] is what you do . . . [surprise is] what you're trying to get out of your adversary. Mobility, that's you." Boyd concluded the epilogue by stating that if one absolutely required statements on enduring elements of conflict, then those statements should "reflect at least the conflict dynamics" he had covered throughout his brief, connect with each other as per his destructive-constructive framework, and clearly show what one was trying to do to the enemy and what one wanted to achieve for oneself. He ended with several such statements that he did not call "principles," but rather "appropriate bits and pieces" (see slides 180–84 in appendix A).[51]

Unfortunately, there is no direct evidence proving that Gray's attitude came from his exposure to "Patterns of Conflict." But if Gray developed this perspective on his own prior to meeting Boyd—a reasonable assumption, given Gray's long habit of self-study, which predated his first encounter with the former Air Force colonel—one sees how Boyd's similar outlook on the principles of war made his other ideas attractive to Gray.

The Writer Writes
From its inception, the writing of *Warfighting* was an exercise in the trust and fingerspitzengefühl inherent in maneuver warfare. Schmitt's interactions with Gray should also correct the common, but erroneous, view that *Warfighting* was a distillation of Gray's personal operational philosophy.[52] Though Schmitt had certainly seen Gray's own take on maneuver warfare firsthand at the 2d

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[50] Boyd, "Patterns of Conflict," 179–84; and Boyd, "Discourse on Winning and Losing," tape 5, side 2, 171–74.

[51] Boyd, "Patterns of Conflict," 179–84; and Boyd, "Discourse on Winning and Losing," tape 5, side 2, 171–74.

[52] For example, see Millett, *Semper Fidelis*, 644.

Marine Division, his accounts of meeting with Gray made clear that Schmitt was not simply ghostwriting for Gray in *Warfighting*. Schmitt distilled Boyd's concepts, along with those of Clausewitz and Sun Tzu, not Gray's. It is also worth offering another small corrective to the omission of Schmitt's name in popular history; as the record makes clear, Schmitt, not Boyd, synthesized the theories that appeared in *Warfighting*. In Coram's biography of Boyd, Schmitt is never mentioned by name; he is referred to only as "a young captain who already had the job of writing a new manual but who had become bogged down."[53] Lieutenant General Van Riper—who, as president of Marine Corps University and a consultant to Schmitt, was in a position to know—declared this characterization "absolutely, positively false. John [Schmitt] was the intellectual brain behind all this and was synthesizing people."[54]

Schmitt was free to talk with whomever he wanted and use the ideas of any theorists he desired. As he wrote and rewrote the document, Schmitt consulted with Lind, Wyly, and others.[55] As has been seen, Lind and Wyly were intimately familiar with Boyd's work and regarded his theories as central to the maneuver warfare concept. Boyd was convalescing in Florida, but Schmitt had Boyd's

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[53] Coram, *Boyd*, 391.

[54] Van Riper 20 February 2014 interview. Schmitt's lecture and interview, Van Riper's interview, and the 2015 interview of Schmitt, Van Riper, and Gray (Gray et al.), make clear that Schmitt's role was pivotal and not that of a mere scribe.

[55] Schmitt interview. LtGen Van Riper was one such asset Schmitt consulted; see Van Riper 20 February 2014 interview. Van Riper's role up to this point was minimal; he did not meet Boyd until Gray appointed him as president of Marine Corps University (MCU). However, Van Riper had a keen academic mind, particularly in the study of history; see LtGen Paul K. Van Riper (Ret), interview with LtCol Sean P. Callahan, 11 February 2014, transcript (Oral History Section, Marine Corps History Division, Quantico, VA). In his position at MCU, he gave Wyly a free hand, which allowed Wyly to continue pushing maneuver warfare in the school's classrooms. Van Riper's interactions with Lind and Wyly brought him to Boyd, who he enjoyed talking with and found to be a challenging intellect. Following *Warfighting*'s publication, Van Riper brought Boyd in to help the university properly craft the curriculum by which the book's tenets would be taught. Recognizing the value of Boyd's works, Van Riper helped institutionalize them where he could. Since his retirement, he has taught elective courses at Marine Corps Command and Staff College about Boyd and maneuver warfare.

slides in hand and regularly talked to Boyd on the phone.[56] By the end of the process, Boyd's name was suddenly ranked among the august company of Clausewitz and Sun Tzu. Both Schmitt and those he consulted made it clear that Boyd's thought was a key ingredient in the final product.[57]

After five months of drafting, Schmitt produced a short but eminently readable work. Among the structural decisions made in writing the book was guidance from Colonel Mastrion, Schmitt's superior, to make the book a "two crapper"; that is, short enough that a Marine could read it during two trips to the bathroom in an afternoon. Marines were busy people who could not spend weeks reading Clausewitz, Boyd, or Sun Tzu; Schmitt had to distill the essence of these masters while making it understandable to Marines, from privates to generals.[58]

The final draft of *Warfighting* specifically cited Boyd several times, and Boyd's ideas underpinned many other paragraphs.[59] Insights on the disorder of war and of generating disorder in an opponent echoed Boyd's comments on entropy and noncooperative centers of gravity from "Destruction and Creation" and "Patterns of Conflict."[60] So too did the repeated emphasis on the primacy of the human mind in war as well as warnings against overreliance on technology.[61] Schmitt's description of drills and free play exercises showed that the objective of both was to develop the ability to rapidly act and decide, using a repertoire of knowledge and experience under different conditions. This distilled and simplified

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[56] Schmitt interview; and Schmitt, "FMFM–1 Warfighting Discussion."

[57] Schmitt interview; Schmitt, "FMFM–1 Warfighting Discussion"; and LtGen Paul K. Van Riper (Ret), interview with LtCol Sean P. Callahan, 12 May 2014, transcript (Oral History Section, Marine Corps History Division, Quantico, VA). In his lecture ca. 1996 at EWS, Schmitt said that he drew from the body of maneuver warfare literature written up to that point, as well as works on and by many of the great battlefield commanders of history.

[58] Schmitt, "FMFM–1 Warfighting Discussion."

[59] "*FMFM–1* Warfighting," 50–51, 56–57, 69, 76. See also Hammond, *The Mind of War*, 195–96. Hammond identifies several passages where Boyd is not specifically cited but where the ideas in "Patterns of Conflict" are clearly reflected.

[60] "*FMFM–1* Warfighting," 40.

[61] "*FMFM–1* Warfighting," 41, 63, 64.

Boyd's discussion of fingerspitzengefühl.[62] The book's section on decision making was a brilliant synthesis of Boyd's key points in "Destruction and Creation"—breaking down old ideas to build better ones—with orientation as the key component of the decision-making process.[63]

When Schmitt presented his completed draft to General Gray for comment, Gray read it, and, as a testament to how well he believed Schmitt had captured his intent, made only two changes in the whole document. Both were in the foreword and emphasized the book's broad scope. Where Schmitt had written, "I charge every officer to read this book," Gray added, "and reread."[64] In the final sentence of the foreword, Gray added that the maneuver warfare philosophy applied "in the field and in the rear."[65] This made it clear that maneuver warfare was not simply a battlefield TTP but a framework for solving challenges of every kind.

After a long and winding path, the Marine Corps finally had the grabby concept that would guide its efforts on future battlefields: maneuver warfare doctrine, officially codified in *Warfighting*, with the ideas of John Boyd as one of its central pillars. Henceforth, Marines would fight according to Sun Tzu, Clausewitz, and an Air Force colonel with a penchant for profanity. Filtering from the bottom up (Lind and Wyly) and the top down (Gray and Schmitt), and thanks to heightened visibility in the pages of the *Marine Corps Gazette* and elsewhere, Boyd's ideas gave the Corps its long-sought way of staying useful against the myriad threats of the modern world.

WARFIGHTING AND ITS CRITICS

Officially published in March 1989, *Warfighting* garnered widespread—though by no means universal—acclaim. Colonel John Greenwood, then editor of the *Marine Corps Gazette*, stated, "Not since 1934, when the *Tentative Manual for Landing Operations* began to

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[62] "*FMFM–1* Warfighting," 48.
[63] "*FMFM–1* Warfighting," 72.
[64] Schmitt interview.
[65] Wyly telephone interview.

guide the newly established Fleet Marine Force, has a single doctrinal publication been so widely heralded within the U.S. Marine Corps."[66] As editor of the *Gazette* during the 1980s and throughout the most crucial era of the maneuver warfare debate, Greenwood believed that maneuver warfare had already started an intellectual renaissance in which *Warfighting* stood "as a major milestone." Although he offered a few critiques of the manual, he also cautioned that they should not be allowed to obscure its value. It was a "starting point" for thinking and gaining new insights, just as the *Tentative Manual for Landing Operations* was the catalyst for a new amphibious mind-set in its day.[67]

Schmitt quickly countered perceived shortcomings of *Warfighting* after its publication. Though certainly not an impartial observer, he addressed the charge that *Warfighting* "contains nothing new."[68] To a certain extent, he agreed: "War is one of the oldest of the endeavors of man; I suspect we ran out of truly original ideas on the subject a long time ago." The difference was "that, for perhaps the first time, *Warfighting* manages to weave [timeless] ideas into a cohesive doctrine, and . . . [make] that doctrine official." Going further, Schmitt agreed that to a "Great Captain," *Warfighting* had nothing to offer. But great captains were rare specimens, and for the less-gifted masses, "the maneuver warfare advocates are simply trying to give the rest of us the same opportunity for success by formalizing what the geniuses have known all along." Nevertheless, Schmitt welcomed constructive criticism, and he seemingly felt there was not enough of it: "People have recognized that they're supposed to love FMFM–1, and they do. But I wish they'd take more shots at it."[69]

Some Marine officers lauded Schmitt's effort while taking shots at its perceived shortcomings. Lieutenant Colonel Jeffrey Lloyd, a

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[66] Col John E. Greenwood (Ret), "FMFM–1: The Line of Departure," *Proceedings* (U.S. Naval Institute) 116, no. 5 (May 1990): 155–56.
[67] Greenwood, "FMFM–1," 155–56.
[68] Capt John F. Schmitt, "The Great FMFM 1 Debate: Is There Anything New Here?," *Marine Corps Gazette* 73, no. 11 (November 1989): 25–26.
[69] Philip Gold, "A Thinking Man's Corps," *Insight on the News* (September 1989): 15, box 10, Alfred M. Gray II Papers.

Vietnam-era infantry officer, commended *Warfighting* for its "succinct, readable style" and "brevity and clarity," but countered that these achievements came at the cost of "serious omissions." Chief among these was that the word "amphibious" appeared nowhere in a doctrinal publication claiming to codify the Corps' combat philosophy.[70] Yet, this criticism missed a few key points. As noted in chapter 2, the mission of the Marine Corps has not always been amphibious warfare as defined by World War II's golden age. The Marine Corps is expeditionary by nature, but that does not always equate to amphibious operations. General Gray drove this point home by renaming all Marine deployed units as expeditionary, rather than amphibious.[71] Therefore, the Corps' capstone doctrine needed to be broad enough so that Marines could apply it to the full range of possible contingencies. And, as outlined in chapter 4, Boyd often argued that one should not conflate terrain with the key focus of war. "Terrain does not fight wars," he had said. "People do it and they use their minds."[72] Maneuver warfare doctrine was directed against the human adversary Marines could expect to face on any battlefield, amphibious or otherwise.

Other critiques echoed those leveled earlier at maneuver warfare in general. Lieutenant Colonel Edward Robeson feared that *Warfighting* was a "dazzle 'em 'til they drop" idea that underplayed the necessity of actual combat. He repeated the erroneous claim that the OODA loop was a derivative of aerial dogfighting and as such could not "transfer to land combat where 'flying by the seat of your pants' is likely to be a fatal experience." Though Robeson's comments were more stylistic than substantial, they nevertheless revealed the lingering impacts of mischaracterizations of Boyd often found in the maneuver warfare debate.[73] Unsurprisingly—at

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[70] LtCol Jeffrey J. Lloyd, USMCR, "Our *Warfighting* Philosophy," *Marine Corps Gazette* 73, no. 11 (November 1989): 24–25.

[71] Millett, *Semper Fidelis*, 633. It was also noted in chapter 2 that the *amphibious* moniker was a fig leaf applied to Marine units in Vietnam to reduce Vietnamese sensitivity, rubbed raw by French expeditionary units, to the presence of foreign military personnel.

[72] Boyd, "Discourse on Winning and Losing," tape 1, side 1, 3.

[73] LtCol Edward J. Robeson IV, "Critique of *FMFM 1, Warfighting*," *Marine Corps Gazette* 73, no. 11 (November 1989): 27–29.

least, for those who knew him well—one of the primary critics was Boyd himself. Boyd called Schmitt after the book's release to tell him that he liked it; and then proceeded to inundate Schmitt with a litany of comments for improving it.[74] Even in victory, the process of destroying and creating new mental worlds could not be allowed to stop.

As it happened, Boyd's contribution to the Corps' capstone doctrine continued eight years later when a different Commandant, General Charles Krulak, asked Schmitt to revise *Warfighting* as part of a cross-institutional publication realignment. Even though Boyd's health had deteriorated since 1989, he was well enough to comment directly on the revised drafts when Schmitt updated *Warfighting*, FMFM-1, to *Warfighting*, Marine Corps Doctrinal Publication (MCDP) 1.[75] Schmitt credited three-quarters of the changes in the final *Warfighting* to Boyd's direct involvement.[76] Sadly, this marked the last time Boyd influenced the Marine Corps in person. He died on 9 March 1997, four months before the publication of *Warfighting*, MCDP-1.[77]

CONCLUSION

The 1989 publication of *Warfighting* had capped a remarkable intellectual journey by the Marine Corps. In the years following Vietnam, many Marines and sympathetic civilians had sought a new perspective for fighting and winning wars that would both allow the Corps to remain useful in the post–Vietnam War world and prevent the mistakes brought on by old perspectives and their focus on physical markers of victory. At the same time, John Boyd was developing a mental framework that, when presented to the Marine Corps thinkers identified here as well as many other interested parties, seemed to fulfill precisely those two needs. Thanks to the key individuals discussed in this chapter, Boyd's ideas were disseminated widely enough that by the time Lind, Wyly, Gray,

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[74] Schmitt interview.
[75] Schmitt, "FMFM–1 Warfighting Discussion."
[76] Schmitt interview.
[77] Hammond, *The Mind of War*, 2.

and Schmitt were in positions to effect real change, "Patterns of Conflict" had laid a strong foundation upon which to build a formal theory of maneuver warfare and codify it as doctrine. And while that doctrine—undergirded by the unconventional notions of an Air Force fighter pilot—has been challenged many times throughout the intervening years, both in theory and in practice, it remains the lodestar by which the Marine Corps strives to fight its wars.

Epilogue

With the official promulgation of *Warfighting* in 1989, the debate about whether the Marine Corps should adopt maneuver warfare as its combat doctrine, if it did not end entirely, certainly receded into the background.[1] Yet the apparent settling of that one question immediately generated others, which are argued to this day. Two interrelated questions rapidly gained prominence: 1) Did maneuver warfare actually prove useful when applied on the battlefield?; and 2) Had the Marine Corps followed through on the subsequent changes necessary to make it an organization truly based on maneuver warfare? That such questions are even asked today implies that Boyd's ideas, as he presented them, have yet to be absorbed institutionally. Yet, it is also telling that the debate is one of degree rather than of kind. Maneuver warfare, derived

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[1] Some questioned whether this closure was actually a good thing. Nathan Packard observes that it "brought to a close what had been one of the most intellectually vibrant periods in the Corps' history." Packard notes further that Gen Gray tied himself personally to the doctrine—in *Warfighting*'s introduction, Gray called it "my" philosophy on fighting war—and this meant that to criticize maneuver warfare was to criticize Gray. Such a paradigm "unintentionally stifled further study and doctrinal innovation." See Packard, "The Marine Corps' Long March," 368–69.

from Boyd's conflict framework, is the unquestioned standard to which the Marine Corps holds itself when it comes to preparing for and fighting wars. The issue is how well the Corps cleaves to that standard. And answering the second question informs the answer for the first. The evidence argues that, yes, maneuver warfare has been useful when Marines have employed it, but a better understanding of Boyd's ideas could make it even more potent.

Operation Desert Storm became the first data point for those who answered the two questions in the affirmative and those who dissented. For the first group, the Gulf War was evidence of the utility of maneuver warfare and its successful permeation throughout the Corps' institutional culture. Shortly after *Warfighting*'s release, the United States faced an adversary pulled straight from the pages of its Cold War threat assessments. Saddam Hussein's Iraq, with the world's fourth largest army—one heavily mechanized and armored to boot—blitzed its way through Kuwait in August 1990. The details of the subsequent campaign to eject the Iraqis from Kuwait are less important than the fact that, both at the time and after, many in the defense community believed it to be modeled on and executed in accordance with Boyd's theories.[2]

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[2] Hammond, *The Mind of War*, 123, 194; Coram, *Boyd*, 422–26; Burton, *Pentagon Wars*, 3; Piscitelli, *United States Marine Corps Way of War*, 80–84; LtCol G. I. Wilson, "The Gulf War, Maneuver Warfare, and the Operational Art," *Marine Corps Gazette* 75, no. 6 (June 1991): 23–24; LtCol G. I. Wilson, "New Doctrine or Slipping into the Past?," *Marine Corps Gazette* 77, no. 10 (October 1993): 44–45; and Pierce, *Warfighting and Disruptive Technologies*, 100–1. Pierce quotes an assessment by Lind, who claimed the Marine forces engaged got it half right; the 1st MarDiv had a maneuver warfare–type performance, but the 2d MarDiv did not. Several of the official Marine Corps histories of Desert Storm also highlight where maneuver warfare doctrine was integrated into the planning and execution of the Marine portion of the campaign. See Col Charles J. Quilter II, USMCR, *U.S. Marines in the Persian Gulf, 1990–1991: With the I Marine Expeditionary Force in Desert Shield and Desert Storm* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1993), 35–36, 62; LtCol Dennis P. Mroczkowski, USMCR, *U.S. Marines in the Persian Gulf, 1990–1991: With the 2d Marine Division in Desert Shield and Desert Storm* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1993), 3, 75–77; LtCol Ronald J. Brown, USMCR (Ret), *U.S. Marines in the Persian Gulf, 1990–1991: With Marine Forces Afloat in Desert Shield and Desert Storm* (Washington, DC: History and Museums Division, Headquarters Marine Corps, 1998), 73, 112, 129; and Paul W. Westermeyer with Alexander

The success of the American-led Coalition in driving Hussein's forces from Kuwait in a few days of ground combat seemed a testament to the power of maneuver warfare.

Dissenters on the two questions drew different lessons from Desert Storm. Contrary to the claim that the rout of Hussein's military was a perfect archetype of maneuver warfare's efficacy, newly promoted Major John Schmitt cautioned against learning the wrong lessons from a war in which one side was virtually comatose. Noting that war was an interactive exercise, Schmitt argues that, on a fundamental level, the Gulf War was not interactive. Hussein gave the Coalition six months to build up its forces and gather intelligence while doing nothing to interfere:

> He let us take all our time to build up logistics and rehearse, and then sat there inert while we executed it. He didn't do anything to screw the plan up and it worked great. It better have worked great, because we had six months to prepare and the enemy basically let us do what we wanted to do. This was not a real interactive experience, there was not this other independent hostile will trying to impose itself on us. We were the only side with initiative.[3]

In the pages of the *Gazette*, retired infantry Colonel J. J. Edson agrees that "it would be a serious mistake to believe that DESERT STORM merely tested and validated the concepts set forth in *FMFM 1*."[4] The Coalition's unchallenged air superiority and weeks of preparatory air strikes meant that when the ground war started, "the initiative passed entirely to coalition forces." Colonel Edson believed that, if anything, Desert Storm had demonstrated a "revolution in firepower."[5] While Edson still thought maneuver warfare was a valuable doctrine, two years later Major Richard

N. Hinman, eds., *Desert Voices: An Oral History Anthology of Marines in the Gulf War, 1990–1991* (Quantico, VA: Marine Corps History Division, 2016), 94, 108, 168.
[3] Schmitt, "FMFM–1 Warfighting Discussion."
[4] Col J. J. Edson (Ret), "A Perspective on Desert Storm," *Marine Corps Gazette* 75, no. 6 (June 1991): 25.
[5] Edson, "A Perspective on Desert Storm," 25.

Hooker—a paratrooper with combat experience in Grenada—reiterated Edson's unconscious argument that the Gulf War proved the American military was still wedded to "victory through superior firepower."[6] Hooker believed that, while Coalition forces successfully practiced maneuver warfare at the operational level by selecting targets that would "stun or paralyze" the Iraqi military's ability to control its forces and respond effectively to allied actions, at the tactical level decision making remained "rigidly centralized," maneuver was tightly controlled, and there existed a clear preference for halting upon enemy contact to blast away at him. Hooker also agreed with Schmitt that Hussein's army was a "passive enemy."[7]

For proponents, Desert Storm proved that maneuver warfare could pass the litmus test of combat. In the years following, they believed that the Commandants who followed Gray sustained his impact on doctrine and took pains to plant maneuver warfare deep within institutional culture. This is highlighted in the doctoral work of Anthony J. Piscitelli, an adjunct professor at State University of New York–Maritime College, completed at the University of Glasgow. In his study, Piscitelli provided a wealth of firsthand perspectives from key active-duty Marines across the maneuver warfare debate period. General Carl E. Mundy, Gray's immediate successor, sought to expand the application of maneuver warfare to the naval domain; General Krulak, as already mentioned, brought in Schmitt to revise *Warfighting* as part of a doctrinal realignment; and in 2001, General James L. Jones published *Marine Corps Operations*, MCDP 1-0, to describe maneuver warfare applied operationally by a MAGTF.[8] Articles in the *Marine Corps Gazette* throughout the 1990s embraced and defended these and other efforts, while cautioning against proposed changes to doctrine and training that might undermine nascent maneuver warfare practices.[9]

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[6] Maj Richard D. Hooker Jr., "The Mythology Surrounding Maneuver Warfare," *Parameters* 23, no. 1 (Spring 1993): 28.

[7] Hooker, "The Mythology Surrounding Maneuver Warfare," 35–36.

[8] Piscitelli, "United States Marine Corps Way of War," 85–90.

[9] Maj Kenneth F. McKenzie Jr., "On the Verge of a New Era: The Marine Corps

The early years of the twenty-first century provided further test cases for maneuver warfare doctrine. In response to the terrorist attacks of 11 September 2001 (9/11), the Marine Corps deployed to Afghanistan and later back to Iraq to depose Hussein in 2003. It would operate under a new capstone concept called *Expeditionary Maneuver Warfare*—in development before 9/11 but released shortly thereafter—that reemphasized maneuver warfare as the Corps' guiding philosophy and placed it in the context of the contemporary threat environment.[10] According to Marines who both commanded and fought in Operations Enduring Freedom and Iraqi Freedom, executing the maneuver warfare philosophy is precisely what Marine invasion forces did. Piscitelli's dissertation contained interviews with Marine Generals James Mattis, John Kelly, and James Conway; all expressed the conviction that maneuver warfare was consciously employed both during the initial invasions and follow-on operations in Afghanistan and Iraq. Bing West, the Marine and former assistant defense secretary mentioned in chapter 2, embedded himself with the 1st Marine Division when it pushed from Kuwait to Baghdad, where he noted the use of maneuver warfare tenets such as surprise, unexpected axes of advance, mission-type orders, and low-level decision making. Evan Wright, a correspondent for *Rolling Stone* magazine, was embedded with the 1st Reconnaissance Battalion in Iraq. Although Wright's book has been criticized for its accuracy in depicting certain people and events, the repeated references to maneuver warfare throughout his book are remarkable. It seems clear that the Marines of the 1st Reconnaissance Battalion believed they were executing maneuver warfare in Iraqi Freedom and believed it with sufficient

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and Maneuver Warfare," *Marine Corps Gazette* 77, no. 7 (July 1993): 63–67; Wilson, "New Doctrine or Slipping into the Past?," 45; William S. Lind, "Regression," *Marine Corps Gazette* 77, no. 10 (October 1993): 45; Col Mark F. Cancian, USMCR, "FMFM 3-1 Command and Staff Action: A Prescription for Failure," *Marine Corps Gazette* 79, no. 10 (October 1995): 44–54; and Capt Jeffrey W. Prowse, "CAX: A Primer for Maneuverists and Over-the-Horizon Guys," *Marine Corps Gazette* 83, no. 10 (October 1999): 42–45.

[10] *Expeditionary Maneuver Warfare* (Washington, DC: Headquarters Marine Corps, Department of the Navy, 2001).

enthusiasm that it impacted Wright's narrative.[11] Even though the shift from conventional to counterinsurgency operations in both conflicts required a corresponding mental shift by Marine Corps forces that did not always go smoothly, senior leaders were convinced that the agility inherent in maneuver warfare was what saw their forces through.

Among the dissenters, the critique that the Marine Corps was failing to fight under maneuver warfare principles became increasingly bitter as the twin ground conflicts in Afghanistan and Iraq wore on. First Lieutenant Mauro Mujica, an infantry officer with experience fighting insurgents in al-Ramadi, Iraq, believed that while maneuver warfare was still discussed and taught in classroom settings, on the battlefield "we have in fact been practicing the opposite of maneuver warfare." He indicted American forces for becoming predictable and allowing insurgents to "completely control the tempo of the fight."[12] Captain William Birdzell, a member of the Foreign Military Training Unit, argued that the Marine Corps was becoming less effective in its use of combined arms, long considered an institutional core competency and featured in *Warfighting* as a key enabler for maneuver warfare. He condemned the contemporary predeployment training program known as Mojave Viper for "no longer [achieving] our doctrinal goals" as laid out in *Warfighting*.[13]

Perhaps the most stinging appraisals on the state of maneuver warfare came in a series of "Attritionist Letters" published anon-

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[11] Piscitelli, "United States Marine Corps Way of War," 156–215; F. J. Bing West, "Maneuver Warfare: It Worked in Iraq," *Proceedings* (U.S. Naval Institute) 130, no. 2 (February 2004): 36–38; Evan Wright, *Generation Kill: Devil Dogs, Iceman, Captain America, and the New Face of American War* (New York: Berkley Caliber, 2008), 11–13, 49, 348; Pierce, *Warfighting and Disruptive Technologies*, 101; Bing West and Maj Gen Ray L. Smith (Ret), *The March Up: Taking Baghdad with the 1st Marine Division* (New York: Bantam Dell, 2003), 222; Nathaniel Fick, *One Bullet Away: The Making of a Marine Officer* (New York: Houghton Mifflin, 2005), 37; and Col Nicholas E. Reynolds, *U.S. Marines in Iraq, 2003: Basrah, Baghdad and Beyond* (Washington, DC: Marine Corps History Division, 2007), 162.

[12] 1stLt Mauro Mujica III, "On the Conduct of War," *Marine Corps Gazette* 91, no. 4 (April 2007): 33.

[13] Capt William Birdzell, "Overcoming Enemy Counters to Combined Arms," *Marine Corps Gazette* 91, no. 8 (August 2007): 25.

ymously in the *Marine Corps Gazette* from May 2010 through April 2016. These articles mirrored the literary style of C. S. Lewis, whose darkly satirical *Screwtape Letters* detailed ways to undermine religious faith. Instead of the Devil writing to his demon nephew, these letters featured an attritionist general-grade officer highlighting the many areas—doctrine, training and education, command and control, force structure, and promotions—in which the Marine Corps had utterly failed to apply the maneuver warfare philosophy that the institution still proclaimed was its guiding light.[14] The "Attritionist Letters" generated a number of responses, in which the authors vigorously disagreed with the assertion that the Marine Corps had fallen so far away from its central doctrine.[15] Yet there were an almost equal number of voices who found much

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[14] Anonymous, "The Attritionist Letters (#1)," *Marine Corps Gazette* 94, no. 5 (May 2010): 14−16; "The Attritionist Letters (#2)," *Marine Corps Gazette* 94, no. 6 (June 2010): 10−11; "The Attritionist Letters (#3)," *Marine Corps Gazette* 94, no. 7 (July 2010): 11−13; "The Attritionist Letters (#4)," *Marine Corps Gazette* 94, no. 8 (August 2010): 10−15; "The Attritionist Letters (#5)," *Marine Corps Gazette* 94, no. 9 (September 2010): 10−11; "The Attritionist Letters (#6)," *Marine Corps Gazette* 94, no. 10 (October 2010): 12−14; "The Attritionist Letters (#7)," *Marine Corps Gazette* 94, no. 11 (November 2010): 18−20; "The Attritionist Letters (#8)," *Marine Corps Gazette* 94, no. 12 (December 2010): 10−12; "The Attritionist Letters (#9)," *Marine Corps Gazette* 95, no. 1 (January 2011): 10−11; "The Attritionist Letters (#10)," *Marine Corps Gazette* 95, no. 2 (February 2011): 10−13; "The Attritionist Letters (#11)," *Marine Corps Gazette* 95, no. 3 (March 2011): 10−12; "The Attritionist Letters (#12)," *Marine Corps Gazette* 95, no. 4 (April 2011): 12−13; "The Attritionist Letters (#13)," *Marine Corps Gazette* 95, no. 5 (May 2011): 18−19; "The Attritionist Letters (#14)," *Marine Corps Gazette* 97, no. 6 (June 2013): 18; "The Attritionist Letters (#15)," *Marine Corps Gazette* 97, no. 7 (July 2013): 18; "Attritionist Letter #16," *Marine Corps Gazette* 97, no. 12 (December 2013): 26; "Attritionist Letter #22," *Marine Corps Gazette* 99, no. 12 (December 2015): 82; and "Attritionist Letter #23," *Marine Corps Gazette* 100, no. 4 (April 2016): 79. The gaps in numbering sequence are not errors; the author spoke with Col John A. Keenan, editor of the *Gazette* at the time, and confirmed that other letters were submitted but not published for editorial reasons. See Col John A. Keenan, telephone interview with author, 24 May 2017.

[15] Maj Mark Elfers, "Regarding the Attritionist Letters," *Marine Corps Gazette* 95, no. 2 (February 2011): 14−18; Col C. R. McCarthy, letter to the editor, *Marine Corps Gazette* 95, no. 4 (April 2011): 10; Capt Matt Kralovec, letter to the editor, *Marine Corps Gazette* 95, no. 4 (April 2011): 10; and LtGen Robert B. Neller, letter to the editor, *Marine Corps Gazette* 95, no. 6 (June 2011): 8.

truth in the acerbic analyses of letter author General Screwtape.[16] While not universally shared, a number of Marines harbored the belief that there existed a disconnect between what the Marine Corps preached and what it practiced when it came to maneuver warfare. Curiously, this split roughly followed rank, with the senior "preachers" evincing a rather different outlook from the lower-grade "practitioners," who argued that the rank and file were denied the opportunity to use maneuver warfare in the field.[17]

In an effort to roll back this perceived institutional regression, some critics have worked to identify how the Corps found itself in this position after exerting significant effort to make maneuver warfare the law of the land. Captain Daniel Grazier and William Lind recently identified several contributing factors:

> Over the past decade, the bulk of intellectual energy has been expended studying counterinsurgency theory and practice. This, combined with constant deployment preparation and theater-specific training, has left little room for attempting to change fundamental doctrine. Today's Marines are a generation removed from people like Col John Boyd, USAF (Ret), and Col Michael D. Wyly, who initiated the maneuver warfare movement in the late 1970s in response to America's defeat in Vietnam. The military reform movement of the 1980s is unknown to most serving Marine officers.[18]

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[16] Maj Peter J. Munson, letter to the editor, *Marine Corps Gazette* 95, no. 4 (April 2011): 10; Col William F. Mullen, "Attritionist Letter (#10): A Response," *Marine Corps Gazette* 95, no. 6 (June 2011): 36–37; Capt J. P. Steinfels, letter to the editor, *Marine Corps Gazette* 95, no. 8 (August 2011): 8; and Capt B. A. Friedman, "Maneuver Warfare: A Defense," *Marine Corps Gazette* 98, no. 12 (December 2014): 26–29.

[17] A brief comparison of the people cited in this chapter appears to bear this out. Generals like Mattis, Kelly, Conway, and Neller believed that the Marine Corps did indeed practice maneuver warfare on the battlefield and at home and found much of Anonymous's criticism unwarranted. Those who found the institutionalization of maneuver warfare wanting were generally field-grade officers and below.

[18] Capt Daniel R. Grazier and William S. Lind, "Maneuver Warfare," *Marine Corps Gazette* 99, no. 4 (April 2015): 24.

Grazier and Lind here come tantalizingly close to seeing a real truth: that the gulf of time separating modern Marines from Boyd himself and the maneuver warfare movement as a whole contributed to a loss of passion for, and understanding of, maneuver warfare—and, most critically, its applicability to the very counterinsurgency campaign the Corps long struggled to master. This truth, as well as some of its causes, will be discussed shortly. Yet Lind and Grazier did not explore this connection, instead identifying the main culprit as "the U.S. military's natural tendency toward attrition."[19] Harkening back to the comments of Edson and Hooker concerning Desert Storm, Lind and Grazier implied that, in the Marine Corps, the attritionist/firepower/checklist tendencies never really went away.

This belief, along with the existence of the disconnect between modern Marines and Boyd, continues to this day and is still regularly lamented by authors in the *Gazette*.[20] Most recently, a workshop with the theme "Reinvigorating Maneuver Warfare," hosted by the Marine Corps Training and Education Command, released a report demonstrating that the perceived failure of the institution to practice its central doctrine remains a deeply and passionately felt disappointment:

> *To what degree has the Marine Corps*
> *institutionalized maneuver warfare?*
>
> Not surprisingly, participants felt that the Marine Corps has not institutionalized maneuver warfare. What was surprising was the degree to which the Marine Corps was perceived to have fallen short and how that belief was unanimous, or nearly so, among workshop participants. This is not a small problem; what was evident was a level of cyn-

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[19] Capt Daniel R. Grazier, "A Manoeuvre Renaissance," *Marine Corps Gazette* 99, no. 6 (June 2015): 57–60.
[20] Grazier, "A Manoeuvre Renaissance"; Capt Jason Topshe, "Evolving the Marine Corps for Irregular Warfare," *Marine Corps Gazette* 100, no. 1 (January 2016): 79–83; 2dLt Jacob W. Foster, "Complex Military Environment," *Marine Corps Gazette* 100, no. 2 (February 2016): 52–54; The Ellis Group, "21st Century Maneuver Warfare," *Marine Corps Gazette* 100, no. 11 (November 2016): 37; and Col Phil Smith, letter to the editor, *Marine Corps Gazette* 100, no. 12 (December 2016): 6.

icism, particularly among the young officers, i.e., "MCDP 1 is great doctrine, but we don't do it." No one disagreed when one participant stated in a plenary discussion, "The Marine Corps can *talk* about maneuver warfare but has not institutionalized an ability to *do* maneuver warfare."

Another major theme was that while some commanders succeeded in practicing maneuver warfare, they did so in spite of the system, not because of it. There was considerable frustration with institutional barriers (e.g. manpower policies and service culture among others) and how intractable they are. Where a commander succeeds, he creates what was termed an "island of success" that disappears when he departs unless his successor is equally talented, courageous and committed. More commonly, when a maneuverist commander is replaced by one less aggressive and committed, the result is what one participant called the "sine wave of mediocrity."[21]

The report went on to identify five key metrics by which one could recognize an organization that had institutionalized maneuver warfare; the Marine Corps did not fulfill any one of the five. It is hard to envision a more damning indictment of an institution fallen short of its ideals. And these were not the conclusions of uninformed outsiders looking in. Workshop participants covered a broad range, from active-duty Marine staff noncommissioned officers to company- and field-grade officers to retired Marines and civilians. All had experience in either the operating forces or in supporting establishments such as the training and education organizations responsible for inculcating a maneuver warfare ethos. The more junior participants had only been in the Marine Corps a few years, though long enough to get combat deployments under their belts. Older ones, such as Schmitt and Lind, had been part of

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[21] Deputy Director, G-3/5/7, Training and Education Command, to Commanding General, Training and Education Command, "TECOM Workshop 2017-01/Reinvigorating Maneuver Warfare Through Training and Education/ Post-Workshop Report," 5 January 2017, emphasis in original.

the maneuver warfare movement from its inception. What united them was a deep belief in the importance of maneuver warfare as vital to the Marine Corps' success as a warfighting organization; a majority had reached the bitter conclusion that on those two crucial questions—applying maneuver warfare on the battlefield and institutionalizing its tenets to create a true maneuver warfare body—the Corps and its leadership had thoroughly failed.

Was the maneuver warfare debate for naught? Were Boyd's ideas ever truly tested on the battlefield? Did the institutionalization of maneuver warfare start and end with General Gray's signature on *Warfighting*? As stated at the outset, that the question is even asked today seems an answer in itself. A number of Marines, both active duty and retired, along with a few interested civilians, see an organization that has failed to follow its self-proclaimed philosophy. Even if these were not the most vocal critics, this still seems evidence enough that maneuver warfare is not preached or practiced universally within the Marine Corps. But perhaps this standard of universality is unfair. Indeed, it is challenging to think of any large organization—from churches and businesses to legislatures and sports teams—in which every member measures up to the lofty goals held by the organization. The better questions are whether the organization itself proclaims to value its own goals and whether its members actively strive to achieve them. From this perspective comes a more accurate assessment: while today's Marine Corps has not institutionalized maneuver warfare across the board, the maneuver warfare concept derived from Boyd remains the gold standard for how Marines view conflict. Marines are exposed to it enough in their training that many individuals seek to implement maneuver warfare on their own, where they can; and while many bureaucratic impediments to completing the institutionalization still exist, the Marine Corps is flexible and maneuverist enough that both preachers and practitioners can make an impact on and off the battlefield.

Warfighting is still the capstone combat doctrine of the Marine Corps; this fact is significant in itself. General Krulak was the only Commandant to revise it. He did so under tightly controlled conditions, bringing in the original author, Schmitt, to do the re-

visions; Schmitt, in turn, worked directly with Boyd on many of the edits shortly before Boyd's death. Those revisions only clarified certain ideas in the document in response to constructive criticism in the years between 1989 and 1997. Since then, no Commandant has touched it or professed the existence of a superior combat philosophy. Subordinate capstone concepts have been released since 1997, but in general, these consciously rooted themselves in maneuver warfare, seeking only to find new applications for it in changing threat environments. Indeed, under Commandant General Robert B. Neller, the Marine Corps' newest operating concept—*Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*—explicitly reiterates that "this warfighting philosophy [maneuver warfare] was, is, and will remain our foundation." Maneuver warfare is referenced and unreservedly applied throughout this publication, in domains from information operations to logistics to the training of the individual Marine. This stands in stark contrast to the Marine Corps' previous capstone concept known as *Expeditionary Force 21*, which made no reference, explicit or otherwise, to the Corps' purported combat philosophy within its 47 pages.[22] While several Marines have recently expressed a need for further revisions to *Warfighting*, these authors sought changes to incorporate lessons and ideas from the last two wars and today's operating environment, rather than any rejection of the doctrine itself.[23] In sum, despite disagreements as to the level of institutionalization of maneuver warfare, the concept itself remains the unquestioned standard by which the Marine Corps strives to operate.

When that standard is applied to the battlefield, the evidence

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[22] *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, Department of the Navy, 2016), 8; and *Expeditionary Force 21—Forward and Ready: Now and in the Future* (Washington, DC: Headquarters Marine Corps, Department of the Navy, 2014). When compared with other concepts like those expressed in *Expeditionary Maneuver Warfare*, it is clear that such documents as *Expeditionary Force 21*, with their failure to connect themselves to maneuver warfare, are outliers in the Corps' recent history.

[23] Friedman, "Maneuver Warfare: A Defense," 26–29; Ellis Group, "21st Century Maneuver Warfare," 34–41; and Maj Ian T. Brown, "Warfighting 3.0," *Marine Corps Gazette* 100, no. 8 (August 2016): 65–72.

points to a Marine Corps that does indeed fight with a maneuver warfare philosophy, with two important caveats: it does so when it is afforded the appropriate latitude by higher command echelons and when the battlefield appears to fit its understanding of maneuver warfare. It is under the latter caveat that some of the greatest confusion exists, as will be discussed shortly.

Operation Desert Storm left a mixed legacy on the implementation of maneuver warfare; the Marine units involved clearly believed they had followed Boyd's precepts, though to characterize the full Coalition performance as an exemplar of maneuver warfare goes too far, especially as the Army's devotion to synchronization arguably allowed a large chunk of Saddam Hussein's *Republican Guard* to escape intact to fight another day.[24] Synchronization was one of the four key tenets of the Army's "AirLand Battle" doctrine, promulgated by *Operations*, Field Manual (FM) 100-5, in 1986 and supposedly that branch's answer to maneuver warfare.[25] Yet, Boyd believed this tenet was a "disaster"; in a "war of confusion" fought by human beings, synchronization was an artificial and mechanistic constraint that undermined the other human factors—such as agility and initiative, which Boyd had no problem with—in *Operations*.[26] Boyd believed that synchronization applied to strictly technical matters, such as coordinating the timing of an artillery barrage. But for the larger question of units performing all of their actions together, Boyd preferred the idea of harmony. Harmony meant that units acted together under a common perspective or understanding that linked their movement

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[24] James Burton laid out a highly critical account of the failure of the U.S. Army's VII Corps to "close the gate" on the Iraqi *Republican Guard* following the lightning advance of I MEF into Kuwait; see Burton, *Pentagon Wars*, 243–51. Michael Gordon and Gen Bernard Trainor offered a more sober and detailed account; see Michael R. Gordon and Gen Bernard E. Trainor, *The Generals' War* (New York: Little, Brown, 1995), 362–432, 473. Yet both agree that the decisions made by the corps commander, Gen Frederick M. Franks, to proceed at the pace of his slowest unit, halt his entire corps at night, and prioritize keeping his divisions together, rather than push against the *Republican Guard* with all possible speed, allowed the *Republican Guard*, which protected Hussein's regime, to escape.

[25] U.S. Army, *Operations*, 17–18.

[26] Boyd, "Discourse on Winning and Losing," tape 2, side 1, 36.

and activity to the commander's intent, but this did not mean units were obliged to follow the stopwatch precision of everyone moving at exactly the same time and speed. Synchronization turned one's focus inward on internal processes rather than outward against one's adversary. Or, to put it another way, synchronization fought the plan, not the enemy. It promoted rigid thinking rather than adaptability.

As part of the Coalition force, Marine units had to synchronize their movements with everyone else, denying them full freedom to roam the battlefield and fully exploit opportunities as they arose. The Marine invasion of Kuwait proved unexpectedly rapid and successful, leaving them in a position to potentially drive farther north into Iraq and deliver more destruction against Hussein's forces. Yet, they received no order to advance, as the Coalition focus switched to getting the adjacent Army units to move more quickly to match the Marines' success.[27] The tight control of supporting fires by higher command echelons also artificially limited the flexibility and operational tempo of Marine units. In all, Marine expeditionary forces in Kuwait and Iraq tried to operate as maneuverists where they could, but they lacked the autonomy to enact maneuver warfare to the extent they might have liked.

Operations Enduring Freedom and Iraqi Freedom tell a different story, though a key dividing line exists, explaining the apparently divergent views between those Marines who believed maneuver warfare was practiced in both conflicts and those who did not. That line falls between the initial invasions of Afghanistan and Iraq and the subsequent occupations. In the invasions of both, and particularly Iraq, commanders and participants noted the deliberate application of speed, tempo, and unexpected movement as part of maneuver warfare–driven operations designed to keep their adversaries off balance. Marines also enjoyed the freedom to operate as they desired on their parts of the battlefields. The rapid collapse of the Taliban and Hussein regimes in the absence of months of preparatory firepower seemed a testament to the effectiveness of maneuver warfare when its practitioners had

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[27] Westermeyer and Hinman, *Desert Voices*, 23.

liberty to use it. However, something happened in the aftermath that convinced critics that maneuver warfare had still not taken hold within the Marine Corps.

In surveying the timeline of the diverging perspectives on Enduring Freedom and Iraqi Freedom, the split becomes clearer. Those Marines who were adamant that they employed maneuver warfare generally took part in the initial invasions, while many of the critics who argued that the Corps had fallen away from it were those who deployed and wrote during the later counterinsurgency phases. There were a handful of exceptions to this. Major General William F. Mullen, as a battalion commander in 2007 in Fallujah, Iraq, believed his use of maneuver warfare tenets directly contributed to the pacification of that city; Major P. J. Tremblay, commanding an infantry company in Afghanistan, planned and conducted operations against the Taliban in specific accordance with Boyd's ideas.[28] These experiences appeared as isolated islands in a sea of censure about the later struggles of counterinsurgency. Thus, the argument is not one of rank, per se—as implied by some of the "Attritionist Letters" and subsequent letters to the editor on the broken perspective of the senior preachers—but one of timing. On-the-ground leaders, such as Mattis and Kelly, said that during the initial invasions they used maneuver warfare and expected their troops to do so. This was their verdict as military professionals, and there is no reason to question either the sincerity of their belief that they had truly operated under maneuver war-

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[28] Mullen does not mention maneuver warfare by name in the book that describes his operations in Fallujah, but its influence can be seen throughout; see Daniel R. Green and William F. Mullen, *Fallujah Redux: The Anbar Awakening and the Struggle with Al-Qaeda* (Annapolis: Naval Institute Press, 2014), 39–40, 70, 74–76, 122, 124, 126. Moreover, he confirmed to the author that he consciously applied maneuver warfare in crafting and executing the pacification campaign; see Maj Gen William F. Mullen III, email message to author, 16 August 2017. Franklin Spinney briefly mentions Maj Tremblay's operation in Franklin C. Spinney, "Introduction to the Strategic Theories of John Boyd," *Blaster* (blog), 29 April 2015. The details of that operation are not publicly available; however, during the maneuver warfare workshop previously cited this author spoke at length with Maj Tremblay about the mission and confirmed the direct influence of Boyd and maneuver warfare on its planning and conduct.

EPILOGUE

fare nor the accuracy of how they assessed the execution of their own operations. But as those leaders departed and the mission simultaneously became one of occupation rather than invasion, the dynamic changed. The maneuver warfare of highways and deserts did not seem applicable in close-quarters urban combat with faceless insurgents. And so, along with their Army brethren, many Marines who were engaged in occupation duties struggled during a long and dangerous period of adapting to what seemed a different warfighting style.

As this book has shown, Boyd never looked at counterinsurgency as a style of war removed from the concepts he discussed in "Patterns of Conflict." He viewed both blitzkrieg and insurgency through the same lens, aimed at the same objective—the adversary's mind—and implemented with the same tenets of orientation, tempo, ambiguity, deception, and asymmetric application of strength against weakness. This part of Boyd's framework was poorly understood at the time even by his proponents, who made little effort to incorporate it into the maneuver warfare debate. Thus here, if anywhere, lay the great failure of institutionalization: maneuverists put so much emphasis on the conventional— and more easily understood—aspects of Boyd's ideas during the debate that maneuver warfare became unconsciously associated with conventional military operations. Moreover, the records of Desert Storm, Enduring Freedom, and Iraqi Freedom indicate that Marines indeed internalized this application. It was when operations transitioned from conventional to unconventional that the bill came due for failing to understand and teach Boyd holistically. Marines searched painfully for ways to view and fight this other kind of war, when the mental framework necessary to do so already existed. It was in Boyd's work, where he had devoted considerable time and effort to analyzing the insurgent under the maneuver warfare umbrella.

Given the broad scope of this failure, it is unjust to lay the blame at the feet of generals, politicians, or the ever-popular whipping boy—the lethargic bureaucrat. This failure began even as the maneuver warfare debate intensified in the 1980s; it lay uncorrected when *Warfighting* was signed; and it lingered unmentioned

under the surface throughout the 1990s and into the twenty-first century, until the brutal reality of two irregular wars forced a reappraisal. Indeed, one must have sympathy for the generation that came into the Marine Corps after Boyd's death, not knowing that Boyd had already outlined a framework for answering the questions they would shortly face in the deserts and mountains of the Middle East. Critics have held them to the impossible standard of not institutionalizing in toto the philosophy, key parts of which the new generation was not even aware existed. Again, such criticism is unjust, especially when some of the critics knew Boyd, were present in his briefs, and yet in their advocacy omitted much material that Boyd believed of the utmost importance.

While apportioning blame certainly generates a measure of satisfaction, a better use of critical energies might be acknowledging those foundations where maneuver warfare has taken hold within the Marine Corps and building on them. This chapter has already discussed the combat record since Gray first signed *Warfighting*, and while Marines may not always have fought using maneuver warfare tenets, many times they have. This realization should drive another: that while imperfectly taught and trained, enough Marines are exposed to maneuver warfare that it influences their actions where it matters, in combat. That maneuver warfare is still taught and trained—again, not perfectly, but to the extent that its presence is still felt—is a testament to the continued ability of Boyd's ideas to inspire those who come in contact with them, and the importance that the institutional Marine Corps ascribes to them. Not every Marine today writes or thinks about Boyd's concepts but some do.[29] Few Marines understand the

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[29] Besides those works already mentioned in this and preceding chapters, see Maj Paul Tremblay Jr., "Shaping and Adapting: Unlocking the Power of Colonel John Boyd's OODA Loop" (master's thesis, Marine Corps Command and Staff College, 2015); Capt Brett A. Friedman, "Institutional Innovation," *Marine Corps Gazette* 98, no. 1 (January 2014): 82–85; Capt Daniel A. O'Hara, "The Re(al) awakening," *Marine Corps Gazette* 98, no. 5 (May 2014): 47–50; Maj Ian T. Brown, "Opening the Loop," *Marine Corps Gazette* 99, no. 6 (June 2015): 52–56; Maj Ian T. Brown, "The 'Grand Ideal'," *Marine Corps Gazette* 100, no. 2 (February 2016): 55–58; and Maj Ian T. Brown, "Sprinting to Fight the Last War," *Marine Corps Gazette* 100, no. 4 (April 2016): 80–83.

cross-domain applicability of maneuver warfare beyond the conventional realm, but as shown in *How an Expeditionary Force Operates in the 21st Century*, today's leadership wants to make that applicability clearer. While not every Marine thinks as a maneuverist, the vocabulary of maneuver is the vocabulary of the Marine Corps, and language has a strong ability to ultimately shape thought.[30]

Perhaps the institutionalization of maneuver warfare exists only on islands of success, but those islands are there. Indeed, they are a testament to the Marine Corps' institutional culture, which allowed for its long tradition of adaptability and innovation, even when specific subcomponents of the institution made innovation harder or blocked it altogether. Between the two world wars, the development of amphibious warfare doctrine was an all-hands effort; maneuver warfare, however, was built on the shoulders of individuals who were still inspired by the institution and its traditions but who found the institution's official schools uninterested or actively working against them. But, as with Sun Tzu's observation of water flowing with the terrain to bypass strong points, the Corps' culture inspired the drivers of change to move around those obstacles thrown up throughout the institution's history.[31] Maneuver warfare's ability to influence and inspire derives from that tradition. Its influence first grew from the efforts of individuals until the institution officially embraced it; now, its inspiration again rests on the shoulders of individual Marines. These Marines have founded the islands of success; such islands either can be used for self-imposed exile or as a basis upon which to build.

Former Marine infantry officer Bruce Gudmundsson offers a valuable perspective on the state of maneuver warfare: "I'm not looking for 100 [percent] maneuver warfare purity. I'm happy with the 80 percent solution."[32] One can argue about what percentage of "purity" the Marine Corps has achieved, but it is certainly not zero. Gudmundsson further notes that the maneuver

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[30] Piscitelli, "United States Marine Corps Way of War," 120.
[31] Sun Tzu, "The Art of War," in *The Seven Military Classics of Ancient China*, trans. Ralph D. Sawyer (New York: Basic Books, 2007), 168.
[32] Piscitelli, *United States Marine Corps Way of War*, 119.

warfare standard was never meant to be static: "The point of the maneuver warfare movement was not to create a pure ideal and then judge the Marine Corps against it. The point . . . was to take a tradition and build upon it."[33] This attitude is entirely in line with Boyd's admonition in "Patterns of Conflict," through which he warned about the dangers of locking oneself into an unchanging concept: "I don't want you to have a rigid recipe. Because if you start getting rigid recipes, then the guy's going to find out what that is. You would in a sense become predictable, and he's going to pull your pants down."[34] Or take Boyd's reaction to *Warfighting*, as John Schmitt paraphrased: it's great, now you have to change it.[35] Indeed, this perspective goes beyond Boyd, encompassing the institutional history of the Marine Corps as discussed in chapters 2 and 3. As an organization, the Corps never froze its thinking at an arbitrary moment in time. It constantly built and rebuilt itself, adopting and discarding roles and missions while keeping sight of its one true purpose: winning whatever war it was called upon to fight. The common thread here goes to the point Boyd made about taking Clausewitz as a template: one's mental model cannot be allowed to stagnate. Boyd said that one must constantly update mental models for problem solving; falling back on an old model deliberately deprived oneself of new and potentially useful material for the model. Those critics who reach back to 1989 as the ultimate model for maneuver warfare make the same mistake, refusing to update their mental model by incorporating all the lessons and new developments of intervening years. The goal of the Marine Corps is the continued national survival of the United States. What matters in aid of that is not the self-satisfaction derived from achieving the perfect recipe and then clinging to it throughout the ages, but the mental flexibility to constantly adapt a model of conflict to ensure that the model—and the institution using it—remains useful for national survival.

The maneuver warfare tradition was established in 1989, and

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[33] Piscitelli, *United States Marine Corps Way of War*, 121.
[34] Boyd, "Discourse on Winning and Losing," tape 3, side 2, 104.
[35] Schmitt interview.

the building of this tradition has been a work in progress ever since, as men like Boyd, Gray, Krulak, and many others intended. One cannot hold up the standard from 1989 and say that the Marine Corps has failed to reach it. Since 1989, much in the world, including the Marine Corps, has changed. This should not be a problem for maneuverists, because maneuver warfare was meant, at heart, to be adaptable to the changes wrought by the future as they occurred. The intervening years have seen the Marine Corps fight three major wars and engage in countless smaller operations. The old generation of maneuverists continued thinking and writing about maneuver warfare following *Warfighting*'s release, and a new generation of maneuverists has taken inspiration from the old to reexamine Boyd's work and find ways to apply it today. The Marine Corps should institutionalize the implications of these changes into its maneuver warfare philosophy, even as it continually seeks to spread and ingrain that philosophy in its Marines.

That is what this book is intended to aid, in its own small way: to contribute to the modern understanding and application of maneuver warfare by shining more light on its past. Some of the gaps in understanding and institutionalization come not from malice or laziness but from ignorance in the truest sense of the word. John Boyd provided the intellectual foundation for maneuver warfare, a warfighting philosophy that has shaped the Marine Corps' worldview for almost three decades. Yet much of that foundation remains hidden. This was partly caused by Boyd's limited ability, in the predigital era, to reach audiences beyond those people seated directly in front of him. It was caused, in part, by misconceptions about Boyd's ideas at the time, and both his proponents and critics alike spread these distortions. Finally, the natural separation of time also contributes to the lack of knowledge about Boyd's ideas. Boyd died in 1997; since then, an entirely new generation has been born, grown up, and joined the Corps—without directly experiencing Boyd's teachings. The author hopes that this book bridges the gap of time, reintroducing readers to the salient points of Boyd's life, career, and thought; illuminating words spoken and written by Boyd himself that have not been published elsewhere; and correcting some of the fallacies that for decades have clouded

a deeper understanding of maneuver warfare. Boyd's new conception of war remains a gift that keeps giving; with any luck, this book will help pass it on to current and future Marines, so that the Corps continues to be a useful tool against this nation's adversaries.

APPENDIX A

"Patterns of Conflict" Transcript Excerpts

The following excerpts come from the full transcript of the audio recording of Boyd's "Patterns of Conflict" held by the Marine Corps History Division's Archives Branch at Marine Corps Base Quantico, Virginia. John Boyd presented this version at the Marine Corps Command and Staff College during three days: 25 April and 2–3 May 1989. Aside from Colonel Michael Wyly, the author was unable to identify the name or Service branches of the other audience members, as no class roster is included in the archival material. Individual speakers are identified as "Audience," with a number if more than one speaker at a time is engaging Boyd. Brief explanatory footnotes are included for the various people and books Boyd cited throughout the presentation. To aid in further reference, there are time stamps at the beginning and end of each excerpt for the associated tape, and at five-minute intervals throughout. Relevant slides from the presentation are interspersed with the excerpts, as well.[1]

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[1] Minor revisions were made to the text to improve readability and based on current standards for style, grammar, punctuation, and spelling. Readers can find complete versions of Boyd's slideshows at several online sources, including the Defense and the National Interest John Boyd Compendium and a newly published collection from Air University Press.

INTRODUCTION/BUILDING
NEW MENTAL FRAMEWORKS

Tape 1, Side 1

[02:42] Boyd: We're going to go through this whole presentation—"Patterns of Conflict"—going back in history that I've laid out here in the outline we're going to go through. And we're going to pull things apart, put them back together, pull things apart, put them back together all the way through. Now, why in hell are we going to do that for? Should drive you batty. The very simple reason, and what you're trying to find out if we're going to talk about conflict, you want to reach back, you want to find out those things we call the *invariants*, the constancies, or what the physicists like to call the symmetries. Where you can look at things from different points of view, and you keep seeing the same thing popping out.

Example: let's assume you people here in this room—and it's an idiotic example but it makes my point—were taught all your life, or you only had the opportunity to see pyramids from the side. Only from the side. You'd go through life thinking pyramids are triangles. Now let's say we got another group, different from our group here, and they only got to see pyramids from the top. They'd think there were rectangles with intersecting diagonals. A square. So now let's say this group then interacts with the other group, and they start talking about pyramids, and say "these guys are goddamn idiots." And it's you he's talking about and he thinks you're an idiot. But you're both talking about the same thing from what? A different point of view. You're both correct, partially. But from a different point of view.

And so what you want to do is, you want to examine these things from these different angles or points of view, and find those things that tend to keep holding up. You've got a goddamn gem that you find. They're hard to find. You've got a gem, an invariant, a constancy, what the physicists call symmetry. Symmetry is the ability to find those same things that hold up, that don't change when you look at it from different points of view. Any physicists in here, anybody study physics? Ever heard that term symmetry? Well I ask you, what's pure or perfect symmetry? Give me an object, an example of perfect symmetry, where you examine from

different points of view, a physical object. Doesn't change no matter how you examine it.

Audience: Sir, a sphere?

Boyd: That's right a sphere. Not a circle, a circle you don't [unintelligible]. *[05:00]* A sphere, no matter how you examine it from different angles, perfect symmetry. Unfortunately that's a physical object; now we're going to look at moral, mental, and physical. When you go off the physical, you start looking at mental, it gets a little bit more difficult. So we're going to go through, and basically we're trying to find those invariants.

We're going to go from Sun Tzu to the present, what kind of things still hold together? And that's why you don't just take Sun Tzu and say "kkkkkkk," template him today, you're going to do that, or you take Clausewitz and you're going to template him today, or Jomini or who else [unintelligible] you're going to make a horrible mistake if you do that. But there are certain things they said that still hold true, if we uncover them. The answer is there. And you're going to see how that's done. So we're not going to start with the answer. We're going to start with a confusing bunch of goddamn data and we're going to try to pull it together.

We're going to do both. Breakdown, which is the analysis, pulling it back together with synthesis, pull that apart, breakdown, bring it back together and pull it apart; always feeding in more and more stuff and rejecting more and more stuff as we go along. To find those things that hold true, whether in the past, today, and also in the future. For those people [who] study Clausewitz, think that we're just going to use Clausewitz as the lens filter to look at the problem, you're going to make a horrible mistake. It's a disaster. Because all you've told me is your thinking hasn't proceeded beyond 1832, and a lot of things have happened since 1832. [unintelligible]

So I can't overemphasize it. Now, I want to talk about one other thing before I hop into the presentation. One thing I want to point out, and I'm going to make it again and again. Terrain does

not fight wars. Machines don't fight wars. People do it and they use their minds. So you better understand the people, because if you don't understand them, you ain't going to make it, period. Now it doesn't mean you don't pay attention to terrain, you don't pay attention to machines, but person, the human being, and the people are what counts. Top and foremost priority. The terrain is just the means through which you operate. The machines are just tools that you use. All they are. Of course, you can use them badly, or use them well. But the point is, that's all it is. I want to drive that home. I'll show you, when you make that mistake, when you begin to think that terrain is the most important thing, you're going make some very serious mistakes. **[07:36]**

FINGERSPITZENGEFÜHL
Tape 2, Side 2

[00:00] Boyd: . . . concept, and then you've got to get them hands on, get them out in the field to practice those concepts. Not only that, be fair to yourself. Remember, because you laid out a concept, doesn't mean you have it all right the first time. You may think it through. So, if you see things happen, you say okay, now we've got to take the practice and go back to concept and revise the concept. You go back and forth until it works after you do a number of cases. So then they get that— Now they're getting to *fingerspitzengefühl* the Germans talk about, because they're getting the practice.

Audience: That I can grasp. I think what we tend to do in the military is, we want— Once we understand the concept, we want some sort of a tool, prescriptive tool to make it work, and that's when you begin to get in trouble.

Boyd: That's right. And what I'm saying is, when you have a concept, let the guys try it under different circumstances out there, and don't let the officers or the leaders interfere too much. Just give them the task and let the other guy do it. If he's going to screw it up, let him screw it up so you can learn what the screwup is, and

then have your critique afterward. That's how you learn. Instead, everybody sets it up so nobody screws up. F——k them. I want to see a lot of screwups.

Audience: It's got to be force on force.

Boyd: That's right. You want to see a lot of screwups, because you're not sure what are going to be screwups and what aren't, because all you've got is a concept. It might turn out some are good, some are bad. That's part of the thing. So that's how you get that fingerspitzengefühl.

Audience: So stay away from the prescription?

Boyd: I would.

Audience: And academia, we can only go so far, sir. You've got to get out there—

Boyd: Let me give you a good example in air-to-air combat. Here's a fighter pilot back there, okay. We go through a long ritual, which we started at Nellis [Air Force Base] many years ago. Before then they had a favorite maneuver. We taught them all these fundamental maneuvers: high speed yo-yos, low speed yo-yos, barrel roll attacks, diving spirals— What do you call it? Pirouettes. Christ, I can't even remember them all, and I was so deeply involved in them. And a guy's trying— I said, "Don't try to remember that stuff, for Christ's sakes. Don't even think of it." When you try to remember it, you know it's like, "Am I going to steer the wheel this much in a car?" Do you know how far you're going to turn the wheel? You don't even think about it. Or how far you're going to push the accelerator down or how far you're— I said, "What you have to do is, we're going to go out there and we're going to teach you that so after a while it becomes part of your fingerspitzenge-fühl."

We teach them maneuvers, what you do, and why you do it. Then we take them out and work it over again and again and

again. Pretty soon, he doesn't even have to think about it. So, you don't have to worry about the goddamn manual. You just do it. That's why I'm saying if you teach the concept and you don't give them the hands on, they're never going to get the fingerspitzengefühl. So even though we didn't know the term at the time, what we were teaching the fighter pilots was fingerspitzengefühl. So they could do those things. They could do the chops, the counterchops, the maneuvers, the countermaneuvers, the yo-yos when they had to, the low speed, the high speed, the scissors, the vertical rolling scissors, etcetera. You know what I'm talking about. You've been through it all. They've got to have those fundamentals. If they don't have it, they're going to be dog meat for everybody else. A guy's going to go, "What should I do?" [smacking sound] He's out. So it's got to be right there. He can't think about what page number is that on, what manual or so and so, and get the checklist out. That's bulls——t. He either has it now or he doesn't have it, period. So you've got to get him out there again and again, and give him that practice. Pretty soon they get— I'll tell you, these guys get good. They're not even sure how they get good but they get good.

Audience: I think our dilemma is [that] within the school environment we're limited in the way we can accomplish that: war games, map exercises—

Boyd: I understand that.

Audience: And that actual, for the hands-on has got to take place somewhere—

Boyd: Yeah, but when you get out to your unit, you should do that all the time. When you get out to your units— I mean, I agree. You're going through a school. You don't have the— We didn't have the time to teach them all that in Fighter Weapons School at Nellis. We gave it to them, we sent them back to the unit, and tell them keep cycling through again and again. We'll get guys out there, and so pretty soon they start getting what we now call fingerspitzengefühl. That's what you want to have your officers and

your men to get. So when they get out there they've just got that goddamn—boom [smacking sound] they can take those son of a b——s out.

But if you're just treating a concept like here on a chart? Bulls——t. Burn the goddamn thing. You've got to practice, and you've got to— Not only that. Do it every different way you can think of. And you should not grade a guy because he does it a different way. Say, "Bulls——t. That wasn't the school solution. F. You're out." I don't care what's different. If you realize his tactic works out good, say, "Hey that's good. I wonder why that worked." If he can explain it, fine. That's another option. You want to keep widening that repertoire. You want to make that repertoire as wide as possible, because you become more unpredictable. The wider your repertoire, that means you've got a wide-angle lens and the other guy's got the narrow-angle lens. You've got the wide band. He's looking at things through the narrow band. You've got the wide band filter. You want him to have the narrow band filter.

Audience: One of the things that you hit on, and that here at the school in answer to the colonel's question is, is it training as repetition, and the more that you do something and the more that you're exposed to something, whether it's a map exercise where you're going to have to make a decision and you have to have input in. You have experience; therefore, you're going to generate output. So in the academic environment, the more that you can expose yourself to that kind of rapidity, and quickness, and speed of effort—

Boyd: But remember, you've got to be very careful—

Audience: —you're better off than you are otherwise.

Boyd: No, you're very good, except for one thing you've got to keep in mind, which I— I have another part in another one of my lectures. *[05:00]* Whenever you do that, you always want to do it so they have a variety of different circumstances when you're doing it. If you don't do that, then pretty soon you're choreograph-

ing things. You have a narrow repertoire, and you're going to get cleaned out when you're thrown in another environment. There's a very big danger of people like to look good, so they have this narrow repertoire. You want to throw different things at them, as many as you can, so they're developing a rep— I mean a finger-spitzengefühl across a wide spectrum. Really, I can't overemphasize that. This is crucial, because this is what makes you adaptable and unpredictable. Remember, I keep using those words. Those are two key words, be adaptable and unpredictable. And then you'll gain leverage. Because the moment you start becoming rigid or non-adaptable and predictable, you know the game's over. The game's over. And that's the danger of doing it with very narrow repertoire, because you want to look good and the commander to be all— Practices is goddamned thrilled. Well, you choreographed it.

Audience: Let me come from the top of an academic department. Concepts—

Boyd: Well, you can't do an academic but you can give them at least the basic stuff so they can go out and do it themselves. We should be looking at doing this— You see what I'm saying?

Audience: I think we probably give it to them in the sense in terms of map drills.

Boyd: Fair enough.

Audience: With the concept of some very, very general tools.

Boyd: That's right.

Audience: Academic exercise.

Boyd: That's right. And map drills are good, but then you want to set up the map drills many different ways, too. Then in the end, they've still got to connect it up with the actual operation when

they get out in their own unit. That's what I'm trying to say. So they can actually develop that fingerspitzengefühl. I can't overemphasize that. Let the other guy not have the fingerspitzengefühl. That feels good. You're cleaning his clock and he can't even figure out why. Maybe you can't either but you know you're doing it.

Audience: You're saying— What you mean, colonel, you're going to expose us.

Boyd: That's right.

Audience 1: You're giving us exposure. You're not going to teach us; you're going to expose us to why.

[Cross talk]

Audience 2: Educate.

Audience 1: We made a mistake because we spent a hell of a lot of time on staff planning. If we loosen up the staff planning some and do more—add some more exercises.

Audience 2: Well you know, we've only done staff planning once and that's at the first part of the year.

Audience 1: I think instead of throwing so many different models at you, we throw you one simple model.

Audience 2: Yes, sir.

Audience 1: You get through three or four different models.

Audience 2: One thing I think, I think [at] Command and Staff College, you're exposed to an awful lot of material. I don't think we were taught very much. I just think we had the exposure, we had the references to go to. The other thing I think, I think training— military training and military education are two different things.

Audience 1: Oh yeah.

Audience 2: They're not one and the same. Then I think the problem with having hands-on time is time itself.

Boyd: Heck yeah. That's how you get the feel. You've got to get— Because then, what you're doing is you're taking your concepts, your ideas, and your training and you're putting it all together to get that fingerspitzengefühl. That's what you want to get.

Audience: But the time— We fight time. Time is our enemy.

Boyd: I understand that. He can't do everything, but at least he can expose you to these things in the end when you go on the field. We couldn't do everything at the Fighter Weapons School, but we gave them exposure, said now you guys have got to practice yourselves. We can't do that for you. We can only give you so many different combinations. **[08:14]**

[10:58] Audience: I continually relate this to the athletic field of endeavors, and my limited successes on those fields. As I look back in retrospect, I wasn't thinking. Once I started thinking, I started reacting to the situation and it became a reactive role. That goes back to the field. That's hard to acquire, though.

Boyd: Oh, oh, I didn't say it was easy. No way. That's right, it takes time. But that's why you want a variety, do it different, and do it different ways. So in the end, you know you're doing something that just feels right. And it's because you've accumulated all this experience, you say, "This is right." You don't even know why. You're making all these connections in your brain many different ways. Not only if it doesn't work out right— Even if it didn't work out, you've got about five or six options. You start shifting gears. Fighter pilots do that naturally. Boy, they start shifting gears real quick if they're any good. They really do. They're pretty good at it.

Audience: They are maneuvering one piece of gear—

Boyd: I understand that. Land combat is more difficult. I'll agree with that. On the other hand, you made it a little bit too simple. They may maneuver one piece of gear. Remember, there are a lot of guys out there, and they've got to work with their buddies, as well as try to take out the other guy. They all have to work a super-fingerspitzengefühl together, so they build that harmony so they can do that. In the end, though, your job is tougher. I'll agree with that. There's no way I wouldn't agree with that. Yours is tougher. In a sense, they have more— It is easier for them to operate. You're on the ground. Many of the things you've got problems with— It's a tougher job. But some of those things they learned in a simple situation, you could take advantage and take aspects of it, and use it in a more complicated situation, like in land warfare or ground combat. The Germans did it. They use the word. Rommel used it, finger— It's amazing how they all used it, want to get that sure feel. **[13:13]**

CLAUSEWITZ/CENTER OF GRAVITY/VULNERABILITIES

Tape 2, Side 1

[18:56] Now let's go on to the philosopher of war, Clausewitz. He made that famous statement where he talked about the character, act of policy, to use violence to impose one's will upon another. Later on, he made the statement, not only war is politics by other means. We've all heard him say war's an instrument of policy.

Anybody see anything wrong with that? The military's an instrument of policy. When you say something's an instrument, what are you really inferring? You've got control over it. In other words, you've got— You know, a tool or an instrument, you've got control of it. But you can't control war. You might be able to control the military as an instrument. Maybe not too much but [unintelligible]. You can never say it's an instrument of policy, an act of policy, already you went too far. It's not an instrument of policy. That presumes you can decide what's going to happen during it. You can't.

Maybe that was our problem. We wanted to make an instrument— We wanted to make the Vietnam War an instrument of

policy. I'm sure that the idea wasn't to go in there and get kicked out.

Another statement he made which is good, duel or act of human interaction directed against an animate object that reacts. *[20:00]* The idea is you're not sure how he's going to react. And since you're unsure how he's going to react, that builds up the idea of uncertainty among other things, uncertainty of information acts as an impediment to vigorous activity.

Then he brings in very strongly the importance of psychological and moral forces and effects, since we're talking about animate objects. Danger being one of them. Intelligence. Here, he's talking about not an intelligence service but mental intelligence and emotional factors. Emotional factors, courage, confidence. Fear, anxiety, alienation, being the negative ones. Courage, confidence, and esprit being the positive ones. They can go either way, either impede or stimulate, in fact, depending upon the circumstances.

And then he does a very interesting thing. He takes all the interaction of all these things and lumps them under the notion of friction. The interaction of many of these factors, including all those above. And because that's all very complex, that tends to, what, impede activity. Overall, it impedes activity.

Anybody remember his famous statement? "Friction is the only concept"—I'm quoting him now—"is the only concept that more or less corresponds with those factors that distinguish real war from war on paper."

The point is, if you haven't accounted for friction, you're not talking about real war. And he's quite right, if you think about it. Because the way he looks at friction, you read it very carefully. He treats it almost the same way we treat the modern— The way we look at the second law of thermodynamics. Entropy. We talk about [how] all natural processes generate entropy in the second law. He doesn't treat it in a physics sense.

The way he's looking at friction is the way we almost look at the way we use entropy today in the second law. So in a sense, his ideas were a precursor to the second law. And that's laced throughout his book. And the fact that a commander has to overcome that friction. In fact, in a dialectic sense, he used genius as the opposite

of friction to overcome that friction. The idea that genius at war, harmonious balance of mind and temperament that permit one to overcome that friction. And excel at that complex activity.

While they can't change the character and nature of war, they can change the nature and magnify the scope of operations. And then strategy, his strategy, exhaust them to influence and increase the expenditure of effort, he brings it up over and over again.

And then, seek out those centers of gravity upon which all power and movement depend and if possible trace them back to a single one. Look at all those powers and see if you can ideally take it back to one. Then he squeezed it one more time. He said in that effort, compress all effort against those centers into the fewest possible actions. Still not satisfied, he gives it another squeeze. He says, subordinate all minor and secondary actions as much as possible in all this activity.

So by doing all these things, in a sense, he's in harmony with his idea of friction. What he's trying to do is overcome his own internal friction. See what I'm saying? So he can deal with that. And move with the utmost speed. We already talked about that. And seek out the major battles that will promise decisive victory.

His aim is quite simple; render your enemy powerless, with emphasis on the destruction of his armed force. Not only the armed force, but that was his emphasis. He also talked about capturing a city or taking a province or something like that, also to try to destroy your enemy's will. But he says, this precedes or dominates the others. That's how you prevail, destruction of his armed forces.

Okay. Let's critique Clausewitz.

Clausewitz overemphasized the decisive battle and underemphasized strategic maneuver. And the reason why is he came up with strategic maneuver only through eighteenth century on. In other words, he was reacting against that kind of war and overplayed [unintelligible].

Also, he emphasized method and routine at the tactical level. Why did he do it? His own words, to reduce his own internal friction. Is there anything wrong with that? He wasn't looking outward. He was always looking at things in an absolute sense.

SLIDE 41

HISTORICAL PATTERN
CARL VON CLAUSEWITZ - *ON WAR* - 1832

Why?
Clausewitz was concerned with trying to overcome, or reduce, friction/uncertainty. He failed to address the idea of magnifying adversary's friction/uncertainty.

Clausewitz was concerned with trying to exhaust adversary by influencing him to increase his expenditure of effort. He failed to address, or develop, the idea of trying to paralyze adversary by denying him the opportunity to expend effort.

Clausewitz incorrectly stated: "a center of gravity is always found where the mass is concentrated most densely--" then argued that this is the place where the blows must be aimed and where the decision should be reached. He failed to develop idea of generating many noncooperative centers of gravity by striking at those vulnerable, yet critical, tendons, connections, and activities that permit a larger center of gravity to exist.

Critique
Clausewitz overemphasized Decisive Battle and underemphasized strategic Maneuver.

Clausewitz emphasized method and routine at the tactical level.

Raises Question
What does all this mean?

Clausewitz is concerned with trying to overcome or reduce friction and uncertainty. He failed to address if you want to try to magnify [an] adversary's friction and uncertainty. The point is, if you have routine in your own services and become predictable, you've also lowered your adversary's friction relative to you. You've got to think of it both ways.

Not only that, I had earlier on there, move with the utmost speed. Well, what good does that do you, the utmost speed? Why do you want to move with the utmost speed? I'm talking about [unintelligible]. Just to get there first? He should've said he wanted to move faster than the adversary. What's utmost? The other guy's moving with utmost [speed], he might be faster than you. So he's looking at things in an absolute sense. Remember, he looked at the absolute nature of war and then the reality. He didn't look at it in terms of a relational thing. *[25:00]* He was concerned with trying

to exhaust his adversary by causing him to increase his expenditure of effort.

Why not turn the argument around? Why not develop the idea of trying to paralyze your adversary by denying him even the opportunity to expend any effort? Not that the first is wrong, but he's not looking at it broadly enough.

And he incorrectly stated, "a center of gravity"—quoting him—"is always found where the mass is concentrated most densely." That's not always true. In a donut, the center of gravity, well, there is no mass. In a hollow steel ball, it's where the steel isn't. In a dumbbell, it's in the connection between the mass. You can come up with counterexample after counterexample. It's not correct.

And then argued this is the place where the blow must be aimed, the decision should be reached. And then he talked about centers of gravity, the army, the capital, and public opinion. Followed up the army and capital, didn't really follow up the public opinion. If you aim at the public opinion, here's what happens then. You fail to develop the idea of generating many noncooperative centers by striking at those tendons, connections that permit a larger— That says longer, but it should be larger center of gravity exists.

In other words, you want to generate many noncooperative centers of gravity so the guy can't function as an organic whole. What kind of people do that to us today? What about the guerrillas? Didn't they do that to the U.S.? We had many noncooperative centers of gravity in this country. As a result, what happened? We had to come home.

And I might add that, everybody said, hell, we won all the battles. No, we didn't win all the battles. I don't care if they said so. I know one battle we didn't win. What battle was that? They say we won all the battles, I said no. If you're going to use battle as a measure of merit, you better be sure that it's not a narrow lens. It's got to be as broad as possible lens, if you use that as a measure of merit for success. We lost the battle in the home front. When I bring that up, they only think of the physical battle.

If you're talking about battles, you've got to talk about the

moral, the mental, and the physical. They were thinking body count, attrition. That's what they were thinking. I know exactly what they were thinking.

In fact, Harry Summers said we won all the battles.[2] I said, "Bulls——t, Harry. We didn't win all the battles." He says, "Well, I know we did. I did all the investigations." Bulls——t. You didn't. I know you didn't. And I didn't do all your investigation. Did you win the battle on the home front? Of course, he'd never lie and he said no. I said okay. There was the most important battle. It cost us the war.

And what dimension was that played in? Physical? No. In the moral dimension, which bears to what Napoleon said. The moral is the physical as three is to one. If you get a chance to hear my strategy, I go into that deeper. [unintelligible]

Audience: [unintelligible] the same point in [unintelligible].

Boyd: Say again. [unintelligible]

Audience: You said what Napoleon said and what you just said—

Boyd: Yeah.

Audience: —moral is to the physical as three is to one. I'm just trying to relate—

Boyd: You see, I'm looking at that pyramid from another angle, is all I'm saying. That's what I'm trying to bring out. We didn't win. We didn't win all the battles. We lost the moral battle. But see, the guys only want to define the physical sense. Nah, it's too weak. That's not true. But see, attrition warfare is easy. Christ, you just go out there and just slug off artillery and machine gun rounds and

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[2] Boyd is likely referring to Harry G. Summers Jr., who served in the U.S. Army during both the Korean and Vietnam wars. Summers wrote an analysis of American operations in Vietnam through a Clausewitzian framework, entitled *On Strategy: A Critical Analysis of the Vietnam War*, 2d ed. (New York: Presidio Press, 1995).

all that bulls——t. You don't even have to think. Just pound away. When you lead troops, your first concern, your first duty is to your troops. You don't want to goddamn run up a goddamn hill and clean out your company and say well, sh——t, we tried, when you could've come in the back door.

That's what I told you [George S.] Patton said, hold them by the nose and kick them in the ass. That's what he's talking about. You get them to concentrate one way and you kick the sh——t out of them in a different direction. Then we ain't [unintelligible].

In fact, you've got a good statement in your new warfighting manual.[3] That thing by Slim is beautiful. Your warfighting book that does—in your conduct of war. Remember that little quote by Slim at the end?[4] He said, bulls——t on the principles of war. Here's all you've got to remember. It's a beautiful statement. He had it exactly right. He was a smart guy too. He's in the wrong theater, so he didn't get much credit.

Okay. So what does all this mean? So to attack this, let's go in reverse order. Let's assume we can generate many noncooperative centers of gravity. If we can do that, what do we do? We deny the opportunity to generate— We impede vigorous activity. If we impede vigorous activity, what does that mean? We maximize friction and uncertainty. That's exactly right.

So very often when you turn the argument around, you see what's going to happen. Because it can't function as an organic whole. And so there's the message then.

Did not see that many noncooperative conflicting centers of gravity paralyze adversary by denying him the opportunity to operate in a directed fashion, hence impede vigorous activity and magnify friction. *[30:00]* That's the game the guerrillas play to the hilt.

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[3] *Warfighting*, FMFM-1 (Washinton, DC: Department of the Navy, 1989).

[4] Boyd is referring to the following quote by Sir William J. Slim from *Warfighting*: "Many years ago, as a cadet hoping some day to be an officer, I was poring over the 'Principles of War,' listed in the old Field Service Regulations, when the Sergeant-Major came up to me. He surveyed me with kindly amusement. 'Don't bother your head about all them things, me lad,' he said. 'There's only one principle of war and that's this. Hit the other fellow, as quick as you can, and as hard as you can, where it hurts him most, when he ain't lookin'!" See *Warfighting*, 55.

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          SLIDE 42

      HISTORICAL PATTERN
 CARL VON CLAUSEWITZ - ON WAR - 1832


  Message
  Clausewitz did not see that many noncooperative, or
  conflicting, centers of gravity paralyze adversary by
  denying him the opportunity to operate in a directed
  fashion, hence they impede vigorous activity and magnify
  friction.

  Likely Result
  Operations end in a "bloodbath" via the well-regulated,
  stereotyped tactics and unimaginative battles of
  attrition suggested by Clausewitz.
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Audience: Does that mean divide and conquer?

Boyd: Yes, same thing. But there's many divisions, you know what I mean, multiple. That's exactly right. It's just another way to divide and conquer. But not just in a physical sense, what, in a moral sense, in a mental sense. You understand what I'm saying?

They think of divide and conquer as split this force off. I'm talking about a moral and mental sense as well. And so since he did not see it, the likely result's not too surprising, ergo World War I.

Now let's look at Jomini—

Audience: Can we go back a second? I'm puzzled on how we, the friendly side, create the many centers of gravity simply by aiming at the decisive points with the one center of gravity and [unintelligible].

Boyd: Well, you want to know your adversary— First of all, you got to go back to understanding your adversary. What are those things that you can concentrate on that's going— You can divide

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                     SLIDE 43

                  HISTORICAL PATTERN
                    JOMINI - 1861

   Secret of Success
   ". . . the narratives of Frederick the Great commenced to
   initiate me into the secret which had caused him to gain
   the miraculous victory of Leuthen. I perceived that this
   secret consisted in the very simple maneuver of carrying
   the bulk of his forces upon a single wing of the hostile
   army. . . . I found again, afterward, the same cause in
   the first successes of Napoleon in Italy, which gave me
   the idea that by applying, through strategy, to the whole
   chess table of a war this same principle which Frederick
   had applied to battles, we should have the key to all the
   science of war."
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him up so he can't function as a whole, not just physically but morally and mentally as well?

Colonel Michael Wyly: So would your multiple thrusts be one example?

Boyd: Multiple thrusts, that's—that's one example. You know, we talked about that earlier. Yeah, that's, a lot of it's a physical sense, but it's done physically on the other— Well, you think multiple thrusts as— You can have multiple thrusts moral, mental, and physical too.

If you think of the battlefield, you tend to think of the physical. But you'll also get moral and mental implications that flow out of that, even though it's physical.

Audience: Is there such a thing as a center of gravity?

Boyd: Oh, that's a good question. It's hard. You're talking about center of gravity. See, I think— You've heard people say— You've got a good question, colonel, because I don't like the term, per-

sonally. And the reason why, people say we're going to go after our adversary's strategic center of gravity. I say, what the hell is that? We didn't know our adversary. We didn't know ourselves where we could find our strategic center of gravity. I find that a very interesting phrase.

And they say, they went after ours. I say, that's not quite true. I say I agree that as a result the American society became divided, and that turned out to be our strategic center of gravity. But they didn't know that ahead of time. They found out about it after the fact, and they levered it. They didn't start out that way.

I'm talking about [Vo Nguyen] Giap and his boys during Vietnam.

Audience: So John Schmitt's warfighting manual, when he talks about vulnerabilities, we're onto something better than the center of gravity.

Boyd: Yes, in fact I think that's a much better term.

Audience: But also we don't—

[Cross talk]

Boyd: Remember, as a matter of fact, Sun Tzu said it. Remember what he said? In fact, I got it in my— What manual do I have? This one [unintelligible] don't know where I put the son of a gun. It's in my strategy kit.

Remember what he said, seize that which is the vulnerability, seize that which your adversary holds dear or values most highly. Then he will conform to your desires. That's a vulnerability. He said that, Sun Tzu back [in] 400, 500 [BC]. Seize that which your adversary holds dear and values most highly. Then he will conform to your desires.

Audience: John qualifies that by saying *critical*, for example, his PX [post exchange] may be vulnerable, but it's sure as hell not critical.

Boyd: That's right.

Audience: So you've got to look to what's vulnerable and to what's critical.

Boyd: That's right. But no, no, Sun Tzu said it. Seize that which your adversary holds dear or values most highly. That is critical.

Audience: But what if it's not vulnerable?

Boyd: Well, it may not be. But I'm talking about— But he's always talking about strength against weakness. He doesn't say directly try to do that.

Wyly: You're kind of feeling your way as—

Boyd: He's feeling your way. See, he recognizes it.

Wyly: In fact, every vulnerability, essentially you get onto something.

Boyd: And you may not know that at the time, exactly what that [vulnerability] is.

[Cross talk]

Boyd: Let's say you're going to penetrate a front— You want to go after your adversary's weakness, strength against weakness. You may not know that exactly. One way of finding out, though, is multiple thrusts. Because some are going to get hung up. Some will leak through. The ones that are leaking through, you know they're doing it. So then you can shift your *schwerpunkt* [main effort] and ram it home through those.

In other words, you're adapting to circumstances. You see what I'm getting at?

Audience: I'm trying to put it all—

[Cross talk]

Boyd: You see what I'm saying? In other words, you're— You say okay, they've outsmarted me here. But in the meantime, you ram some of them in there, see. And some are leaking through. The other ones are being hung up.

Okay. The ones that are hung up, you don't reinforce those. They just have to sort of hold the position and keep the other guy tied up and reinforce or resupport those guys that are going through and ram that home real deep into the guy.

Audience: I'm not getting the connection between the successful thrusts and the vulnerability.

Boyd: I know what you're saying. You have a— Let's differentiate between weakness and vulnerability. A weakness may not be real. A guy [may] not be vulnerable because he's weak. And that's what you're talking about.

Audience: Yeah, because you're going through there—

[Cross talk]

Boyd: You may find a weakness and go through, but he may not be too vulnerable necessarily. But also because you've got the weakness— Because you act, then you can exploit that weakness. Then you can direct that out of that weakness and effort into his vulnerability.

[35:00] Audience: Okay, now the $64 question—

Boyd: If you go after something that's vulnerable, a critical vulnerability, he probably knows it is too. So therefore, he's going to put a lot of forces there. Now you've got strength going against strength. In other words, you've got Verdun [France] and all those battles [unintelligible]. Do you understand what I'm saying? So it's

sometimes better to exploit the weakness. As a result, you can get to the vulnerability.

Did you ever read Manstein's thing on lost victories?[5] Remember, he's always talking about unhinging the front. You'll never be vulnerable. What he's trying to do is find a weakness and then start getting behind him. They're going to abandon these areas where they're vulnerable. So he gets at the vulnerability by getting to that weakness first.

Audience: We need to go through the intellectual exercise before the battle to think that through.

[Cross talk]

Boyd: Well, I think what you do, I mean, you don't want to recipe it. I wouldn't want to recipe it. What you want to do is you want to lay out the philosophy so your guys think this way, see. Because let's say he's a commander, and you give him a task to do something out in front. And he has to decide how to do it.

He may not know exactly where the guy— He may have sort of a feel and some fingerspitzengefühl on where they're weak. In the meantime, he can allocate his forces and go through, and then he says okay, these guys are succeeding, so I'm going to support that. You other guys hang on. Keep the other guy there and let's ram home. Now I'm going to take advantage of that weakness, see.

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[5] Field Marshal Erich von Manstein, *Lost Victories: The War Memoirs of Hitler's Most Brilliant General*, ed. and trans. Anthony G. Powell (St. Paul, MN: Zenith Press, 2004). One of the German Army's most senior commanders during World War II, Manstein planned both the successful invasion of France in 1940 and several operations against the Red Army on the eastern front. He was eventually relieved of command by Hitler in 1944 for disobeying Hitler's orders to hold all territory to the last man. While Manstein's position in the midst of multiple major operations during World War II make his memoir worth reading, his book has also been criticized as self-aggrandizing and whitewashing those parts of the Holocaust that occurred in territory over which he had command.

Audience: If we try to time—

Boyd: In other words, it's an opportunistic kind of thing. You see what I'm saying? You're taking advantage of the situation as it unfolds.

Audience: As it unfolds. But I think what we teach is we teach identify the critical vulnerability, have the focus of effort towards it, and let your commander's intent spell that out. But that's kind of a neat prescription.

Boyd: That may cause you some problems, is what I'm saying. You may be allocating strength against strength. Do you understand what I'm saying? Because if you see it as a critical vulnerability, he probably does too. So he's going to defend that son of a b——h.

Audience: We have to do something initially to try to draw him away from that.

Boyd: That's okay. But what you're doing, you've got to set up some kind of operation to exploit some weakness, which may not be critical. Then if you can get him to goddamn allocate toward that weakness and expose that vulnerability, there's nothing wrong in that. But you've got to get the exposure first, otherwise you can't get to it. **[37:24]**

Tape 2, Side 2
[33:23] Audience: Sir, could you go over your— Explain the thing about center of gravity? I got confused on that last night. You didn't like the term, then you started talking about vulnerabilities—

Boyd: Well, let me go back to the way Clausewitz used it. He said— If you go back, I don't have that chart. I don't want to dig back in here, but if you go back to that chart where Clausewitz used it—back to Clausewitz. If you recall, he said it's where the

mass is concentrated most densely. That's just not true. The center of gravity is, like I said, in donuts where there is no mass, or the hollow steel ball, so, you know, it's really bad once you accept that.

Say we accept his definition. Let's just say whether we believe it or not, we're just going to accept it, period, right now. If you accept that, that it's where mass concentrates most densely, then you go after that, then you've got strength against strength. That's where the mass is concentrated most densely. We said we're going after that, so you're going right after the mass, strength against strength. It throws you right into that. It doesn't have to be. It's really that connectivity. Things that hold together. As long as you can destroy that connectivity, you can pull it apart. That's why I say public opinion is so important. Like the Vietnam War, it's what pulled us out of Vietnam. You can get the public opinion, you get those connections that permit an organic whole to stick together. If it flies apart you, many noncooperative centers of gravity, the game's over. If you isolate the constituents, one from another.

So his whole concept of center of gravity, which we use— We're going to go after the guy's strategic center of gravity. I don't know what the hell people are talking about. I say, "What is that?" They say, "Well, you know what it is." No, I don't, because I read Clausewitz and he's wrong, and I know you're using it. *[35:00]* How many people here have taken physics? Anybody? The center of gravity is always where the mass is concentrated in the most dense region. It can be.

Audience: It's not necessarily.

Boyd: It's not necessarily. It may be. In a donut, the center of gravity is in a hole. In a hollow steel ball, it's where the steel isn't. So the whole concept is baloney, the way he said it. It could be, but because he did that, then he said, "Now we're going to use all our effort to go against that center of gravity." Christ, that's mass smashing into mass by his definition, which is incorrect, it's unsuitable. It could be but not necessarily. That's why the center of gravity is a lousy concept. We say, "We're going to go after

guy's strategic center of gravity." I don't know what the hell that is. What are we talking about? What is that?

So, if you're going to go after a center of gravity, if you can identify the center of gravity, not using Clausewitz's definition, but let's use a true definition of center of gravity. In other words, those things that permit an organic whole to stay together, whatever they are: moral, mental, physical. Then you want to find that thing that allows them to retain their connectivity. So if I can break down those connections and get everything flying off in different directions, now you've got many what I call noncooperatives. Each one's a little center of gravity not connected up with the other one, you've got many noncooperative centers of gravity. Then you scarf them up. But unfortunately, when you use that strategic center of gravity, they act like they know ahead of time. "We know exactly where that strategic center of gravity is." You know, you're imposing certainty in an inherently uncertain process, is what I'm trying to say.

Audience: Can you go back then, Colonel Boyd, and talk about vulnerability in relation to the concept? I think we went through that last night—

Boyd: Now, vulnerability—and I think it's another way of looking at it. Those kind of things your adversary depends upon, you may not know whether one is better than the other. You say, "Well, these things look very important." We've assessed it. We got inside it. You know, in the words of Sun Tzu, "Know your enemy," and all that sort of stuff. At least, somewhat, we know him. We say, okay, you know, he really depends on them. These allow him to do what he wants to do, whatever they are. So we should direct our activities against those. Once again, you've got to be careful. He has probably also made an assessment, he's vulnerable there. So he's going to tend to protect those very heavily. In other words, critical vulnerabilities, he's probably also made that assessment. He may not have, but you've got to figure he may have. Good possibility. So, therefore, you don't want to go directly after those so-called critical vulnerabilities, because that also means strength

smashing into strength. Instead, you want to exploit the weaknesses, so you can expose those vulnerabilities, so that they become unprotected. Then you can take them.

Audience: What if you don't have an option? You can't go—

Boyd: It's nice you said there's no option, because then that's a self-fulfilling prophecy, to say there's no other option. So you get a self-fulfilling prophecy. That's my viewpoint. There's all kinds of options.

Audience: Not belaboring the point, in World War II, did we have the option in the Pacific campaign other than going straight out among the islands—

Boyd: Yeah, [General Douglas] MacArthur, initially he was going to do island hopping. Remember, his initial concept was island hopping, one after another.

Audience: But the island—

Boyd: Wait a minute. He was going to do island hopping, one after another until eventually the idea was to reach Japan. Pretty soon, they said, "Hey, this is not such a good idea. This could take forever." So then he started doing leapfrogging and cutting off those other things by cutting their lines of communication, so they withered on the vine. They couldn't do it. He went into a leapfrogging campaign. He's cutting that which they depend upon. In other words, if they can't get outside nourishment, support, etcetera, it's kind of hard to play the game.

Audience: Is that a center of gravity then?

Boyd: If you want to use that. I call it vulnerability. I don't like that word. You see, I'm ducking away from that [term] *center of gravity*. It's got too much bad baggage with it. It may be "a" center of gravity. But see, what they do— They want people— It's not so

bad to recognize there's more than one center of gravity. In other words, there are centers of gravity depending upon subsystems and all that kind of stuff, see. Because even when physicists or mathematicians use it, they don't take the whole universe. They say, this thing that we're going to examine, here's a center of gravity. There might be another one over here, because of other things they examined too. Like I took a donut. I could have put that in a larger concept, and it would be a different center of gravity. You know, it's in the hole. See, they're going to go after "the" strategic center of gravity. They might be able to identify that but— Go ahead.

Audience: Sir, what would you call the will of the people? For example, the American aversion to protracted war, would you call that a weakness? A vulnerability? Or a center of gravity for the enemy to try and get—

Boyd: It might be a center of gravity but now see, will— Now you're taking something more abstract. *[40:00]* You're not taking the mass, per se. You're looking at what permits the people to have a center of gravity? What permits that? Since you want to use the term, you used it. So now we're going to use that term. What permits a center of gravity for the people? You say, we're going to go after the will of the people, so we are going to infer that that's a center of gravity. What permits that center of gravity to be? If you don't understand what permits that, what are you going to do, attack all the people? That doesn't work. That's bulls——t. So that means you can't use the center of gravity concept. So if you're going to use that, you can do it. Then what permits that to go after that center of gravity? That's what I'm asking. You have to understand.

Audience: Mass understanding or national understanding.

Boyd: So what are you going to do, just get on the radio and say, "Hey, I'm going after your will. Surrender?" I am going to force you to cough it up.

Audience 1: I would say propaganda.

Audience 2: There you go, sir. Propaganda.

Boyd: Propaganda? Just because you've got propaganda, doesn't mean you have subverted their will.

Audience: How would I go about doing that?

Boyd: Yeah, but what is it you're going after? If you're going to use propaganda—

Audience: A national consensus, a national agreement—

Boyd: How are you going to get after that—

Audience: Well, for example, World War II, did we not have more or less national consensus it was the right war, the right time, the right places?

Boyd: That was only to solidify our own center of gravity, if you want to use that term. That was for us. But I'm talking about, we're going to try and undermine the adversary's center of gravity. We're trying to just solidify our own. How are we going to undermine his? The guerrillas do it very well. The guerrillas really undermine the centers of gravity very well. They figured it out. I'm giving you a hint.

Audience: Protracted war.

Boyd: Nah, no, you're not getting—

Audience: Through the use of violence.

Boyd: That's only part of it.

Audience: Well, yes, sir, but it is our troops being put in a position where they commit atrocities and then publicized—

Boyd: But he wanted to go after the peoples' center of gravity.

Audience: And then the death that occurs on each side, and then the publication of that death. All erodes the national will. That goes back to the [U.S.] Constitution, which starts out, "We, the people." It's the use of violence on both sides, publicized by the adversary, which subverts ultimately, over time, the national will.

[Cross talk]

Audience: The use of violence is not explained in a way that the people would accept.

Boyd: See, now, Mike's starting to come up with— What you want to do is, if you want to subvert or pull apart a guy's center of gravity. Note the words, *pulling apart*. You want to find out what are those bonds, those connections that permit that organic whole to exist. You know, people aren't glued together. There are certain bonds or connections or rules of conduct, codes of conduct, standards of behavior. You want to see what they are. Then what you do, what the guerrillas do, they do it very cleverly. They say, okay, now, let's look at the leadership and see if they're abiding by those bonds, and then we'll use your word *propaganda*, and they show the mismatch. The leader says this, but here's what he's doing. In other words, they've got a mismatch between the rhetoric and the reality, and they bring it up.

Not only that, they show people scarfing off funds and all that kind of stuff. Not only that, he does that in a situation where people are getting screwed. Remember I talked about that last night? Under what circumstances can you use ethics against somebody? It's when they feel like they're getting screwed. They're going to get very interested in ethics because "I'm goddamned getting screwed." So then you can develop as many noncooperative cen-

ters of gravity, so they can't fight as an organic whole. That's based on what? What is the quickest way you can destroy an organization? Anybody? A Marine should understand this right off the bat. What is it? The quickest way you destroy an organization?

Audience: Destroy the morale.

Boyd: Go even deeper. How do you destroy morale? Mistrust. And when you see these guys playing these dirty games, you're building mistrust inside the organization, and it no longer can function as a whole. Mistrust and discord. You build that up and Christ, they're going to come unglued. Now, granted, you use violence as a part of doing that. I'm not saying that, but it's only part of it. See, that's how they work on it. So what we're going to do is, we're going to go out and have an attrition campaign and just pile up body counts and they're going to surrender. That's probably going to make them madder than hell and they won't surrender. That's why your leaders and your people's leaders or future leaders or lower level leaders, you've got to set the example. You can't say one thing and then do another. Because your subordinates are observing you and they say, "That dirty b———d. We've got to do this but he doesn't have to."

So if you're a leader, you've got to set the example. You've got to be tougher on yourself than you are on your own people, and if you're unwilling to do that, as far as I'm concerned you should get the hell out of the Marine Corps or any Service. You should be tougher on yourself. Because they're observing you all the time. They're not going to tell you, because they know you have authority, but they're observing you. In other words, can they trust you? If you do that kind of stuff, you're going to already sow bonds of mistrust— I mean not bonds, but disconnect bonds of trust. You'll be sowing mistrust. That's what the guerrillas— They play that game. Of course, you can exacerbate with terrorism, but if you do terrorism wrong, you also can make it go the wrong way, which I'll talk about later on. We're going to get into some of that. Okay? That's why, if you have a chance, hear my strategy pitch. Because I get into that moral stuff very heavily. *[45:00]* We get into this stuff.

I show you different ways you can pull a goddamn organization down around its socks. [unintelligible]

All I know is, it didn't work out too good. So why was the American will subverted, vis-à-vis Vietnam? It's because our leadership was telling us one thing, and the people were coming back and telling something else. We're winning the war. Goddamn, we're going to win it by this time. Everything is going good. Christ, in the meantime, we've got Tet '68 and all this other stuff going on and the guys are coming back saying— You know what helped exacerbate that? The one-year tour. Because the guys are going over there and coming back, and what they're doing is they're spreading among their friends, so the whole thing just builds up a groundswell. So, they found our strategic center of gravity; it was the will of the American people. And in a sense, we looked in the mirror and did it to ourselves. **[46:08]**

MAIN EFFORT
Tape 3, Side 2

[23:28] How does schwerpunkt play into this concept? And of course, it's the glue that holds everything together, is what I'm trying to tell you. And I've said it different ways. I'll let you read it.

And they have a schwerpunkt at all levels, from the theater all the way down. Theater, army group, army, corps, division, regiment, schwerpunkt inside schwerpunkt inside schwerpunkt inside schwerpunkt, or focus of main effort, or point of main effort. The main effort.

Maneuver of all arms and supporting elements are focused to exploit opportunities and maintain tempo of operations. Initiative of many subordinates is harmonized within superior intent. So if they know what the schwerpunkt is, in that sense then, implicitly each guy is cooperating with all the other people. You see what I'm saying?

Now there's a danger. I notice in some of the Marine documents, you say you designate a unit as being the schwerpunkt or focus of effort. You may do that. You may not. Let me show you where that might not play.

You want to be very careful with that. Let's take, for exam-

Schwerpunkt
(Focus of Main Effort)

Message
- Schwerpunkt acts as a center or axis or harmonizing agent that is used to help shape commitment and convey or carry-out intent, at all levels from theater to platoon, hence an image around which:

  - Maneuver of all arms and supporting elements are focused to exploit opportunities and maintain tempo of operations,
                                        and
  - Initiative of many subordinates is harmonized with superior intent.

- In this sense Schwerpunkt can be thought of as:

  - A focusing agent that naturally produces an unequal distribution of effort as a basis to generate superiority in some sectors by thinning-out others,
                                as well as
  - A medium to realize superior intent without impeding initiative of many subordinates, hence a medium through which subordinate initiative is implicitly connected to superior intent.

Implication
- Schwerpunkt represents a *unifying concept* that provides a way to rapidly shape focus and direction of effort as well as harmonize support activities with combat operations, thereby permit a true decentralization of tactical command within centralized strategic guidance--without losing cohesion of overall effort.
                          or put another way
- Schwerpunkt represents a *unifying medium* that provides a directed way to tie initiative of many subordinate actions with superior intent as a basis to diminish friction and compress time in order to generate a favorable mismatch in time/ability to shape and adapt to unfolding circumstances.

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ple, when the Germans decided to go through the Ardennes. I'm talking about 1940, not 1945, 1944, when they hit us in December. In 1940, when they went through the Ardennes, initially before that, they were going to have their main effort up north, you know, somewhat follow the Schlieffen Plan.[6] Then as a result of Manstein getting to Hitler, *[25:00]* they shifted the schwerpunkt down to the southern sector. Why did they do that? Anybody?

Audience: Because there was no resistance there.

Boyd: Okay. So the schwerpunkt wasn't set because the unit was set, because that sector would give them a weakness they could

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[6] The Schlieffen Plan was a battle plan first proposed in 1905 by Alfred, Graf (count) von Schlieffen, chief of the German general staff, that was designed to allow Germany to wage a successful two-front war.

exploit. So the schwerpunkt was set in that sector, and once it's set there, the units then are part of that schwerpunkt.

So don't just designate a unit. You want to look at the sector you're looking at. And you say, okay. This is the area I want to do it because they're weak here. And then those units become the schwerpunkt to go through there. Because otherwise, you're only internally focused. You've got to be focused outward, not inward.

Audience: Could you say that again, sir?

Boyd: Okay. I'll say it again. In 1940, so you get the whole idea— And they made a mistake later on. I'm going to show you the difference between the two. That's why I'm drawing this distinction right now.

We're talking about 1940. And if you people haven't read it, I'll explain it to you. There was a big argument in the German Army where the so-called main effort— In fact, most of them thought, until Manstein intervened, that they were going to have their main effort come out of the lowlands, Holland and Belgium, and sweep around almost like the Schlieffen Plan out of World War I, the same kind of idea.

And Manstein looked at that. He was very gifted. He said, that's bulls——t. So then he got together with [General Heinz W.] Guderian and wanted to know, he said we know the French are kind of weak here.[7] Can we get those goddamn panzers through the Ardennes? Guderian looked, said of course we can. So then he drew up the whole plan for going through the Ardennes, and make that the main effort.

So the main effort, or the schwerpunkt, was set not by the unit but by what? By the area where the other guy wasn't going

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[7] In German, the term *panzer* refers to armored divisions. Guderian developed many of the tactics used successfully by Germany's mechanized forces at the outset of World War II. He directly commanded panzer forces during both the invasions of Poland and France. In 1941, following the *Wehrmacht's* failed attempt to capture Moscow, Guderian was relieved of command for pulling his forces back in direct contradiction to Hitler's orders. Thereafter, he held largely ceremonial positions in the German military until the end of the war.

to be. And then, since it's set there, of course, those units become the schwerpunkt, and all the support goes in there, the main support.

And the northern effort then became a *cheng* [expected] for the *chi* [unexpected] coming out of the south there. Well, it wasn't really the south. It was through the center there. It was just on the northern side of the Maginot Line.[8]

Audience: It may just be semantically that I'm confused, but I don't see that that's any different than what we've previously talked about. In my opinion, in my mind, the focus of effort or main effort or whatever you want to call it, the focus of effort is directed at a critical enemy vulnerability. What you just—

Boyd: Maybe not. Maybe not. We had that argument last night. Maybe you might— If it's a critical vulnerability, he may defend it. Then it's going strength against strength. You don't want to do it. Remember, we went through this argument.

Audience: Okay. I'll buy that.

Boyd: We've gone through this. You've got to be very careful with that.

Audience: Using the concept of multiple thrusts, though—

Boyd: What you want to do is get him— You want to expose his vulnerability. You want to go through the weaknesses so you can expose those and get to him.

Audience: I understand that. Using the idea of the multiple thrusts, you may not pick your point of main effort—

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[8] The Maginot Line, named after French minister of war André Maginot, was a line of concrete fortifications, obstacles, and weapon installations built by France in the 1930s to deter invasion by Germany.

Boyd: Say that again. I was going to do that next. Say it loud.

Audience: Using the principle of multiple thrusts, you may not pick the point of main effort until you've actually made contact with the enemy and identified the weakness.

Boyd: Wait a minute. Maybe. You're on the right track. But who's going to be the main effort? You've got 5 or 10 thrusts going. You're going to pick one and everybody— Say it.

Audience: Everybody can be your point of main effort.

Boyd: That's right. So focus of effort, and they're all part of the main effort.

Audience: The point of main effort can be not having one.

Boyd: But it's that area, and they're all part of the focus of main effort. That's why I say you've got to be careful. Designate one unit and all the other guys, you only get one to a thrust, because if you start at theater level and say okay, your army group's the main effort. And then inside that army group, that army's the main effort. Then you go down and you say, okay, the corps or division in front of you got the squads of main effort. Then you got one guy out there that's the main effort for the whole goddamn thing, from army group all the way down. That's bulls——t.

Audience: Well, aren't you really saying—

Boyd: You see what I'm saying? I took it to a logical extreme, obviously, to show you that it doesn't work that way.

Audience: The key to that, it seems to me, is the adaptability on your line; in other words, don't be so rigid you can't change your main effort as the real battle unfolds.

Boyd: Well, no. But we're just saying as a starting point. We haven't even talked about shifting. We want to shift it later on, we know. We're just saying okay, we've set the operation up. We're talking about the Ardennes, 1940.

We haven't done any operation yet. We're just saying, okay, where are we going to allocate on the first day, regardless of whether we shift it the next day. All we're talking about is how are we going to allocate. What's going to be the big— This unit's the main effort because we like the guy or something? F——k, he goes off? No.

What you're going to do is, you're going to look at the front there and say look, they have a weakness here. We can exploit that weakness. Therefore, the main effort is going to be set because a weakness exists here, and then those units become part of that main effort because of the situation you're going against.

It's set primarily by your enemy being weak, not by your own forces. In other words, it's an outward orientation, not an inward orientation even though the schwerpunkt itself is inward. Am I making my point?

Audience: [unintelligible] definition of focus of effort is—by sector and area. Is that different between this and main attack—

Boyd: Well, you might sometimes— You already know it's weak all over. You may just say, okay. We'll just designate this unit. I just don't want you— You want a recipe. I'm trying to talk you out of a recipe. You may sometimes set it by unit. You may set it by sector. Understand, I use that as an example.

Audience: My question is—

Boyd: But in every case, when you set that thing, the thing I'm trying to tell you, in a sense it's going against the guy's weakness. So that sort of sets it, if you have a sort of philosophy going strength against weakness. It's how you're going to set that main effort. Go ahead.

Audience: What's the difference between focus of effort and main attack?

Boyd: Oh, same thing. People use things— The Germans use *point of main effort*. They talk about— We call it *focus of main effort*. Now the Marines like to call— I think it's a better word, *focus of effort* or *focus of efforts*. We're all saying the same thing.

[30:00] Wyly: But that *main attack* word is one where we have to be careful—

Boyd: You have to be careful.

[Cross talk]

Wyly: I mean, you talk about terms having a lot of baggage, see. And that's the term the Marine Corps was using.

Boyd: No, the one thing bad about main attack, Mike's onto something. If it's a main attack, how do you handle it from a defensive viewpoint?

Wyly: Exactly.

Boyd: See schwerpunkt can also be defensive.

Wyly: And also, that's the term the Marine Corps was using way before we even had this focus of effort concept, and so it tends to be kind of shallow. I mean, if you're thinking of main attack the way it used to be in our old FMFMs, I'd say forget it.

[audience begins rapid exchanges with each other]

Audience: I can understand that. But the college, the teaching is quite different [unintelligible].

Audience: Focus of effort, you all in the college, you're going to get FMFM-1 more—

Boyd: And it's focus of effort.

Audience: No more main attack—

Audience: It's focus of effort. FMFM-1, if we'd had it when the year started, we'd have saved an awful lot of agonizing discussions, which we saw. So focus of effort encompasses [unintelligible].

Boyd: But you're going to hear people still want to use the word [in] German [for] schwerpunkt. That's all right. Fine. They're talking about focus of effort or main effort or focus of main effort or— And I tend to like the word focus of efforts better, because what I want to do with effort, guys think well, we only want one thrust. I want the multiple thrusts. So it's focus of efforts, so you have multiple thrusts. So you can pull the guy apart. You'll see that in a few moments.

But don't worry about it. What I'm trying to do is, don't think of it as a recipe. That's what I'm trying to get you out of. It's not always going to be— It's only because we designate this unit. I'm trying to get you out of that. You may do it that way, but there's these other ways.

The key thing is, what you're really trying to do is unwind your adversary. You're assigning it internally, but it's so you can exploit your strength against his weakness. It might be because of the terrain situation. It might be because of the way they've set their units. There'd be a number of reasons why you're going to do that.

You see what I'm getting at? Okay. And that's all I'm trying to tell you. I don't want to take it any— Don't— What I'm trying to do, and you may hate my guts for it, is I don't want you to have a rigid recipe. Because if you start getting rigid recipes, then the guy's going to find out what that is. You would in a sense become predictable, and he's going to pull your pants down. He may not know it in the beginning, but after you do it a couple times, hey,

I'm getting the picture. So then he'll play it against you. He'll use it against you. Go ahead.

Audience: Sir, I see a flaw in this, then. The Germans said they want to teach their officers to think the same way. They train them the same way, and more importantly, to think the same way. And there's an element of prediction—

Boyd: There's a danger. You lay it out. You're going onto something. Go ahead.

Audience: What bothers me is, I'm trained the same way my boss is. I'm trained to think the same way my boss is. The reason he can just say, "Okay, my intent is . . ." and I can take the ball and run with it, is because he knows that I'm going to come to the same damn conclusion on how to carry out—

Boyd: Oh, no, no. Not necessarily.

Audience: Probably.

Boyd: No, no, no. No, no, no.

[Cross talk]

Boyd: If you hear my "Organic Design for Command and Control," when you train your people, if you train across a narrow repertoire, then you'll tend to do it the same way he does. But if you have a wide repertoire, there's different combinations you can use. And so when you try to build this common mind-set, it's across a large variety of different situations.

  And so even though you have one "how" in mind, he may have a different "how" in mind. But you're still under the same framework.

Audience: Well, I'm limited by my assets and by what I've got available to do the job with.

Boyd: So what? I don't care if we have limited assets. There's still more than one way to skin a cat.

Audience: Not to me.

Boyd: If you don't think— Then what you've got, you've got a self-fulfilling prophesy.

Audience: What I'm thinking is that—

Audience: Some can save time though, sir. There's many ways to skin a cat, but some can save time is—

Boyd: I understand that.

Audience: And if speed is most important—

[Cross talk]

Boyd: See, now you're looking for an optimum solution. We couldn't even get an optimum solution when— I was laying out the equations for goddamn trying to optimize airplane designs, and we couldn't do it. And you're going to do it with human beings. That's even tougher.

Audience: But I'm saying there may be a hundred different ways to do it, but there may be one or two or three—

Boyd: There might be a few in there that are better than the others. I agree. But that doesn't mean you're going to do it exactly like he's going to do it.

Wyly: In fact, it doesn't mean that at all. I mean, we're saying look for weaknesses and vulnerabilities. Now, I might find a totally different weakness than you see. I might be able to find one that you would never perceive. Or you might be able to see one that I never would because we think differently. We're two different people.

Boyd: That's right.

Wyly: But we're both going to be looking for those weaknesses. That's the one thing our common commander knows.

Boyd: See, you might see a, because your orientation, because you said it, you may see a physical weakness on a guy. You understand what I'm saying? So you're going to allocate, and you're going to set up your focus of effort or your schwerpunkt, whatever you want to call it, against that.

Whereas, what Mike's saying, he may see, well, the way these guys have behaved before in battle, even though they've got a lot of troops, they're weak units. And in that sense, it's a morale problem, so you're going to direct it against it because he knows they're going to crumble. So he might set it differently than you would. **[34:30]**

MORAL LEVEL OF WAR/GRAND IDEAL
Tape 5, Side 1
[27:41] We want to step up to a higher level. How do we connect these notions, or the theme for disintegration and collapse with the national goal? Remember that other thing we called *theme for disintegration and collapse*, that alternate view. How do we do that? So let's look at that. And these are the kind of things you should be interested in.

One, it should support the national goal. Two, we should pump up— We should set it up so it pumps up our resolve, drains away adversary resolve, and attracts the uncommitted. That's where we lost in Vietnam. We lost at the grand strategic level. We pumped up their resolve, drained away ours, and they attracted the uncommitted. We had to come home. We lost at the grand strategic level. So did Hitler. He had some good tactics. He'd pumped up the other adversary's resolve, drained away— He didn't really drain away his, they held together pretty well. But he did cause—because their operations caused the enemies to attract the uncommitted. He also lost at the grand strategic level.

And you want to end conflict on favorable terms. Obviously,

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                      SLIDE 138

              Raises Question

          How do we connect the tactical and strategic notions
      or the theme for disintegration and collapse with the national goal?
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                      SLIDE 139

         Via a Sensible Grand Strategy that Will:

  • Support national goal.
  • Pump up our resolve, drain away adversary resolve, and attract the uncommitted.
  • End conflict on favorable terms.
  • Ensure that conflict and peace terms do not provide seeds for (unfavorable)
    future conflict.
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                      SLIDE 140

                  Grand Strategy

  Essence
  • Shape pursuit of national goal so that we not only amplify our spirit and
    strength (while undermining and isolating our adversaries) but also influence
    the uncommitted or potential adversaries so that they are drawn toward our
    philosophy and are empathetic toward our success.

  Basis
  • An appreciation for the underlying self-interests, critical differences of
    opinion, internal contradictions, frictions, obsessions, etc., that we as well
    as the uncommitted and any potential or real adversaries must contend with.
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ensure that peace terms do not provide seeds for future conflict, or in the event they do, at least not unfavorably towards you. So if you paste all that together, you can come up with a basis for grand strategy.

Here's the basis for you. You better have this basis, because, otherwise, you're not even going to be able to play that game. Sun Tzu had two-thirds, remember he said, "Know your enemy, know yourself." You got know your enemy, you know yourself, and also, those third parties out there. It's not just a two-cornered stool, it's a three-cornered stool.

Audience: Is this the level above us as military people though?

Boyd: You, as a military person, better understand that, particularly if you get caught in a guerrilla operation.

Audience: I understand. I understand. But how—

Boyd: But the politicians better understand this, otherwise, they can get us in trouble if they start doing the wrong things. If that's your nature of your question.

Audience: But once we're committed, we're well beyond this, and this is out of our hands.

Boyd: Wait a minute. No, no, no. You get in a guerrilla war, like I said, you can get inside the villages, instead of attacking the villages, in a sense, you're playing this kind of a game.

Audience: Sorry, this is proactive? You can do this before the conflict starts?

Boyd: Of course.

Audience: —is what we should be doing, before the goddamn conflict starts.

Boyd: Of course. Before, and even afterward, but it gets tougher afterward. *[30:00]* Your point is well taken. It's harder. But it can still be done. It's got to be done very delicately. But, you know, you can't think of running a couple hundred tanks in there and blowing away villages, because all you're going to do is alienate— You're, pretty soon, it's "that dirty son of a b——h," they're against you then.

Audience: But we should be doing this before the conflict starts, to begin with.

Boyd: Exactly. You know when we should be doing it? Right now.

Audience: Right now.

Boyd: Right now. The answer to your question, absolutely. Right now we should be doing it.

Audience: Not waiting for the conflict to start, when we have—

Boyd: Yeah, you want to get on top of it. Get that leverage. Not only that, you build up friends. Not only that, you're not hosing a lot of people, except the guys you're trying to beat—[Cross-talk]—getting beat.

Audience: Maybe I was getting too much down into the weeds. By the time they send me in, I don't have the opportunity to go into Grenada prior to, and try to make friends, try to get into the village to work with them.

Boyd: That could happen. When you're sent in that kind of op-eration, you've already been given the order to do it. But you can't disobey the order.

Audience: Very true.

Boyd: But then, what that is, that's a screwup on their part be-cause we got pushed into that position to do something like that. In other words, now we're attacking the village, instead of trying to get inside the village. And you can't say, "I'm not going to do it," because they're going to court-martial you. But it's still a screwup. You understand what I'm saying?

Audience: Yes, sir.

Boyd: It's still a screwup. And we got to recognize it. We don't recognize it, we're going to continue to make more and more screwups. That's all I'm trying to say. And so, it's not only know your enemy and know yourself, but also, the third parties out there.

SLIDE 141

Pattern

National Goal
- Improve our fitness, as an organic whole, to shape and cope with an everchanging environ-
  ment.

Grand Strategy
- Shape pursuit of national goal so that we not only amplify our spirit and strength (while
  undermining and isolating our adversaries) but also influence the uncommitted or potential
  adversaries so that they are drawn toward our philosophy and are empathetic toward our
  success.

Strategic Aim
- Diminish adversary's capacity while improving our capacity to adapt as an organic whole, so
  that our adversary cannot cope, while we can cope, with events/efforts as they unfold.

Strategy
- Penetrate adversary's moral-mental-physical being to dissolve his moral fiber, disorient
  his mental images, disrupt his operations, and overload his system, as well as subvert or
  seize those moral-mental-physical bastions, connections, or activities that he depends
  upon, in order to destroy internal harmony, produce paralysis, and collapse adversary's
  will to resist.

Grand Tactics
- Operate inside adversary's observation-orientation-decision-action loops, or get inside his
  mind-time-space, to create tangles of threatening and/or nonthreatening events/efforts as
  well as repeatedly generate mismatches between those events/efforts adversary observes, or
  imagines, and those be must react to, to survive;
  thereby
- Enmesh adversary in an amorphous, menacing, and unpredictable world of uncertainty, doubt,
  mistrust, confusion, disorder, fear, panic, chaos . . . and/or fold adversary back inside
  himself;
  thereby
- Maneuver adversary beyond his moral-mental-physical capacity to adapt or endure so that he
  can neither divine our intentions nor focus his efforts to cope with the unfolding
  strategic design or related decisive strokes as they penetrate, splinter, isolate or
  envelop, and overwhelm him.

Tactics
- Observe-orient-decide-act more inconspicuously, more quickly, and with more irregularity as
  basis to keep or gain initiative as well as shape and shift main effort: to repeatedly and
  unexpectedly penetrate vulnerabilities and weaknesses exposed by that effort or other
  effort(s) that tie up, divert, or drain away adversary attention (and strength) elsewhere.

And understand their culture in all those different countries, so then you can play this game.

And like the gentleman back there—what's your name? If you're not prepared to play that game, you know what my recommendation is? Stay the hell out, because you're only going to muck it up and embarrass yourself before your country and everybody else. Which was your point, the other night. You're going to screw it up, that's all. And the people lose confidence in you, like right now, Christ, we're having a hard time running that Third World operation, because every time you try to think of something like that, when we're trying to help people out, "Vietnam," right away they raise the flag. The very thing you're talking about. They raise the goddamn Vietnam flag, then they all— Everybody starts trembling. "Well, we can't do that." Even though you're right. Okay?

So we paste all that together, now we invert again. Remember, I went from bottom up. Tactics, grand tactics. So now we're going top down. Your national goal. Of course, you already know what

Insight

On one hand, as shown on the previous chart, the national goal and grand strategy tend to be constructive in nature. On the other hand, the strategic aim, strategy, grand tactics, and tactics are destructive in nature and operate over a shorter time frame. In this sense, the upper two and the latter four notions, as expressed, appear to be in disharmony with one another. Yet, application of these latter four strategic and tactical notions permit real leadership to avoid high attrition, avoid widespread destruction, and gain a quick victory. This, combined with shattered cohesion, paralysis, and rapid collapse demonstrated by the existing adversary regime, makes it appear corrupt, incompetent, and unfit to govern. Under these circumstances, leaders and statesmen offering generous terms can form the basis for a viable peace. In this sense, the first two and the latter four notions can be in harmony with one another.

I'm going to say: we got national goal, grand strategy, strategic aim, strategy, grand tactics, and all these groups. So you don't have to read them all.

The point I'm trying to bring out here, if you look at these, the upper two tend to be constructive in nature, yet they operate over a longer timeframe. Whereas, the bottom four, which is— he was sort of alluding to—tend to be destructive in nature, but they operate over a shorter timeframe. So the question is, how do you harmonize these two things that sort of have opposing tendencies? Short term versus long term and constructive versus destructive? You sort of have to— You know, that's the way the world is. You're going to have to face up. How do you deal with that kind of stuff?

And so this little note here, this message under this insight here, is a way of thinking about it. I'll let you read it in a formal sense, and I'll deal with it even more simply after you read it. I'll let you read it first.

[Long pause as audience reads slide]

Boyd: What am I really saying here? Anybody? What am I really saying? What I'm saying is very simple. That if you go in there, and not only get a quick victory, but behave afterward, the people are going to tend to be on your side. Why? Because here, if they spent money over a number of years, building up their defense establishment, and the whole thing collapses away in no time,

Further Elaboration

Up to this point--by repeatedly adding, stripping away, and recombining many
different, yet similar, ideas and thoughts--we have examined the nature of
conflict, survival, and conquest in many different ways. A review and further
manipulation of the ideas and thoughts that make up these different ways suggests
that, for success over the long haul and under the most difficult conditions, one
needs some unifying vision that can be used to attract the uncommitted as well as
pump up friendly resolve and drive and drain away or subvert adversary resolve and
drive. In other words, what is needed is a vision rooted in human nature so noble,
so attractive that it not only attracts the uncommitted and magnifies the spirit
and strength of its adherents, but also undermines the dedication and determination
of any competitors or adversaries. Moreover, such a unifying notion should be so
compelling that it acts as a catalyst or beacon around which to evolve those
qualities that permit a collective entity or organic whole to improve its stature
in the scheme of things. Put another way, we are suggesting a need for a supraori-
entation or center of gravity that permits leaders, and other authorities, to
inspire their followers and members to enthusiastically take action toward
confronting and conquering all obstacles that stand in the way. Such a scheme can
be portrayed as follows:

they're going to think they're a bunch of corrupt b——ds. So you got that working for you.

But if you go in there and come down heavy-handed, you lose it all. You lose it all. Think about it. Remember, let's say our country got invaded and here we spent years, billions of dollars for defense, and somebody came in here and took us over very fast. You'd say, "Those dirty b——ds. They didn't even know how to do it." But then if a guy comes down hard, then you reunify them. In a sense, that's what happened with Hitler against Russia. Remember, they were welcomed in, but then, Hitler came down harder than they— Stalin, they said, "Well, we're going to have a dictator, we're going to have our own." *[35:00]* So it's very delicate. You've got to be very careful. Okay.

Now, let's have a further elaboration. Let's build up to a higher level. Build up a philosophy. Pull it apart, and put it back together again in a different sense. Working up to a higher level. I'll let you read that. In other words, what we're talking about here is what I like to call a unifying vision, or a unifying theme for all this stuff. You can think of tactics, you think of grand tactics, or strategies, goals, but also you want to work a big, huge unifying theme.

[Long pause as audience reads slide]

Okay?

SLIDE 144

Theme for Vitality and Growth

Unifying vision
A grand ideal, overarching theme, or noble philosophy that represents a coherent paradigm within which individuals as well as societies can shape and adapt to unfolding circumstances--yet offers a way to expose flaws of competing or adversary systems.

Ingredients needed to pursue vision

Insight
Ability to peer into and discern the inner nature or workings of things.

Initiative
Internal drive to think and take action without being urged.

Adaptability
Power to adjust or change in order to cope with new or unforeseen circumstances.

Harmony
Power to perceive or create interaction of apparently discon-nected events or entities in a connected way.

Aim
Improve fitness as an organic whole to shape and expand influence or power over the course of events in the world.

And this I call a *theme for vitality and growth*. Remember, we had the *theme for disintegration and collapse*. Now we got a theme for—juxtaposing it, for vitality and growth. Unifying vision. This kind of a thing. Now the Marxist stuff, they had one there for a while, but since then, their system's been tested and it's not holding up. And that was the theme that the world was going to march to. A unifying vision. They were trying to show the flaws in the other systems. You develop that, you better be sure you have that looked at pretty carefully. In other words, you're trying to really build up a super-organic whole. On the other hand, you got to be very careful. You make it too rigid, then you lose these things.

Well, here's the ingredients needed to pursue that vision. Insight, initiative, adaptability, harmony. Those kind of ingredients. Now too often, when people build a unifying vision, they lose this. In the U.S., we're the other way. We tend to have this [references left side of slide, "unifying vision"], and not this [references right side of slide, "ingredients"]. They're sort of opposite—they're sort of in tension with one another. You go one way, you tend to lose

the other. You go the other way, you tend to lose the other. So there might be some times you're like, this is more important, you might lose a little bit. And other times, you want to play this. This is less important. So you're always trying to work that balance. It's an endless game, always trying to work that balance.

Now there was one time when we sort of had the good balance. When was that? I mean, talking about a time of real crisis. World War II, because we had Hitler out there, you see. So we got everybody unified, we can use him as the basis, he's the evil, and therefore, we can still have these two things together. Go ahead.

Audience: That's easy to understand, because we were threatened. We were hit at Pearl Harbor and things like that. But when you take a look at Vietnam, or even the present situation—

Boyd: Note what you just said. No, wait, let's stop. I'm going to let you pick it up. What'd you just say? Go back up what you just said. Very important what you just said.

Audience: When we were directly threatened.

Boyd: You were hit at Pearl Harbor.

Audience: Yes.

Boyd: So what happened?

Audience: Well, we hit back.

Boyd: We used that as a basis to unify. In other words, these guys doing that. That's what I'm trying to tell you. That's why you got to be very careful about being heavy-handed. So if you do something like that, you can unify your adversary. And that's particularly important in guerrilla war. That's why I said, note what you just said. The Japanese unified us. Before that happened, we had "America First" units, we had the German-American Bund,

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┌─────────────────────────────────────────────────────────────────┐
│                        SLIDE 174                                  │
├─────────────────────────────────────────────────────────────────┤
│                        Wrap-Up                                    │
│                                                                   │
│  Message                                                          │
│  • He who is willing and able to take the initiative to exploit   │
│    variety, rapidity, and harmony--as basis to create as well as  │
│    adapt to the more indistinct--more irregular--quicker changes  │
│    of rhythm and pattern, yet shape focus and direction           │
│    of effort--survives and dominates                              │
│                                                                   │
│                         or contrariwise                           │
│                                                                   │
│  • He who is unwilling or unable to take the initiative to exploit │
│    variety, rapidity, and harmony . . . goes under or survives    │
│    to be dominated.                                               │
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┌─────────────────────────────────────────────────────────────────┐
│                        SLIDE 175                                  │
├─────────────────────────────────────────────────────────────────┤
│                        Wrap-Up                                    │
│                                                                   │
│  Game                                                             │
│  • Create tangles of threatening and/or nonthreatening            │
│    events/efforts as well as repeatedly generate mismatches       │
│    between those events/efforts adversary observes or imagines    │
│    (Cheng/Nebenpunkte) and those he must react to                 │
│    (Ch'i/Schwerpunkt)                                             │
│                                                                   │
│                         as basis to                               │
│                                                                   │
│  • Penetrate adversary organism to sever his moral bonds,         │
│    disorient his mental images, disrupt his operations, and       │
│    overload his system, as well as subvert or seize those         │
│    moral-mental-physical bastions, connections, or activities     │
│    that he depends upon                                           │
│                                                                   │
│                          thereby                                  │
│                                                                   │
│  • Pull adversary apart, produce paralysis, and collapse his      │
│    will to resist.                                                │
│                                                                   │
│  How                                                              │
│  • Get inside adversary observation-orientation-decision-action   │
│    loops (at all levels) by being more subtle, more indistinct,   │
│    more irregular, and quicker, yet appear to be otherwise.       │
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that—all that stuff.[9] If you look back in history, I was a young kid at that time and I remember that. And as soon as they did that, the whole country unified. Goddamn it, if they're going to play that kind of game, we're going to kick them in the a——s and win this thing. **[38:46]**

WRAP-UP/FINAL MESSAGE
Tape 5, Side 2

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[9] The German-American Bund (1933–35), or Friends of the New Germany, was an American pro-Nazi, quasimilitary organization most active in the years immediately preceding the United States' entry into World War II.

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                     SLIDE 176
 ╭──────────────────────────────────────────────────╮
 │                    Wrap-Up                          │
 │                                                     │
 │ Implications                                        │
 │ • In a tactical sense, these multidimensional interactions suggest a spontaneous, │
 │   synthetic/creative, and flowing action/counteraction operation, rather than a │
 │   step-by-step, analytical/logical, and discrete move/countermove game. │
 │                                                     │
 │   - In accepting this idea, we must admit that increased unit complexity (with │
 │     magnified mental and physical task loadings) does not enhance the spontaneous │
 │     synthetic/creative operation. Rather, it constrains the opportunity for these │
 │     timely actions/counteractions.                  │
 │                         or put another way          │
 │   - Complexity (technical, organizational, operational, etc.) causes commanders │
 │     and subordinates alike to be captured by their own internal dynamics or │
 │     interactions--hence they cannot adapt to rapidly changing external (or even │
 │     internal) circumstances.                        │
 │                                                     │
 │ • In a strategic sense, these interactions suggest we need a variety of possibili- │
 │   ties as well as the rapidity to implement and shift among them. Why? │
 │                                                     │
 │   - Ability to simultaneously and sequentially generate many different possibili- │
 │     ties as well as rapidly implement and shift among them permits one to │
 │     repeatedly generate mismatches between events/efforts adversary observes or │
 │     imagines and those he must respond to (to survive). │
 │                                                     │
 │   - Without a variety of possibilities, adversary is given the opportunity to read │
 │     as well as adapt to events and efforts as they unfold. │
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[22:44] Here's the message, so I'm giving you a little wrap-up here.

I'll just summarize what we've done here in about 10 minutes, and then—

[long pause as audience reads slide]

You want— My point is, do you want to be [the] hoser or the hosee?

In continuing that then, here's the game we're sort of playing. Use that as a basis to do this, thereby you can realize that, and how you do it. Quite simple when you put it all up. Note that word again, penetrate, to sever his moral— And see what I'm saying? Probably should have underlined it, but I don't like underlining all the time. Without the penetration, you can't get there from here, is what I'm trying to tell you. Well, you know, one thing we ought to keep, we obviously got to be more indistinct, and more irregular.

Why did we go to camouflage uniforms, why do we not wear, you know, red coats and white trousers, and all that? Because, you

know, you're kind of revealed. What you try to do is you try to blend into the background, that's why we wear that. There's other ways of blending into the background, to operate in an irregular fashion so they can't do it to you. You want to do all the things you can do so the other guy can't discern what you're up to.

And frequently change what you're doing, so you're always giving a screwed up picture of what's going on. Don't let your troops get comfortable, because then you're going to get sand-tabled. They're going to want to get, oh I've got [unintelligible] once again, while you're there, the enemy recce's [reconnaissance] always working a problem on you, in a patrol action. They're going to start knowing your outlines and they're going to start to figure out how, where your weakness are, they're going to be able to penetrate that and cause you problems. But if you're moving about, you're giving, you're screwing up their mental picture all the time.

[25:00] That's what you turn to, so you can pull them apart, produce, and do this. Okay?

I'll let you read this chart, then I want to talk to this one, this is important, the implications behind this. You all want to understand in a tactical sense, these multidimensional interactions suggest a spontaneous, synthetic/creative, and flowing rather than a step-by-step, analytical/logical, and discrete move/countermove game.

And, of course, the two dashed statements below that are related. In other words, what I'm saying, without that, if you don't get the fingerspitzengefühl, you get all these goddamn procedures and checklists, these complicated plans, well what is it going to do, [makes raspberry sound] just grinds you down, slows you down, slow as molasses in January. So put it another way. Complexity— I don't care whether it's technical, organizational, operational—that causes commanders to be captured by their own internal dynamics or interactions, hence they cannot adapt to rapidly changing external, or as a matter of fact even internal circumstances. On the other hand, war is complicated. So you're going to have, you're going to tend to have complexity. How do you get around that?

Because remember, you want to have the variety and rapidity, so how do you get around it? That's what we've been talking about now, for two days. And this is the third day.

How did I say get around that? Come on, you know the answer. You just won't feed it to me. I told you about the fighter pilots doing all that. You take groups of people, have them work together, and throw them against a whole bunch of different situations. And pretty soon it becomes part of them. In other words, that's the fingerspitzengefühl they build up. And with the fingerspitzengefühl, once you have that, in a sense then things don't look so complicated.

You know a basketball game, to the uninitiated, the way all that stuff happens it looks complicated, but the guys in there, Christ, they're blowing everything. Do you understand what I'm saying? Same thing. And it can be done. We know it can be done, the Germans did it with some of their commanders and troops.

Audience: I think a real good example of that is, that everybody here is familiar with, is Pegasus Bridge, where [British 6th Airborne Division's Major John] Howard went in and they practiced over and over and over again every night, night after night after night. Attacking this [Caen Canal] bridge and knocking out the Germans that were there, and so they could almost do it in their sleep. And when they actually—

Boyd: They didn't even have to think about it.

Audience: That's right.

Boyd: Because it was in their subconscious.

Audience: It was a piece of cake, once they— They just knew what to do.

Boyd: No matter how the other guy adjusted, they were on top of it; they just keep getting on top of it. You've experienced that, do you ever notice when you're— Some days when you're in some kind of

a sport, with a lot of complicated, and all of a sudden, everything seems to jell, no matter— In fact, you ever notice when you're good at something, everything else seems like it's in slow motion.

Did you ever get that feeling? I used to get it when I fly the fighter, everything was really good, everything else just seemed very slow to me, and you're just carving that son of a b——h up, going after the other guy, whipsawing in here, and I've heard ground troops say the same thing. It's just that, Guderian said that, get that feel, that fingerspitzengefühl, and you've got everything, you just know it, and you're adjusted. [German General Hermann] Balck, same way, he kept saying you gotta have that fingerspitzengefühl, all the time.[10]

And that's what we're talking about here. In a strategic sense, these interactions suggest we need a variety of possibilities, so the other guy can't get wise, rapidly implement, and why? Ability to have these and generate many different possibilities, and permits one to repeatedly generate those mismatches. You want to get mismatch on top of mismatch on top of mismatch. In other words, you really want to screw up his image of the world. Or give him multiple images of the world. Because what does that do? Doubt, uncertainty, paralyzes his counteractions, etcetera. And if you don't have a variety of possibilities, you give him the opportunity to read into what you're doing, which means then you're not going to do too good, in fact, you're going to get your head handed to you. So that's why you've got to have variety, rapidity, harmony, initiative, you see what I'm saying? All plays together.

Audience: Sir, you said one thing, you have to have the feel all the time.

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[10] Balck was a highly decorated German officer who commanded multiple panzer forces on both the western and eastern fronts during World War II. He was one of several former German officers with whom Boyd talked while he was assigned to the Pentagon during the late 1970s and early 1980s. Boyd frequently references the book *Panzer Battles*, which recounts several armored engagements in which Balck fought. See MajGen Friedrich W. von Mellenthin, *Panzer Battles, 1939–1945: A Study of the Employment of Armour in the Second World War*, trans. H. Betzler, ed. L. C. F. Turner (New York: Ballantine Books, 1956).

Boyd: Well, sometimes you may be surprised.

Audience: If you lose it, hopefully you—

Boyd: But you want to get it back.

Audience: Come back, yes, sir.

Boyd: And there's another thing I hate, and we talked about it in the car today coming back. I've heard people say I'll never be surprised. I just start laughing, that's horse sh———t. Because now they have a perfect image of the world, and never going to be surprised. You're going to get surprised, you'd like to minimize it. What you want to do is set yourself up so when you're surprised, you can adjust to it, and get back on top. You're going to get surprised, you can't say you're not going to be. That's a horse sh———t argument. The question is, can you cope with it? And if you've learned how to do all these different things, you start gathering yourself together to try to get back and you may have some problems. But you gather yourself together and get back on top of it.

Audience: I guess your example you use about the basketball team, you have to fight to say time out, time out.

Boyd: Yeah.

Audience: Be patient enough to work through it.

Boyd: That's right.

Audience: It's hard too.

Boyd: But I heard guys say, you know, I've heard it, I say get the hell out of here, that's bulls———t. *[30:00]* In other words, you're God, you're a perfect human being. That's baloney. Have you ever heard guys say that they're not going to get surprised, they're going to set themselves up so they are never going to be surprised,

Wrap-Up

- Alternatively--by stripping away and recombining some of the comments associated with "Clausewitz," "Grand Tactics," "Message," "Game," "How," and "Implications"--we can say:

  - *Variety/rapidity* allow one to:
    - Magnify adversary friction hence stretch out his time to respond in a directed way.
  - *Harmony/initiative* permit one to:
    - Diminish own friction hence compress own time to exploit variety/rapidity in a directed way.
  - Altogether *variety/rapidity/harmony/initiative* enable one to:
    - Operate inside adversary's observation-orientation-decision-action loops to enmesh adversary in a world of uncertainty, doubt, mistrust, confusion, disorder, fear, panic, chaos . . . and/or fold adversary back inside himself so that he cannot cope with events/efforts as they unfold.

- Simultaneously--by repeatedly rolling through O-O-D-A loops while appealing to and making use of the ideas embodied in "Grand Strategy" and "Theme for Vitality and Growth"--we can:

  - Evolve and exploit *insight/initiative/adaptability/harmony* as basis to:
    - Shape or influence events so that we not only amplify our spirit and strength (while isolating our adversaries and undermining their resolve and drive) but also influence the uncommitted or potential adversaries so that they are drawn toward our philosophy and are empathetic toward our success.

huh? I know some of you have heard it. I can't believe you haven't. I've heard people say it and I just laugh. Now if you want to say we want to set ourselves up so we're not surprised all the time, you want to diminish the possibility of it, that's a different thing. But nevertheless, you've got to be expecting, when you get a surprise you're going to get on top of it.

Okay, so now let's look at all these things— Look at all these things we've been talking about, Clausewitz, grand tactics, strategy, and that; remember variety and rapidity, what does that allow you to do? Variety and rapidity, in other words, we're throwing variety and rapidity at our adversary. It allows you to magnify adversary friction, stretch out his time to respond in directed ways. It will take him longer to cope.

Harmony and initiative, what that permits you to do is diminish [your] own friction, compress [your] own time and exploit that variety and rapidity, because you're trying to build up this fingerspitzengefühl to a higher-level harmony, so you can exploit that relative [to] your adversary.

So if you glue all that together—variety, rapidity, harmony, and initiative together—it allows you to get inside his OODA

loop. Put uncertainty, doubt, mistrust, confusion, and all that stuff we've been talking about into his system, or fold himself back inside himself, so he can't cope with events as they start rolling over him, and just start scarfing him up.

And simultaneously, by looking through these things, evolve and exploit insight, initiative, adaptability as the basis to shape or influence events, etcetera. In other words, we're looking at it from a destructive viewpoint up here, and a constructive viewpoint down here primarily.

You see the two different themes? There's constructive themes and there's destructive themes. Sometimes you have to use destructive themes, or you have to use destructive themes in conjunction with constructive themes. Not just "we're going to bomb the bastards back to the Stone Ages." Because then they get mad and they fight longer and harder. Okay? **[32:14]**

EPILOGUE ON PRINCIPLES OF WAR
Tape 5, Side 2

[33:00] Okay, now let's go on my epilogue.

Remember what I told you, after I've gone through this, and thought about all of this, then mentally, not that I wanted to, I sort of started juxtaposing these things as the principles of war, the stuff we've been uncovering. And I was a little bit disturbed. So, it left me a little bit unsettled so I want to take them head-on. So let's illustrate it by looking at some principles of war.

And these aren't always the same, these all weren't drawn up at the same time. They were drawn up at different times, but you'll see in a minute, it feeds my argument.

For USA, you've seen these, United Kingdom, in fact ours are very similar to the United Kingdom, because actually we got them from J. F. C. Fuller and we've modified it a little bit, but ba-

Comment

- Reflection upon the previous discussion and reflection upon the various princi-
  ples of war that are bandied about leave one unsettled about the real value
  associated with these principles.

- To illustrate, let's take a look at some of the principles of war (or military
  art).

Principles of War

United States	United Kingdom	Soviet Union	France
• Objective	• Aim/goal	• Mobility/tempo	• Concentration of efforts
• Offensive	• Coordination	• Concentration	• Freedom of action
• Mass	• Offensive	• Surprise	• Economy of forces
• Economy of forces	• Freedom of action	• Combat activeness	
• Maneuver	• Concentration	• Preservation of combat effec-tiveness	
• Unity of command	• Economy of efforts		
• Security	• Surprise	• Conformity of goal/plan to actual situation	
• Surprise	• Security		
• Simplicity	• Morale	• Coordination/in-terworking	
	• Control of rear		

sically are about the same.[11] And the Soviet Union— But notice the Soviet Union, where we don't have anything about speed or tempo, their first one is mobility and tempo. Where the hell did they get that? Because they got their head handed to them by the first part of the blitzkrieg, they didn't have it before World War II.

Audience: Didn't Fuller, after he wrote the "Principles of War," shortly afterward says all this is a bunch of—

Boyd: Yeah, after he put it together, he said, when he saw people

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[11] MajGen John Frederick Charles Fuller was a British Army officer and volumi-nous writer of military history and theory. He planned major tank operations for the Allied armies against Germany in the last two years of World War I, and this experience led him to devise more advanced theories on armored warfare which, ironically, were extensively studied by German officers between the world wars and became part of the basis for the Nazi blitzkrieg of World War II. Fuller's list of "principles of war" was first published in *The Foundations of the Science of War* (London: Hutchinson, 1926).

were using it, he says toss it out, it's bulls——t. And then guess what we did, we went for it even harder. That's exactly right, that's exactly what Fuller did. I'm glad you mentioned that.

Wyly: In fact, J. F. C. Fuller waited years before he said toss it out, it's bulls——t. He kept changing them, and I think it was in 1925, we looked at them, and adopted them, and they've stayed in concrete ever since. So then he changed them for several years, and then finally, threw them all out.

Boyd: Yeah.

Wyly: And the American ones and the British ones initially looked exactly the same—

Boyd: I think they were exactly the same.

Wyly: In fact, ours lasted longer; we kept his old ones longer than the British, the British list in 1925 would have been just like our list.

Boyd: Yeah.

Wyly: And ours stayed in concrete the longest.

Boyd: Now these were drawn up in the Soviet Union right after World War II. And any— How many— Some of you people might have read some of those— Used to have translated documents, *The Operational Art*, *[35:00]* they've got them listed in there, you know, the book by Savkin.[12] Are you familiar with the book I'm talking about by Savkin? And that's where they're laid, you can just look and you can see them all. And he has long goddamn dialectic conversations on them, most of it's horse sh——t, but you know, if they don't get— I think it's about if they don't have

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[12] V. Ye. Savkin, *The Basic Principles of Operational Art and Tactics (A Soviet View)* (Moscow: USSR Ministry of Defense, 1972).

one-third of their document full of dialectical materialism, they won't publish the thing.

And so you've got to work your way through all that baloney. It's terrible stuff to read. You know, every time I read that stuff, I got to sit there every five minutes and say, "hang in there, Boyd, it's going to [get] better," knowing it's not. [audience laughter] Knowing that it's not, it's terrible. Drink a lot of coffee, [and say to yourself,] "Come on, tiger, it's going to get better." I'm giving myself a pep talk, knowing that it's never going to get any better. I got to deceive myself. And then France, you'll see this, concentration of efforts, freedom of action, and economy of forces. In fact, they had different ones in their country. They argue about the, you know, the typical French, you know, different factions are going to have different principles of war.

And then, of course, the Germans—they might have them now—they didn't even have any. Well, isn't that interesting? They didn't even have principles. I don't know whether they do— Do they have them now, I don't even know?

Wyly: Not that I know of.

Boyd: They might, I figured after they might have learned from us, but they don't even have principles. So the question is, you know, will the real principle stand up? Who's right or who's wrong, or what are we talking about here? And here's my critique.

Second bullet is the important bullet. In other words, you know, Newton's second law of motion is not different for different countries, it either fits or the goddamn thing doesn't fit.

My point is, instead they seem to me to be some kind of a goddamn laundry list or checklist you're going through. I don't know what the hell else you'd use them for. To put it mildly, I'm very turned off. Not only that, they've got them mixed up. Let me go back to the list again. [flips back to slide 181] Christ, they've got input mixed up with output and all that. You look at it, they've got it all— This is us, this is us, or we'll take this one, we get objective, offensive, mass, maneuver, security, surprise. That's output. Some of them are your input, then they got output— They can't even

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Critique

- A list of principles does not reveal how individual principles interact or the mechanism for doing so.
- Scientific laws and principles are the same for all countries and tend to change little over time. On the other hand, we note that the principles of war are different for different countries and change more dramatically over time. Furthermore, they do not make evident the importance of variety/rapidity/harmony/initiative as basis to shape and adapt to circumstances--a necessary requirement for success in the uncertain and everchanging environment of conflict or war.
- This would suggest that the principles are not principles. Instead, they seem to be some kind of a (shifting) static check off laundry list of what should be adhered to.

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Alternative Possibility

- With this critique in mind, if we still feel we need some guidance, why not evolve statements that reflect the essence of conflict dynamics in a connected sense

  or put another way

- Why not collect appropriate bits and pieces and assemble them in a coherent way to present a more satisfying picture.

separate the input from the output. Surprise is what you're getting the other guy, concentration is what you do. Same with Soviet Union—mobility, tempo, and surprise, output. I mean that's what you're trying to get out of your adversary. Mobility, that's you.

So the whole thing is all gomered up. That's my point. You see what I'm getting at? What do you do and what are you trying to get out the other guy? So it's— Let's put it this way. It's not too well thought out. Not very well thought out.

In any case, maybe there's an alternative possibility, way to think about this stuff. Not only that, I wouldn't get too keen on some of these scientific principles, because they're blowing a lot of them over right now. They've got stuff you know, the super— Superconductors, you know. They had theories to explain that, and now they don't explain it. They get turned over too, not as frequently, but they get turned over. Or maybe not the whole thing, but certain aspects of it.

But here's an alternative, maybe we can come up with some-

Appropriate Bits and Pieces

- Compress own time and stretch out adversary time.
- Generate unequal distributions as basis to focus moral-mental-physical effort for local superiority and decisive leverage.
- Diminish own friction (or entropy) and magnify adversary friction (or entropy).
- Operate inside adversary's observation-orientation-decision-action loops or get inside his mind-time-space.
- Penetrate adversary organism and bring about his collapse.
- Amplify our spirit and strength, drain away adversaries', and attract the uncommitted.

thing that might help us. In other words, putting a— Why not do this? If we need some guidance, then we evolve statements to reflect at least the conflict dynamics and some kind of a connected sense, where it plays together.

Or put it another way, why not collect appropriate bits and pieces and put them together in a coherent whole? In other words, let's do an analysis and a synthesis and see what we've got. There's a way of doing it, we've already done it, we've just got to look at it.

So I'll do it in a simplistic fashion. You want to keep things simple. First of all, I think we want to compress our time and stretch out adversary time. Or do you want to do it the other way? Do you want to stretch out your time and compress his? You're going to get taken to the cleaners if that's the case.

You want to generate unequal distributions as [a] basis to gain superiority and leverage against him. We just see that piling up all the time. You want to diminish your own friction, or if you want to think like a modern, twentieth-century guy, diminish your entropy while pumping his up, his friction or entropy. In fact, that goes right along, friction and time. You pump up your friction, you're going to stretch out his time. If you diminish your friction, you diminish your time for doing things, see what I'm saying? They go together.

So the more I can put friction in the other guy's system, the longer it is going to take to get his act together to do something. You're going to give him more and more delays, whether it be mental, whether it be moral, whether it be physical, or combinations thereof. And as a result of doing all these things then, that

permits you to get inside his OODA loop. If you don't do this, you're not going to get inside his. Or get inside his mind-time-space.

[40:00] All this together then allows you to penetrate his organism and pull him down and bring about his collapse. And that's the destructive side. The same time, you want to amplify our spirit and strength, drain away his, and attract the uncommitted. **[40:09]**

APPENDIX B

Seminal Articles on Maneuver Warfare in the *Marine Corps Gazette*

The following article excerpts are reproduced here with the permission of the Marine Corps Gazette, *for which the author is grateful. The excerpts have been reproduced here as originally printed, though revised to conform with style standards for grammar, spelling, and punctuation consistent with the rest of this work.*

First Lieutenant Stephen W. Miller, "Camouflage and Deception," *Marine Corps Gazette* **59, no. 12 (December 1975): 25–29.**
Camouflage and deception have been, throughout history, a means for the out-manned but shrewd commander to gain a more equal balance of combat powers. They are a haven to any force faced with massed firepower, a seemingly unalterable threat to survival. The use of camouflage must extend beyond the front lines, deep into the rear areas, and hinder the enemy's ability to gather intelligence "indicators" that will point to our course of action.

Today, countries facing manpower and economic limitations are turning to smaller, more sophisticated armed forces to accomplish the same mission. Yet this streamlining and large-scale technological sophistication has made each man and piece of

equipment that much more vital to the total effort. They are fewer and more expensive. Similarly, weapons systems have grown more efficient. However, no delivery means can be any more effective than its compatible surveillance and target acquisition effort. Without a target, the most devastating and accurate weapon is worthless. Today, we face a surveillance threat which goes beyond the traditional visual, photo, and infrared means. It also encompasses radar, thermal detection, microwave, and ultraviolet photography, which can be air, ground, or satellite based. With the advent of laser and TV-guided projectiles, wire-guided missiles, radar bombing, and advanced day and night sighting systems, target acquisition has been developed to the point that anything seen and recognized can be destroyed.

Yet, all this sophisticated surveillance has one common denominator. It relies on the human eye, either directly in application by an observer or gunner, or indirectly as by a photo interpretor [*sic*]. Thus, the effect of camouflage is to be inconspicuous rather than invisible. Camouflage must resemble its surroundings and most of all not appear to be that which it is. Even if discovered, one must still present the most difficult identification problem possible and foil reacquisition. A pilot who [cannot] find specific targets, even knowing their general location, cannot be effective. It is that confusion and hesitation that should be fostered in a camouflage effort. Time is [of] the essence. Time to react, to gain surprise, to enhance our own survivability, and [to] increase the effectiveness of the combat power presented to the enemy.

. . .

An enemy who does not know the dispositions or intentions of his opponent is greatly disadvantaged. He must spread his efforts or choose one course of action without sufficient supporting intelligence.

It is our option to choose where, how, and when we will act. To mass our forces against his weakest point and, with speed and surprise, smash the force opposing us before they can react. Thus, through camouflage and deception, we can take the advantage. Though disadvantaged in numbers and faced by sophisticated weapons systems, it is still possible to negate their effectiveness,

minimize our losses, and increase our decisive combat power to win.

Captain Stephen W. Miller, "Winning through Maneuver: Part I—Countering the Offense," *Marine Corps Gazette* **63, no. 10 (October 1979): 28–36.**

Throughout history commanders have won battles with limited resources by out-maneuvering the enemy on his own battlefield.

Since the beginning of recorded history, wars have been waged by armies with commanders of various caliber. Some commanded well and were successful. Others did not and were defeated. All of the most successful commanders revered today for their skill, knowledge, and abilities had one common trait. They demonstrated an intuition into their enemies' actions. Yet often it was not intuition at all but rather the culmination of long hours of meticulous study of their adversaries' tactics, organization, and weapons, which allowed these successful leaders to establish their enemies' weaknesses and strengths. Using this insight, they modeled their own armies and their tactics and organizations to capitalize on their enemies' disabilities while accentuating their own strengths.

Impressively, these commanders won their battles, though outnumbered, in hostile countries with all factors seeming to predict against success. Through the use of maneuver, Alexander the Great, Julius Caesar, Gustavus Adolphus, the Duke of Marlborough, Fredrick the Great, and [Nathan] Bedford Forrest committed their strengths against their more numerous opponents' weaknesses and thereby achieved victory. They disrupted their enemies' states of balance, using surprise and the unexpected. Each fostered confusion, disorder, and uncertainty on his enemy. Thus, these commanders gained a moral ascendancy over the opposing commanders and their armies and with it achieved decisive victory.

. . .

How then will the Soviets react to an amphibious assault? Their current doctrine relies heavily upon the mobility, firepower, and speed of armored and motorized rifle (mechanized) battalion-

and regimental-size groups to close rapidly with and overrun invading forces before they can establish themselves ashore. Should this prove unsuccessful, a Soviet-style force will attempt to pen [*sic*] the invasion force into its beachhead, containing and isolating it by using high volumes of fire until it is weakened and ripe for an armored *coup de grace*. Considering the quantity of indirect fire weapons and attack aircraft; the effectiveness, range, and numbers of air defense weapons; and the threat of sea- and land-based antiship cruise missiles which such an enemy can bring to bear on amphibious shipping, a beachhead-confined landing force would find itself progressively restricted. As the enemy builds up his combat assets, they will infringe increasingly upon the landing force's airspace, helicopter approach routes, amphibious transport area, and transfer area offshore. This stranglehold will cause increasing difficulty for air and naval supporting forces. As it loses its freedom of action, the landing force will evolve rapidly from an asset into a liability. Pinned into its beachhead, the landing will resemble the hollow investment of a Gallipoli or Anzio, which consumes resources on a geometric scale just to maintain a status quo.

The Soviets' initial actions will be an effort to liquidate the landing force. It will initially develop as a meeting engagement characterized by rapidly moving forces, indefinite intelligence, and successive hasty attacks by enemy forces of increasing size. Should these attacks fail to penetrate the landing force combat elements, the enemy force may revert to a defensive posture designed to hold the invasion force in place while larger additional units move into position for a renewed, more deliberate assault.

The landing force cannot permit this massing, giving the enemy time to organize a deliberate attack. From the time it hits the beach, the landing force must maintain mobility and react with speed and superior firepower on the enemy's most vulnerable points. The execution of an assault from the sea provides the Marine commander with the initiative. His every subsequent effort must ensure he maintains that initiative. To lose it, faced by the enemy's high mobility and massed firepower, will predicate disaster.

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The massive destruction of men and materiel or the holding

of ground is not the objective, nor are they required. Neither can ensure victory at acceptable cost. In fact, an obsession with either will destine failure. The main effort must focus on the enemy's greatest weakness. The goal of the landing force is to sow confusion and disorder. Uncertainty and fear must be fostered among the enemy commanders and troops. The highest priority must be given to the destruction of command facilities, supporting arms and combat trains.

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Through the high tempo of operations, constant shifting of forces and fluid, flexible action by ground and air elements working in close harmony, the Soviet-style enemy will rapidly lose control, cohesion, and momentum. With a loss of higher direction and a seemingly unpredictable foe able to undermine any action, disorder and paralysis occurs, leading to panic and a collapse of the Soviet opponent's capacity and will to resist. The friendly force must emphasize superior speed, mobility, and tactical unity. The commander must acquire reliable and continuous intelligence while denying the same to his enemy. He must have superior mobile communications and units, which are logistically independent in the short term, to provide resupply flexibility, with only essential logistics located forward.

Captain Stephen W. Miller, "Winning through Maneuver: Conclusion—Countering the Defense," *Marine Corps Gazette* **63, no. 12 (December 1979): 57–63.**

. . .

The use by the landing force of firepower and direct force alone to achieve a decision could lead to an attrition conflict, where success favors the Soviet defender. To win, the landing force must employ maneuver and mobility. Firepower must be used only after the way has been prepared psychologically and then only as a means to reinstate maneuver. A preceptive deception program, combined with selective counterreconnaissance and command center neutralization, supplies a distinct advantage in shaping the enemy's image of the impending assault. Here again, tactical surprise is the object, furnishing the assault with a decisive advantage by keeping

the opponent off balance and retarded in reaction. Deceived as to the true point of impact, the Soviet defensive forces will be misplaced and unable to counter the assault effectively.

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The origin of maneuver doctrine is not recent. It was the basis for the successes of both Alexander [the Great] and Genghis Khan. It was first described in the writings of the eighteenth-century author/generals [Maurice] Saxe, [Pierre-Joseph] Bourcet, and [Jacques-Antoine-Hippolyte, comte de] Guibert. It has been expounded since by military writers such as J. F. C. Fuller, Heinz Guderian, and more recently in the unpublished works of Colonel John Boyd, USAF (Ret), father of the energy management approach to air combat tactics (who placed it into the analytical model popular today). Its theory is equally applicable to regular or guerrilla warfare, to tactics or to strategy and to air-to-air or ground conflict. As yet, it has not been applied to the amphibious assault, however, the circumstances now exist which necessitate this application. Outnumbered on most potential fronts, opposed by an increasingly sophisticated world arsenal and faced by the escalating costs of equipment and weaponry, an appreciation of the potential of maneuver warfare by amphibious forces is vital. This comprehension wedded with the ground mobility offered by today's technology supplies the capacity to bring maneuver to its highest progression and effect. Maneuver doctrine can propel the Marine Corps into the twenty-first century where it will again, as in World War II, provide the leadership to this revolution in warfare.

William S. Lind, "Defining Maneuver Warfare for the Marine Corps," ***Marine Corps Gazette*** **64, no. 3 (March 1980): 55–58.**

. . .

Maneuver warfare refers to an overall concept or "style" of warfare. It has an opposite, the firepower-attrition style.

Firepower-attrition is warfare [based] on the model of Verdun in World War I, a mutual casualty inflicting and absorbing contest where the goal is a favorable exchange rate. The conflict

is more physical than mental. Efforts focus on the tactical level with goals set in terms of terrain. Defenses tend to be linear ("forward defense"), attacks frontal, battles set piece, and movement preplanned and slow.

In contrast, maneuver war is warfare on the model of Genghis Khan, the German blitzkrieg, and almost all Israeli campaigns. The goal is destruction of the enemy's vital cohesion—disruption—not piece-by-piece physical destruction. The objective is the enemy's mind, not his body. The principal tool is moving forces into unexpected places at surprisingly high speeds. Firepower is a servant of maneuver, used to create openings in enemy defenses and, when necessary, to annihilate the remnants of his forces after their cohesion has been shattered.

Maneuver conflict is more psychological than physical. Effort focuses more on the operational than on the tactical level. The goal is set in terms of destroying the enemy's forces, not seizing terrain seen a priori as "key." A defender places only a "tripwire" forward and relies on counterattacks into the flanks and rear of enemy penetrations. "One up and two back" is the rule. Attacks ooze through and around enemy defenses. Battles are usually meeting engagements. Rates of advance are high. Movement is constant, irregular in direction and timing, and responsive to fleeting opportunities.

A key to understanding maneuver war is to realize that not all movement is maneuver. Maneuver is *relational* movement. Maneuver is not a matter simply of moving or even of moving rapidly. Maneuver means moving and acting *consistently more rapidly* than the opponent.

Recently, the concepts behind maneuver war have been organized and expanded into an overall theory of conflict. This theory was developed by Colonel John Boyd, USAF (Ret) and is appropriately known as the "Boyd Theory."

Colonel Boyd was the father of energy management air combat tactics. More recently he has devoted himself to studying the nature of conflict in general. He observed that in any conflict situation all parties go through repeated cycles of observation-decision-action. The potentially victorious party is the one with

an observation-decision-action cycle consistently quicker than his opponent's (including the time required to transition from one cycle to another). As this party *repeatedly* cycles inside his opponent, the opponent finds he is losing control of the situation. Because of his longer cycle time, his reaction is facing a later action by the faster party than that which it was intended to oppose. Instead of achieving convergence with the first party's action, he finds himself facing ever-widening divergence. Suddenly, he realizes there is nothing he can do to control the situation or turn it to his advantage. At that point, he has lost. Often he suffers mental breakdown in the form of panic and is defeated before he is destroyed physically.

The Boyd Theory is the theory of maneuver warfare. In maneuver war, if the enemy is destroyed physically (and often that is not necessary), that is not the decision but merely the outcome. The real defeat is the nervous/mental/systemic breakdown caused when he becomes aware the situation is beyond his control, which is in turn a product of our ability consistently to cut inside the time of his observation-decision-action cycle.

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How does the Boyd Theory and its application to ground warfare, maneuver war, relate to the Marine Corps? It is relevant, because maneuver war is the most promising tool for the side with fewer numbers and less weight of metal. In many scenarios, Marines are likely to be outnumbered in men and materiel. An attrition contest is not promising for the outnumbered force, while maneuver makes quantitative factors less important by striking at the enemy's mind.

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Maneuver war relates directly to the probable main mission of the Corps during the remainder of this century, supporting the United States' friends in the Third World.

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In many potential Third World scenarios, the Marine Corps faces an opponent superior in numbers and in materiel—possibly quality as well as quantity of materiel.

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Indeed, the force multiplier effect of maneuver warfare should be more striking against a Third World opponent. While Third World armies may be large, well-equipped, and competent at operating their weapons systems, they are likely to be tactically and operationally inflexible. Third World nations can produce some highly competent officers and planners, as the Egyptians demonstrated in the canal crossing in 1973. But they are not likely to have many such officers, and flexibility may be lacking in field forces. The impact of maneuver warfare, with its emphasis on speed, surprise, and the creation of unexpected situations, could be devastating. Such has been Israel's experience in several wars with her Third World neighbors. However good the prewar planning and set-piece operations of the Arabs, the Israeli maneuver style of warfare triumphed dramatically once the situation became fluid. The reason was not that Israeli equipment was better or that Israeli troops were more courageous, but that Israeli field forces showed great flexibility. Their opponents did not.

It is sometimes mistakenly thought that maneuver warfare automatically means armored warfare. To be sure, foot infantry cannot fight effective maneuver war in open terrain. But in rugged terrain, maneuver concepts apply fully to infantry warfare. Indeed, maneuver war was first manifested in the West in this century during World War I by German foot infantry in so-called infiltration "von Hutier" or "soft-spot" tactics.

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A shift to maneuver warfare offers a major challenge to Marines. But it is an exciting challenge, especially for company and field grade officers. In maneuver warfare, the responsibility placed on company and field grades increases dramatically. The key to maintaining a rapid observation-decision-action is to make all decisions on the lowest possible level, the company and battalion level. This is one of the fundamental principles of the German army and is central to their concept of mission orders tactics (*Auftragstaktik*). Mission orders tactics require company and field grade officers to understand the concepts of maneuver war and of the operation in which they are engaged. Only through a solid con-

ceptual understanding can they hope to make the right decisions on their own as events occur in the field.

There is no question Marines can meet the challenge. By adopting a maneuver concept of war, they can give the United States the capability it needs to defend its vital interests outside Europe. And by performing that task, the Marine Corps can assure itself a solid mission of unquestionable value.

Captain G. I. Wilson, Lieutenant Colonel Michael D. Wyly, William S. Lind, and Major General Bernard E. Trainor, "The 'Maneuver Warfare' Concept," *Marine Corps Gazette* 65, no. 4 (April 1981): 49–54.

By Captain G. I. Wilson:

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What does maneuver warfare mean to the Corps? What does the maneuver style of war hold in store for Marines? These questions were best addressed by William Lind in his *Gazette* (March 1980) feature, "Defining Maneuver Warfare for the Marine Corps." Lind's presentation should be read, reread, and weighed carefully by all Marines both Regulars and Reserves, for the concept of maneuver warfare may be the very essence of the Corps' future. The firepower-attrition approach with its "artillery conquers and infantry occupies" thinking cannot be employed effectively in scenarios where the enemy has numerical and materiel superiority. What, then, is this "maneuver warfare" concept that offers the most viable alternative to firepower-attrition concepts?

The key element of maneuver warfare is the disruption and disorganization of the enemy rather than a fixation with the kill-this-and-kill-that syndrome. The maneuver style of war is more psychological in its destruction of the enemy, whereas firepower-attrition war is more physical. With maneuver warfare, the precept is to create for the enemy as many unanticipated and threatening situations as possible, while at the same time seeking out tactical advantages on the battlefield. This seeking out of advantages will require the use of opportunity tactics coupled with bold aggressive action and individual initiative. Marines employing maneuver warfare concepts will have to possess the capability to go anywhere

on the battlefield they choose, creating a myriad of rapid, unexpected, and threatening events for the enemy as they go.

By creating a rapid sequence of unanticipated multiple events to which the enemy cannot react effectively or keep up with, the enemy's cohesion is shattered. The enemy perceives he has lost control and becomes the victim of disruption, confusion, and disorganization. This rapid chain of unexpected events, which the enemy finds impossible to cope with effectively, is in concert with the "Boyd Theory" as described by Lind in his previously mentioned article.

In addition to creating this turbulent environment, which overloads the enemy's "observation-decision-action cycle," maneuver warfare requires that reserves be used to reinforce success and exploit opportunity tactics. To accomplish this, the combat commander (especially at the lower unit level) will need to have the ability to take well-calculated risks when the opportunity arises.

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To be effective in combat, where a Marine unit will likely be pitted against an adversary with a preponderance of combat power, may require the adoption of the maneuver warfare concept. The characteristics of the battlefield of the future will include great speed and destruction; see-and-hit weapons of extreme accuracy; and lightweight, highly mobile weapon systems. Freedom of movement on the battlefield will be enhanced, and distances will become less important with advances in technology. To cope with the characteristics of future battlefields, it may be necessary to consider an alternative to the firepower-attrition style of warfare. The answer will be maneuver, for firepower-attrition will not measure up to the challenge.

Does the Corps lend itself to the maneuver warfare concept? Yes, it does, given its fairly small size, flexibility (land, sea, and air capabilities), and present technology favoring lightweight, highly mobile weapons.

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Along with flexible command and logistics, the need to develop the Marine's ability to perform independently on the spur of

the moment and use his individual initiative will be indispensable in the scheme of maneuver warfare. Combat commanders will have to use initiative, aggressively seize opportunities, and issue mission-type orders to subordinates to impose a turbulent environment on the enemy. Once the enemy perceives that he can no longer influence the action effectively, he is beaten. This is often more psychological than physical.

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With the Corps deploying units to various parts of the world and the increased probability of Marines facing a numerically superior force, maneuver warfare may offer the only substantial hope of success in combat. It will be up to the individual Marine leader to act immediately upon receipt of mission-type orders. The concept of maneuver warfare is generally thought of in terms of armor and this can be misleading. Maneuver warfare can be applied to the infantry. Mechanization alone does not necessarily mean maneuver warfare.

. . .

Moreover, maneuver warfare can logically be applied to the Corps' amphibious capability. There are Third World scenarios where an amphibious projection of combat power within a maneuver warfare concept would prove extremely valuable, even if only deterrent in nature. General Barrow in the *Armed Forces Journal* (November 1980) pointed out the following:

> True usefulness of amphibious capability begins with the *deterrent* aspects, even from the day of loading out. Because there's no accurate forecast of where you're going and what you're going to do, and there's no dependence on bases and overflight rights that require your commitment to be one that you can't call back. The deterrence aspects of being in a given region or nearby a scene of some crisis merits better understanding. A decision to conduct an amphibious operation is always done with a full understanding that you're going to have air superiority, and that you're going to land in a place and time of our choosing, not the enemy's. You do not choose to

land where he's strongest—you choose to land where he is weakest and where he's less likely to reinforce quickly.

The Marine Corps must anticipate combat against forces steeped in Soviet doctrine, superior in numbers and materiel, and with logistical support near at hand. Even though outnumbered, Marines can with the maneuver warfare concept exploit the enemy's vulnerabilities and win decisively. The time is now for actively accepting, teaching, and training for maneuver warfare. What is desperately needed is a doctrinal publication on maneuver warfare, a manual of maneuver war!

By Lieutenant Colonel Michael D. Wyly:

. . .

We seem to be focusing on the wrong thing. The signal comes whenever I hear an officer saying, "our air strike will attrite their armor" or "our forces have been attrited."

. . .

"Attriting the enemy" too often becomes the central activity toward which every effort is directed. Tactics are ineffectual when they focus on the wrong objective. After all, a force that is attrite but full of tenacity and wisely employed is more formidable than an opposing force, fresh, without attrition, but timid and unwisely employed against a poorly selected objective.

Attrition is not even relevant to winning or losing. It is but one of many factors that bear on the course of war. Our war games should focus on meaningful things, such as *destruction*, not attrition. We *destroy* the enemy when we destroy his will to resist. We will need much more than attrition to destroy his will, unless he is woefully short on resolve.

. . .

If we are amusing ourselves with bean counts of friendly and enemy casualties in our exercises, we are guilty of the same crime for which I blame commanders who ordered their troops to risk their lives counting dead enemy bodies in the Vietnam War. The name of the crime is waste. The count does not mean anything.

Where you strike the enemy does. By skillfully selecting objectives, you can throw him off balance so that he cannot pick himself back up. You can destroy him by attacking his command and control or his logistic lifeline. You cannot destroy him by attrition.

The key is concentrating on the right objective. When we attack our objective, we most certainly must inflict casualties ruthlessly. We may have to accept as many casualties as we inflict. What counts is that we destroy the enemy in the right place and control something that he cannot do without. Then, when he is off balance, we may exploit and pursue until he is defeated beyond recovery.

. . .

Let us consider history. The Soviet Union lost 8.6 percent of its population, killed, in World War II. Some 13 percent of its population had been mobilized and 34 percent of those mobilized were killed. The Soviet Union did not lose its will to resist. Germany did. Germany's casualties were lighter, whether you measure percentage killed or raw numbers. Germany lost only 5 percent of its population, killed. Of the 14 percent that was mobilized, only 31 percent died. In raw numbers, 3,250,000 German soldiers were killed in action or died of wounds, compared to 7,500,000 Russian soldiers, who met the same fate. No matter how you look at it, then, the Soviet Union, the winner, suffered more casualties than Germany, the loser. . . . Although Germany singlehandedly inflicted tremendous casualties on the Soviets, she failed to find and strike the decisive point. The Soviets' will to win never faltered.

. . .

Did attrition defeat us in Vietnam? One thing is certain. Attrition did not defeat the North Vietnamese, who lost far more men that [*sic*] we did. Our Marines unquestionably had still the will to resist, right through the day of their departure. If attrition broke the American will at home, we ought to consider a bit of Napoleon's philosophy. That is, never enter a war that you are unwilling to see through to its successful conclusion, even when winning means expenditure of resources.

. . .

If indeed, then, we mean to place great emphasis on the body count or how the computer "attrites" our forces, we probably should not be tampering with a thing so demanding as war. If we have become preoccupied with thought of attrition, we would be better off drafting our surrender instead of preparing to fight. For if we do not win, and we will not without being strong in the face of losses, then attrition will amount only to waste.

I use the term, body count, because I hope that it emphasizes the folly of the attrition game. I do not, however, mean that the folly of the game stops at counting bodies. Counting dead tanks, downed aircraft, or damaged artillery is equally misleading. In the 1973 War, Israelis repaired disabled Egyptian tanks and put them to use against their enemies. Likewise, German and British tanks changed hands between both sides in the North African desert in 1942. Our country's abortive raid in Iran in 1980 failed as a direct result of our preoccupation with numbers of men and machines. The victory goes to the side that has the resilience to replace and repair its losses, or do without. It goes to the side that can use the enemy's equipment against him and that knows where to strike to destroy the enemy's will.

Nothing that purports to measure success in combat . . . is worth its cost if it ignores the value of surprise, deception, attacking the flank as contrasted against the front, striking weak points compared to strong. One should look intently at the value of an attack on the enemy's command and control with electronic warfare, and the effects on us if he attacks ours.

Do we need to count casualties to learn how to employ economy of force? Of course not. You apply economy of force by keeping your reserves out of the battle until the decisive moment.

Napoleon said to find a single point, the decisive point, concentrating our power there to create a situation where the "equilibrium is broken and the rest is nothing." Clausewitz said "in war, the aim is to disarm the enemy." [General William T.] Sherman said to put the enemy "on the horns of a dilemma." All three saw their principles applied against their enemies, whose forces crumbled. Let us use the war game and the computer, therefore, not to count casualties. Instead, let them help us to discover where the

decisive point is, what disarms our enemy when denied him, and what dilemma can put him on its horns.

As for attrite as a verb, let us not politely discourage its use. Pounce on it. Jump up and down on it. Forbid its mention. And, *destroy* it.

By William S. Lind:

Major General Trainor's article, "New Thoughts on War," [in the] December 1980 *Gazette* makes some good points. His warning against attrition warfare is particularly important, since many Marine officers seek guidance from Army FMs, which express a firepower-attrition doctrine. Some Marines may absorb a fire-power-attrition mind-set from these FMs without realizing they are doing so.

However, a few questions do need to be raised about some of General Trainor's views:

. . .

Maneuver. I must disagree with General Trainor when he defines maneuver as "physically disposing the enemy at a disad-vantage to himself and an advantage to us." This definition is too narrow, in that it fails to portray maneuver as a continuous, psy-chological as well as physical process. It is also unclear, in that it could be read to mean, "maneuver is getting the enemy in a posi-tion most advantageous to my firepower, and least advantageous to his."

Maneuver is best understood as a continuous process of change in both reality and appearance whereby the enemy's ac-tions and counteractions are rendered irrelevant in time and place. Both General Trainor's definition and the definition of maneuver as getting into good firing positions are valid subsets of maneuver warfare, but they cannot be seen as its entirety.

. . .

I must also disagree with General Trainor's statement that, "battle itself must be sought, because war is a killing game . . . only physical punishment (will break the enemy's will to resist)." This cannot be stated as a rule, because whether it is valid or not de-pends on the specific opponent. Some opponents will only break

after being punished physically, but for others, being outmaneuvered may suffice. . . . War is not a killing game, it is a game to defeat the enemy, which may or may not require much killing, depending on circumstances.

. . .

Finally, I suggest there is a danger in saying, "superiority in the six factors of modern warfare will lead to victory." The only formula for victory is to recognize there are no formulas. Everything must be relational to the specific opponent in the specific time and place. We can develop understandings of what generally leads to success, but not formulas or check lists. We must see tactics as a process, combining learned techniques with an educated understanding of the art of war, all applied in a unique way to the unique circumstance that is each opponent, each battle. This is *not* a prescription for a "gut reaction" approach to the battlefield, for a view that says, "since there are no formulas, each commander's hunch is as valid as any other approach." Rather, it is a call for education as opposed to rote training, for developing the "sense" for opportunities and enemy weaknesses so often shown by German commanders. Not every officer can do it. But as General Balck has remarked, "In the last analysis, military command is an art: one man can do it and most will never learn. After all, the world is not full of Raphaels either."

By Major General B. E. Trainor:
True to form, Bill Lind has contributed to the dialogue on war in the modern world. I am grateful for Mr. Lind's development of the thoughts expressed in my essay on the six factors of warfare. I view most of his comments as an extension of the essay rather than a contradiction. For example, there is nothing incompatible between "physically disposing the enemy at a disadvantage to himself and an advantage to us" and rendering the enemy's actions and counteractions "irrelevant in time and place."

. . .

As for my view that war is a "killing game," I plead guilty to being a hostage of my Service. Marines never seem to fight enemies who capitulate when the rules of chess would so dictate.

Until we do, I still think it is wiser for an enemy to know that we intend to kill him, not psych him.

"Extracts from OH 6-1: Fundamentals of Maneuver Warfare," *Marine Corps Gazette* **72, no. 4 (April 1988): 50. Focus on the enemy; not on terrain objectives.**
Act more quickly than the enemy can react. Maneuver warfare is as much a mental approach to warfare as it is a physical one. The essence of maneuver warfare is to make and implement operational and tactical decisions more quickly than the enemy. However, this does not mean making rash decisions and executing incomplete plans. The commander who generates a faster operational tempo gains a significant advantage. He seizes the initiative and dictates the course of battle until the enemy is overcome by events and his cohesion and ability to influence the situation are destroyed. General A. A. Vandegrift wrote: "Positions are seldom lost because they have been destroyed, but almost invariably because the leader has decided in his own mind that the position cannot be held." In order to facilitate the necessary operational tempo, the commander should decentralize tactical decision making, make effective use of mission-type orders, and make his intent clearly understood.

Support maneuver by fire. Firepower supports maneuver by suppressing and disrupting enemy forces, or physically destroying the remnants of enemy units whose cohesion has been destroyed.

. . .

Avoid enemy strength and attack enemy weakness. The commander bypasses located enemy strength—sometimes described as surfaces—and exploits enemy weaknesses—also known as gaps—attacking aggressively at key locations where he can achieve local superiority. He seeks to attack at an unexpected time and place and from an unexpected direction. Enemy weaknesses may take the form of physical gaps between enemy units or may take the form of inferior mobility or firepower, inefficient command and control, lack of initiative or flexibility on the part of commanders, poor night-fighting capability, discernible tactical

patterns, or any identified characteristic that can be tactically exploited. Attacks follow the course of least resistance into the enemy flanks and rear.

Exploit tactical opportunities developed or located by subordinate units. This technique, sometimes known as "reconnaissance pull," is the means by which the commander attacks enemy weakness. In this manner, the course of battle is shaped by subordinate units. Higher commanders must maintain the flexibility and agility to react quickly and decisively to fleeting opportunities created by his subordinates. Operations should be fluid and continuous, each operation based on a previous success. Exploitation should be immediate and relentless, offering the enemy no respite until his total collapse is achieved.

Always designate a main effort. The main effort is the most important task to be accomplished, that task on which the overall success of the operation depends at that instant. The commander assigns the main effort to a subordinate unit, which he provides with the necessary combat power and support. Through the main effort, the commander provides focus to the decentralized efforts of his command. All elements of the command must understand and support the main effort. The decisions of where to locate his main effort and when and where to shift it are among the most important and most difficult decisions a commander must make in combat.

Avoid set rules and patterns. The enemy must not be allowed to anticipate tactical events or he will seize the initiative. Each combat situation is based on different circumstances and requires a unique approach. Leaders must take an imaginative, practical approach to solving tactical problems. They must not fight according to checklists.

Act boldly and decisively. Commanders at all levels must be able to deal with uncertainty and must act with audacity, initiative, and inventiveness within their commander's intent to seize fleeting opportunities. When fighting a numerically superior enemy the commander must be willing to take prudent risks, especially when there is the opportunity for a significant gain.

APPENDIX C

Critiquing Boyd

While John Boyd has long been charged with never writing anything down, that is not entirely true. Certainly Boyd did not formally publish any of his work, but his pen was never idle. Among the things he wrote were responses to critiques of his various presentations, and one of the most insightful examples of these are the handwritten thoughts he wrote in the margins of an unpublished essay by Roger J. Spiller.

Spiller, a longtime historian and instructor at the Army's Command and General Staff College in Fort Leavenworth, Kansas, wrote an 18-page review of the "Patterns of Conflict" brief, titled "Critique of John Boyd's 'Patterns of Conflict'," which he sent to Boyd for his comment.[1] Comment Boyd did; and this appendix reproduces those excerpts of Spiller's essay that Boyd believed demonstrated Spiller's misunderstanding of "Patterns of Conflict." These excerpts, and Boyd's commentary, are included here to give the reader a flavor of Boyd's personality, but also to show how Boyd revealed his own insights as he fought back against misperceptions regarding his ideas from an early date. While Spill-

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[1] This paper is located in folder 9, box 5, Col John R. Boyd Papers, Archives Branch, Marine Corps History Division, Quantico, VA.

er's essay is undated, Spiller began working at the Command and General Staff College as an associate professor in 1978; Boyd's planners show several visits to that college beginning in 1980; and in Boyd's commentary, he refers to another critical essay written by Jay Luvaas in 1981. Thus, Spiller likely heard "Patterns of Conflict" and wrote his critique about the same time as Luvaas in 1981, or shortly thereafter.

"PATTERNS OF CONFLICT" REVIEW EXCERPTS AND BOYD'S HAND-WRITTEN COMMENTARY

. . .

Spiller: "The organization of this critique does not follow the organization of Boyd's presentation, although within each major part I intend to preserve the evolution of Boyd's lecture."

Boyd commentary: *"He does not, as will be shown."*

. . .

Spiller: "OODA is an acronym for Observation, Orientation, Decision and Action. The foundation of the OODA loop is to be found in the aerial combat of the Korean War between the MIG-15 and the [North American] F-86 [Sabre]."

Boyd commentary: *"No—OODA loop came from work and anomalies associated with evolution and flight tests of YF-16/17."*

. . .

Spiller: "The basic data that gave rise to the OODA loop hypothesis has never been openly challenged; however, there apparently is classified information that may call these conclusions to question. During our conversation, Boyd indicated that he was aware of this information, and he discounted the possibility of its adverse impact on his view."

Boyd commentary: *"Information I was referring to were the U[niversity] of Chicago['s] work on Korean War."*

. . .

Spiller: "The provenance of Boyd's theory is important. During

a later part of his lecture, Boyd argues that one's orientation pre-conditions one's views. That point is very well taken, and could be applied to Boyd himself. I believe that Boyd's early work in both the actual and theoretical aspects of aerial combat has preconditioned him to a particular view of warfare and thereby substantially colors his later work."

Boyd commentary: *"He cannot use this and his view is that it came from the F-86/MiG-15 rather than YF-16/17 tests."*[2]
. . .
Spiller: "The friction that so animates land combat reveals only a negligible presence in air-to-air combat. Aerial combat lends itself rather more easily to abstraction, if only because it is relatively simpler and so can be presented in a doctrinally 'pure' form. By contrast to land warfare, aerial war has something of the quality of a gentlemanly duel."

Boyd commentary: *"Air-to-air . . . warfare is a great deal more involved so he has missed this point."*
. . .
Spiller: "Boyd would argue that this interpretation places entirely too much weight upon his own history, that he has since risen above this pre-conditioning by virtue of his more recent studies. I would reply simply that it is in the nature of perspective that we are all too often led to views without realizing the impact upon us of such forces . . . the OODA loop is an interesting concept, arrestingly presented. That is why the OODA loop seems to permeate Boyd's entire lecture."

Boyd commentary: *"He couldn't know since Spiller is under the impression that the idea came from the F-86/MiG-15 days. Furthermore he is defending Luvaas's incoherent diatribe."*[3]

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[2] For the purposes of this appendix, the emphasis seen in the original notes had been underlined by Boyd.

[3] Boyd is referring here to another unpublished essay critiquing "Patterns of Conflict," written by Jay Luvaas, a professor of military history at West Point, in 1981; this essay is cited in chapter 5.

. . .

Spiller: "Boyd has categorically rejected this criticism, arguing that the OODA Loop was merely a starting point, not meant to establish an overarching theme into which selected historical examples were made to fit. My opinion is that Boyd does not declare this important point with an emphasis sufficient to avoid misleading his audience."

Boyd commentary: *"Wass de Czege in comments at West Point about my work didn't get hung up like Spiller did."*

. . .

Spiller: "But what separates Boyd definitively from both casual and professional students of history is his influence. Because he has influence, because he is listened to in important quarters, he thereby takes on the most serious obligation of the most serious historian—to be scrupulously accurate and complete and reasoned in his approaches, his research, and in the communication of his findings."

Boyd commentary: *"He is preoccupied with accuracy, yet he has built his argument on my uncovering the OODA via F-86/MiG-15."*

. . .

Spiller: "Boyd is the latest in a long line of military theorists (mostly in the modern period) who have employed military history in a search for the Rosetta Stone of battle."

Boyd commentary: *"Spiller you are using the Rosetta Stone, not me."*

. . .

Spiller: "As Bernard Brodie rightly points out in his last essay on Clausewitz, that theorist as well as Jomini had revived the ancient practice of arguing to the ideal. One need only isolate and then recombine the constituent elements of the idea."

Boyd commentary: *"What is my ideal?"*

. . .

Spiller: "Boyd takes what I regard to be an excessively flexible approach to historical fact and interpretation. He argues that his-

tory is by nature selective (his word). I argue that history is discriminating, and that this is not an irrelevant distinction."

Boyd commentary: *"If it is so discriminating, then how come you cannot get it right— 'selective,' his word not mine!"*

. . .

Spiller: "Early in the presentation, Boyd offers the Mongol army's operations under Ghengis Khan as a demonstration of the theories of Sun Tzu."

Boyd commentary: *"Distortion."*

. . .

Spiller: "This is the picture . . . that can be found in the work of Harold Lamb and Lynn Montross. But it is an oversimplified picture of this army and its accomplishments."

Boyd commentary: *"I was more impressed with the title 'Devil's Horsemen'—my spelling would indicate that."[4]*

. . .

Spiller: "Boyd uses for effect the word 'horde,' implying that this was the description the Mongols' enemies gave to an army that seemed to them to embody insensate violence and irresistible combat power."

Boyd commentary: *"Not true, I am familiar with fact [that] 'horde' was related to order."*

. . .

Spiller: "Boyd then introduces his audience to the battles of Leuctra, Cannae, and Leuthen."

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[4] Boyd is evidently referring to the book *The Devil's Horsemen: The Mongol Invasion of Europe* by James Chambers, first published in 1979. The "spelling" Boyd references is how he referred to the Mongol leader in his slides as "Chingis Khan" as opposed to one of the many other variations commonly used.

Boyd commentary: *"Incorrect."*[5]

. . .

Spiller: "The first of these are ancient battles, and as such bear special burdens, for very little of substance is known of them."

Boyd commentary: *"Once again we find Spiller scholarship lacking."*

. . .

Spiller: "Boyd then uses Leuthen to demonstrate what he argues is a variation on the single envelopment, the oblique attack or the attack by echelon. But the attack by echelon is (at least as it was played out at Leuthen) not an enveloping attack or even a flanking attack and in my view has more to do with the attack on the 'point of unequal distribution' that Boyd discusses later in the lecture."

Boyd commentary: *"Incorrect, unequal distribution brought out before a la* Leuctra etc.*"*

. . .

Spiller: "Therefore, much of what I heard at this point of the lecture struck me as being misdirected."

Boyd commentary: *"How would he know, he hasn't* got it right *yet—Why? Because he is misdirected."*

. . .

Spiller: "With so much talk about doctrine today, it is easy to be misled about its real effect on the battlefield. I asked Boyd how much he thought about doctrine when he was in aerial combat over Korea. I suggested that if he was thinking about anything, it was probably the last conversation he had with his comrades in the ready room concerning air-to-air tactics. He agreed."

Boyd commentary: *"There was* no formal doctrine as such *at that time, only formation arrangements and favorite maneuver. What he doesn't*

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[5] In "Patterns of Conflict," Boyd first introduces Leuctra and Cannae, then the Mongols, and finally Leuthen.

know [is that] I already had worked a few ideas which I evolved from my own experiences and conversations with others.”

. . .

Spiller: “Boyd is particularly interested in Clausewitz’ [*sic*] remarks on friction, remarks which take up about three pages in about six hundred, a proportion which suggests what Clausewitz himself thought about the subject.”

Boyd commentary: *“Totally incorrect—he has* many more *pages.”*

. . .

Spiller: “Boyd further criticizes Clausewitz because he ‘incorrectly stated’ that the center of gravity in a formation corresponds to the center of the mass.”

Boyd commentary: *“He used center of gravity in a* scientific sense— *then said it applied to war as an analogy—not as you have stated (which is incorrect).”*

. . .

Spiller: “It seems unfair to criticize Clausewitz on strictly modern grounds, therefore. Modern armies may (and most do) have multiple ‘centers of gravity’ that are vulnerable to attack. I am less sure about the armies of Clausewitz’ [*sic*] day.”

Boyd commentary: *“I did not use multiple centers of gravity but ‘many non-cooperative or conflicting centers of gravity’.”*

. . .

Spiller: “[Boyd] constructs an analogy between friction in war and the 2nd Law of Thermodynamics. Yet, throughout his lecture, Boyd stresses the mental (in our conversations, he used the word ‘temporal’) aspects of conflict in association with the physical. This analogy, then, does not bear up under standards of scrutiny set by Boyd himself, for the 2nd Law addresses the physical world, not the ‘temporal’ world in which so much of Boyd’s war takes place.”

Boyd commentary: *“Incorrect, I didn’t construct an analogy but said in some sense he anticipated the modern statement of the 2nd law.”*

. . .

Spiller: "I have suggested to Boyd that Jomini is much more con-
genial to his ideas than Clausewitz, and that by looking at Rob-
ert E. Lee's and Winfield Scott's use of Jominian practices, some
interesting insights could be found. To summarize my objections
to Boyd's treatment of these two theorists, I think his statement
that their major flaw was that they saw operations from the top
down is misleading. So did everyone else during this period. So
do professional armies today. . . . The hierarchical model is a very
compelling one, and very difficult to break out of. Few people at
any time are able to do it."

Boyd commentary: *"Since Spiller hasn't understood my work so far he
wouldn't know."*

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