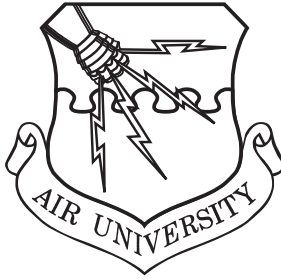EDITED BY DONOVAN C. CHAU

STRATEGY MATTERS

ESSAYS IN HONOR OF COLIN S. GRAY

Strategy Matters
Essays in Honor of Colin S. Gray

Edited by Donovan C. Chau

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Contents

PART 3

STRATEGY, STRATEGISTS, AND THE FUTURE

Foreword

Antulio J. Echevarria II

One volume of acclamatory essays describing the influence of the late professor of strategic studies Colin Gray (1943-2020) would not do him justice. Fortunately, this volume, consisting of essays by several of his former students, adds admirably to the many tributes published since his death. Taken collectively, this volume and the other contributions give us a truer picture of his legacy. For Colin's peers, that picture is often one of an intellectual sparring partner.[1] For his students, the portrayal naturally centers on his effects as an intellectual guide and mentor. The most consistent theme running through the contributions in this volume is that of intellectual rigor; Colin taught his students to push the boundaries of an issue and not to settle on facile answers: to think, rethink, and think again. Indeed, perhaps the best evidence of a successful career one could have lies not in the institutes one has established, or the strategic concepts one has expounded upon, or the articles and books one has written, but rather the many students whose thinking one has shaped. That is a living rather than a static legacy.

Colin and I first met in the late 1990s at the Marine Corps University in Quantico, Virginia, where he was delivering a lecture on Carl von Clausewitz. Colin surprised me by favorably quoting part of my analysis of the Prussian theorist. So began a mutually respectful relationship that included some modest intellectual sparring. We remained in touch over the years, meeting for lunches or dinners and exchanging ideas through letters and electronic media (computers never failed to exasperate him). Colin also regularly contributed manuscripts to the US Army War College's External Research Associates Program, which I oversaw as the director of research. We were pleased to publish him. Some months before Colin's death, I had the pleasure of interviewing him for a project on great power competition. He was as sharp as ever, and as entertaining and gracious as always. He obviously knew his days were limited. Nonetheless, he and his lovely wife, Valerie, chose to concentrate not on his dying, but instead on their living. Some months after his death, while sifting through the archives at the University of California, Los Angeles, I came across several letters the young Colin had written to the then-eminent nuclear strategist and limited war theorist, Bernard Brodie.

Colin's tone was impertinent and openly challenging of Brodie, who endeavored to sidestep the challenge. But the young Colin, who "took no prisoners" (to borrow a prevalent phrase of his) persisted until he received a satisfactory reply. Colin's temperament had clearly mellowed by the time I met him.

Over the course of his professional life, Colin contributed to the fields of nuclear strategy and arms control, to sea power and naval strategy, and to general military strategy. He also served as a strategic advisor to more than one US administration, in addition to being an intellectual leader in the International Institute for Strategic Studies, the Hudson Institute, and the National Institute for Public Policy. But more than an anonymous voice in the background, Colin also left a mark as a prolific writer, having authored dozens of substantive works. We may liken him to the sixteenth-century French jurist and writer, Jean Bodin, who left a legacy as a synthesizer of political philosophy. Three works published during the last two decades of Colin's life—*Strategy and History: Essays on Theory and Practice* (2006); *War, Peace, and International Relations: An Introduction to Strategic History* (2007); and *The Strategy Bridge: Theory for Practice* (2010)—are similarly synthetic in their treatment of strategy.

Despite, or because of, his voluminous output, Colin's critics have complained he merely rewrote the same book multiple times. There is some truth to that claim, as his works return to many of the same themes. Yet these themes also reflect Colin's penchant, perhaps subconscious, for thinking of rendering strategy as an ideal, an ideal replete with multiple dimensions, each requiring further explication and refinement. His was a Sisyphus-like struggle indeed. For he ended up with a metatheory, a theory of strategic theory that was more philosophical than practical, more perfect with each refinement but increasingly less novel. The same held true of his characterization of the ideal strategist, the "hero" of *Strategy Bridge*. Colin saw Clausewitz, whom he often referred to as the "great one," as that strategist. No stranger to the thinking of Thucydides, Sun Tzu, or the rest of the strategic canon, Colin nonetheless upheld Clausewitz as a nearly perfect strategic genius. Fatefully, however, ideals are goals worth striving for but, ultimately, and, by definition, unreachable.

The title of this volume, *Strategy Matters*, can be read as a double entendre. Its first meaning is strategy is important. But the word "matters" can also be read as a noun, referring to the matters, or

staples, of strategy. Each essay proves, moreover, that while ideals may be unreachable, the reaching itself is worthwhile.

Notes

1. Lawrence Freedman, "Strategy's Evangelist," *Naval War College Review* 74, 1 (Winter 2021): 13–24. The issue contains four illuminating articles on Colin Gray's contributions to our understanding of strategy. Other notable tributes can be found in the *US Army War College Quarterly, Parameters; The North Texas Security Review*; and a two-volume collection by the National Defense University in Washington, DC.

Introduction

Donovan C. Chau

It was around happy hour in mid-March 2005. In a plain conference room in a global hotel chain on a corner in Arlington, VA, Colin was giving a talk, "What Do We Know About Future Warfare?," as a part of Johns Hopkins University's Applied Physics Laboratory Colloquia Series. The room was full of the usual Pentagon crowd, not surprising since it was only a few blocks away. There were a few think tank wonks there as well. Brice and I strolled in fashionably late, attempting to go unnoticed. But Colin would have none of it. After he got a glimpse of his students, he immediately drew the crowd's attention to our tardiness as we were attempting to find seats and said, "Ah, now that my students have arrived, I can begin my talk in earnest." This drew hearty chuckles from the suits, gray beards, and uniformed personnel.

It was, and will be always, a unique privilege to be a former PhD student of Colin S. Gray.

What did we learn that March evening along the Potomac? The future is not knowable. There is no such thing as "the foreseeable future." There never will be. Ergo, we will never truly know what warfare will be like in the future. This was the paradox of the topic itself, "future warfare." But, we do know there will be strategic adversaries in the future and, therefore, war and warfare will likely occur in the future. The contradictions and ironies were no doubt tough on the ears of Pentagon defense planners and strategists. But that was Colin. And this was part of his herculean task of providing strategic wisdom to an astrategically-minded US defense establishment. Much has changed in the world since that March 2005 evening in Arlington. Yet, the nature of war, human nature, and the paramount role of nation-states in the world have not.

The topic and the setting of Colin's talk exemplify the substance of his life's work—strategy—which is also the theme of this volume. What is strategy, how does it work, why, and who cares? For anyone who has read Colin's work or heard Colin speak, this theme is as much about Colin's analyses as it is about his explications of the great Prussian strategic genius, Carl von Clausewitz. So did he tend to mention Clausewitz? Yes, and so much more.

It is this latter part (*so much more*) that only Colin's PhD students have had the privilege and opportunity to know and experience first-hand. In my own endeavor to understand grand strategy, especially the strategic instrument of political warfare, Colin introduced me to so much more—obscure works by Adda Bozeman, Frank Barnett, Carnes Lord, and Paul Smith.[1] With his vast storage of strategic knowledge, he provided seeds for our intellectual growth. Ultimately, though, it was up to us to do the real work: To create an argument anew, or at least provide a different answer to an old question.

My own pursuits eventually led me to examine Communist China's strategic actions on the African continent during Mao Zedong's times. While Colin never once claimed to be an expert on China (not that anyone can really be considered a "China expert"), I believe he recognized something unique about my research on China, something clearly with strategic and policy implications; this was 2004–2005, after all. In my PhD research about grand strategy and China, I eventually caught the proverbial "Africa bug," which led to my future research about security and insecurity on the continent, especially in East Africa. But all along the way, I continued my studies of strategy in international politics, especially the importance of geography, strategic history, and strategy's practical applications. In short, I sought to bring a strategic mindset to my study of Africa. Colin was always with me as I sought to understand China and Africa.

Over the years, I heard Colin speak more frequently in private and small group settings than in large public gatherings. Regardless, there was always a sense of civility bestowed upon Colin's audience. Never once did one feel an arrogance which is so commonplace in western Ivory Towers and the Washington, DC, Beltway, especially from those that claim to be experts in strategy and security. While Colin's analyses and critiques could be considered direct and even sometimes biting, his dialouge was always respectful, even gracious. This kindness and wit likely rubbed off on many of his PhD students. For me, it was more the former than the latter.

This collection of essays in honor of Colin—this *Festschrift*—is personal. Apart from the Foreword, all contributions were written by Colin's former PhD students—from Europe, the United States, and Asia. Each is unique, providing a glimpse into Colin's intellectual impact and influence on his students while also providing interrogatories of his works and analyses, by his students. Topics span the breadth of the theme of strategy that Colin examined over the course of his

lifetime—strategic education, strategic history, strategic culture, strategic technology, and strategic practice. In various ways, the essays in this volume take long views and short views of strategy, looking at strategic minutiae, reflecting on the parts as well as the whole of strategy.[2] It is difficult to say if Colin would approve of this collection, but we believe he would appreciate the endeavor. After all, while one may always strive for strategic excellence, sometimes good enough strategic performance will do.

Colin, we hope these are good enough—they are for you.

Notes

1. Adda B. Bozeman, *Strategic Intelligence and Statecraft: Selected Essays* (Washington, DC: Brassey's, 1992); Frank R. Barnett and Carnes Lord, *Political Warfare and Psychological Operations: Rethinking the US Approach* (Washington, DC: National Defense University Press in cooperation with National Strategy Information Center, 1989); and Paul A. Smith, *On Political War* (Washington, DC: National Defense University Press, 1989).

2. This sentence is an homage to Mahan. See A. T. Mahan, "The Problem of Asia, I," *Harper's New Monthly Magazine* 100 no. 598 (March 1900): 536.

Part 1

Strategy, Education, and History

Chapter 1

Educating Strategists

Colin Gray and the School of Advanced
Air and Space Studies

James D. Kiras

Introduction

This chapter explores some of the challenges of professional military education (PME) as they relate to the teaching of strategy and the approach to educating strategists at the Air Force's premier school for strategy. At first glance, PME and strategy appear as uneasy bedmates. Much of this reflects connotations of both words. This chapter suggests that while there are challenges in teaching strategy within the Department of Defense, it is in fact being done and, in at least one case, done in ways recognizable by Colin Gray. For the purpose of this chapter, PME and, in particular, Joint PME (JPME), is defined clearly in the United States Code (U.S.C.), Title 10, Chapter 107 as "consisting of the rigorous and thorough instruction of officers in an environment designed to promote a theoretical and practical in-depth understanding of joint matters and specifically, of the subject matter covered."[1] While the definition of PME is clear and codified in the law of the land, that for "strategy" is anything but. The Department of Defense (DOD) defines strategy as "a prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives."[2] The School of Advanced Air and Space Studies (SAASS), as an Advanced Studies Group school chartered by the Chief of Staff of the United States Air Force, lies within the realm of PME generally but outside of the specific requirements of JPME.[3] The school, for example, has the flexibility not to have a prescribed definition of strategy.[4] In keeping with the spirit of this chapter and volume, and given the ubiquity of Colin Gray's writings in curricula throughout JPME, I draw on his definition: "The direction and use made of means by chosen ways in order to achieve desired ends."[5]

With the definitional formalities complete, this chapter approaches the question of a military school for strategy along three different

lines. The first is briefly reviewing a number of the challenges associated with PME. The primary challenges relate to tension inherent in the twin functions of the term itself. "Professional military" suggests functional if not relevant vocational training while "education" intimates more open-ended, philosophical inquiry. The tension within PME feeds into another: teaching the subject of strategy and the subsequent competition for differentiation and prestige between schools. Being identified as "the" school of strategy serves both purposes well. All education faces internal tensions related to time and education. JPME schools must balance mandated requirements to graduate certified Joint Staff officers against Armed Service and faculty ones. A final challenge is connected to the expectations of senior officers about education broadly and the abilities PME graduates should possess. Questions of relevance and utility haunt PME recurrently.

The second line explores the thoughts on teaching strategy by one of the past century's most prolific authors on the subject: the late Professor Colin S. Gray. Colin practiced, wrote about, and taught strategy throughout his career.[6] Although he provided a number of insights and points for consideration on teaching strategy, Colin disdained narrow prescriptions on how and what to do. I am uneasy with formulas for teaching, much less speaking authoritatively on behalf of Colin about his approach. For these reasons, I draw instead upon his various writings to tease out the attributes an education in strategy should provide for the strategist. These attributes include creativity, strategic judgment, and contextual knowledge.

The third and final line explores the SAASS approach to educating strategists. This section, drawing upon the author's 17 years as a member of the SAASS faculty, begins with a summary of the school, its students and faculty, its curriculum, and its mission. The author suggests that in addition to the attributes identified previously, SAASS cultivates four others inherent to strategy or implied in Colin's writings. These additional attributes include humility, empathy, flexibility, and advocacy—and how SAASS fosters them. The chapter concludes with an assessment of SAASS as a "school for strategy" along the lines envisioned by Colin.

Challenges

Tackling the subject of "strategy" in the context of PME is fraught with numerous challenges. These challenges result from a range or

variety of internal and external factors. They include the tension inherent between military approaches to education, and more specifically, toward teaching strategy, the prestige that accompanies being a recognized school of strategy, and the expectations of those employing PME graduates: expectations of both the knowledge and expertise graduates receive as well as the school programs that produce them.

Philosophically, the root of the problem begins with the two words "military" and "education." As one author points out clearly, the former places a premium on conformity and loyalty and the latter on individuality and logic.[7] PME programs constantly wrestle with competing needs: to expand the thinking of their students from beyond the gunsight or outside of the instrument panel or tactics to that of operational art and strategy and to produce effective staff officers and planners. Across the military, training is embraced and understood as a means of skills and functional expertise development in the profession of arms. Education, in contrast, can seem to some leaders and mentors in the military as an indulgence or even wasted time reading, talking, and writing on subjects that can appear archaic and seemingly distant from today's challenges. Two authors from the Naval War College capture the problem succinctly: "A dilemma is created within JPME by its dual purposes: graduating officers to meet Goldwater-Nichols requirements and getting them back to their operational billets as quickly as possible, and maintaining academic rigor within an accelerated course taught by a largely nontraditional faculty."[8] JPME programs tackle this dilemma with varying levels of success, which is further complicated by their requirement to produce graduates on a relatively large scale: intermediate development education (IDE) programs (staff colleges) can reach upwards of 1,000 students in residence in a given year, with senior development education (SDE, or war colleges) approaching 400.[9]

A further dilemma is created when attempting to link military education with strategy. In keeping with the desire for conformity, military approaches to education privilege process to develop a learnable, repeatable skill. Both the process and the skill aim at reducing uncertainty, minimizing friction, and producing a standardized, actionable product, from which realistic activities can be focused, phased, and synchronized. These processes include the Military Decision-Making Process (MDMP) and the Joint Operational Planning Process (JOPP), to which elements of the latest process, "design," have been added.[10] Strategy, in contrast, is about exploring "the art of the

possible," comprehending the rules, norms, and boundaries as they exist in a specific context and manipulating them in such a manner as to achieve an undeniable and potentially decisive advantage.[11] Strategy is about recognizing constraints in a competition or conflict and using them, or pushing their boundaries and altering them, to control an opponent, whereas the process taught in military education is formulaic and about reliable and recurring control of one's own forces to reach a desired end state—it is about consistency through conformity as mentioned previously. To return to Colin's definition of strategy, the crucial differences lie in how those viewing problems through the lens of strategy and planning processes view "chosen ways" and "desired ends" and whether such views are more of an art than a science.

Being associated with teaching strategy, as opposed to operations and tactics, comes with some baggage, including a sense of superiority—of perspective, of intellect, and the like. Faculty and administrators within a number of PME schools boast about teaching strategy or lay claim to being its "home." The basis for this conclusion is most schools have a portion of their curriculum devoted to teaching military theory and strategy. Some PME schools, such as the National War College and the Eisenhower School for National Security and Resource Strategy (formerly known as the Industrial College of the Armed Forces), reinforce their claim on the basis of additional evidence: proximity to the "national capital region," frequent access to and visits by decision makers and senior government and organizational leaders from "the DC AOR (Area of Responsibility)," ostensibly where strategy is practiced, and the character of their student body. The latter is comprised primarily of colonels (or O-6 equivalent) who will follow up their educational year working in the headquarters of their respective Armed Services or components, on the Joint Staff, with the Office of the Secretary of Defense, or elsewhere. Other SDE or JPME II schools have departments or programs with either the noun "strategy" or adjective "strategic" in the title, such as the Naval War College's Strategy and Policy Department, the Army War College's Center for Strategic Leadership and Strategic Studies Institute, or the The Air War College's Department of Strategy. Many schools teach strategy and confer upon their graduates the imagined or real moniker of "strategist" despite having one-third or less of their curriculum devoted to the subject.[12]

The final of these interrelated challenges lies in the realm of expectations, specifically those leaders who act as "consumers" of PME "products," or students. The watchwords related to expectations of PME graduates are capability and relevance. Senior leaders have periodically questioned one or both and scrutinized PME as a result. For example, two such inquests occurred over the past 20 years. One took place from 2007 through 2009 as a result of the widely perceived failures in leadership and strategy in Iraq and Afghanistan. Such perceptions subsequently drove congressional hearings about PME, as well as considerable debate within and between faculty.[13] More recently, the Secretary of Defense charged in 2018 that "PME has stagnated, focused more on the accomplishment of mandatory credit at the expense of lethality and ingenuity," leading to a range of responses.[14] These responses include a frenzy of diagnoses, prescriptions, and defenses of specific schools or approaches debated online,[15] working groups, staffing actions, and curricular inquiries. Rather than fix existing challenges in PME, the Office of the Secretary of Defense created a new program in civilian academia, administered by the Johns Hopkins School of Advanced International Studies (SAIS), entitled the "Strategic Thinkers Program."[16]

While bureaucratic inertia and a degree of institutional complacency play roles, more often than not the culprit driving these expectations is seemingly endless crisis reaction and a perceived lack of PME responsiveness to, or whole-hearted embrace of, the latest fashionable and almost invariably ill-defined national security concept or focus *du jour*. Lest this sound cynical, the author is familiar with curricular queries regarding the following in a decade-and-a-half: terrorism, insurgency, counterterrorism, irregular warfare, unconventional warfare, violent Islamic extremism, extremism, hybrid warfare, fourth-generation warfare, gray zone activities, fifth-and sixth-Generation fighters, Afghanistan, Iraq, Syria, Russia, China, Iran, North Korea, the Revolution in Military Affairs, the Third Offset, Great Power Competition, and most recently, Strategic Competition and Integrated Deterrence. A reality within PME is that by the time a curriculum can be modified sufficiently, without doing wholesale damage to its coherence, a new concept or crisis has rendered it moot.

Senior leader expectations of PME graduates can be very high indeed, encompassing mastery of a set of skills along with depth and breadth of knowledge. To repurpose one of Yogi Berra's famous non sequiturs, when it comes to the fork in the road between conformity

and creativity, senior leaders expect PME to take both when it comes to the graduates: they desire a creative, critical thinking, subject matter expert conformist. The problem becomes more acute when one considers the nature of strategy. As Colin stated in one of his last articles on teaching strategy, "The view of strategy taken here, admittedly is a rather demanding one to put to a military readership, because one is advocating an approach that rewards the consequences of useful behavior, not so much the seeking of gain from particular behaviors."[17]

Gray's Foundations of an Education in Strategy

Throughout upheavals and challenges in PME, Colin's writings have been a steady fixture in syllabi and instruction. Much of the persistence has to do with the breadth of his exploration, on subjects ranging from irregular warfare to nuclear strategy, as well as his positivist approach to activities including strategy. Strategy was central to Colin Gray regardless of the subject he explored. He always sought to connect every subject to the logic of strategy, whether it was operating domains, technology, tactics, or even culture. He was on a lifelong "quest to improve our understanding of what it entailed and strategic performance in practice."[18] From his varied writings, it is possible to distill Colin's philosophy on teaching strategy. His single monograph on the subject from 2009, entitled *Schools for Strategy*, is a necessary departure point for this examination but one insufficient in its own right. Colin strived for synthesis in his writing and doubtless would object to any discussion of his philosophy on teaching strategy that itself was not analytically rigorous. With this in mind, three analytic categories are evident in his writing: the necessary foundations for understanding strategy, in an educational sense; the qualities and attributes that should be exhibited by the student of strategy once educated; and the employment of those qualities and attributes in a practical sense.

To understand strategy, Colin identified four foundational ideas, most of which were explicit and evident in almost all his later writing, and one of which was implicit. The implicit foundation rests on an assumption that one is willing and able to be educated. While this assumption seems intuitively obvious, it cannot be taken for granted in the context of PME. The willingness to be educated is not a given, as some students complete PME requirements as a necessary career

evil to be considered for subsequent promotion to the next rank. To use a colloquialism, some students take the path of least resistance and are "willing to take their 'B's' (minimum passing grade) and move on." This resistance is usually due to some form of skepticism related to the value or utility of education. In the author's experience, such students are a minority in PME, but, nevertheless, they do exist.

Willingness is a choice; ability, however, relates to the inherent capacity to learn. The ability to learn is influenced by several factors, which reflect both "hard wiring" and other cognitive impediments, which Colin categorized as "nature/biology, personality/psychology, and experience/opportunity."[19] The most debilitating impediment in the education of a strategist is cognitive closure: tacit or subconscious resistance due to a range of intrinsic or learned biases.[20] Cognitive closure in the military can also result from suspicion or hostility to ideas that do not have practical utility or functional grounding in the profession of arms. Education in strategy often begins with abstract concepts, involves acceptance of uncertainty and paradox, and includes different modes of calculation between the political and military. Some adult learners prefer cognitive stability in lieu of challenging their understanding or experience. This preference becomes more difficult to break as a person ages, which can pose a challenge for SDE, given the age, rank, and responsibilities of its students.[21]

Willingness and ability to learn, and cognitive closure in particular, are related to the central foundation for an education in strategy. Colin argued the flagstone of such a foundation is an understanding of strategy at its broadest and most conceptual level: general theory. As Lawrence Freedman observed, improving our collective understanding of strategy and strategic performance was Colin's driving motivation. The means toward that end, however, was general theory, and Colin sought to hone and refine his own version. The arc of this journey featured attempts that were less and more successful, beginning in 1982 with *War, Peace, and Victory* and ending in 2018 with *Theory of Strategy.* Drawing mostly from the work of Carl von Clausewitz, whom he characterized as a "strategic intellectual giant,"[22] as well as his own experience and exploration of empirical evidence, Colin used a number of vehicles as a means to develop theory, ranging from 40 maxims[23] and 21 dicta[24] and finally settling on 23 principles.[25] In Colin's estimation, a general theory of strategy served an ultimate purpose "to indicate and provide a system of ideas with the intention of explaining strategy; why it is made; how it is made; how

it should function; and what the consequences are intended to be."[26] In terms of specific functions, a general theory should meet a number of criteria or, stated differently, fulfill a number of functions. These functions include defining, categorizing, explaining, connecting, anticipating, as well as uniting "somewhat isolated individual items in the theory of strategy."[27] Comprehending a general theory of strategy served the purpose as the first step in unlocking one of the great puzzles of strategy every student should grapple with, the conversion of the currency of tactical action into strategic effect and policy achievement.[28]

Colin thought a general theory of strategy possible for two reasons. First, it reflected the nature of strategy itself. Following in the footprints in the snow left by the strategic intellectual giant Clausewitz, Colin subscribed wholly to the notion that the nature and character of war, and in consequence strategy, had separate and distinct qualities. The character of war possessed elements resembling a chameleon, changing constantly as a result of unusual contextual factors, such as technology, culture, politics, society, and economy.[29] Much like snowflakes, no two wars or conflicts were ever the same, even if the same actors were involved: the character of the First and Second World Wars were different despite featuring many of the same nations. The character of war is also dynamic, altering as opponents interact with one another.

In contrast, Colin saw the nature of war and strategy as remarkably stable for three interrelated reasons: the ends served a political purpose and were therefore an exercise in power; the contest involved collective wills seeking to thwart each other in a dialectic process; and, because it involves human actors for its decision and execution, strategy is beset by friction, chance, and uncertainty. One reason he admired Clausewitz's writings was Clausewitz's analytical distillation of these three elements into his "wonderous trinity," or basis for a subsequent theory, which he associated with a polity, its political leadership, and the instrument, namely the commander and the armed forces.[30] Clausewitz's major ideas about the unchanging nature of war and strategy have survived various generational assaults, only to emerge intact even in the face of unsatisfactory outcomes in recent wars or seemingly "revolutionary" technological or social change.[31] For example, Colin argued against culturally deterministic arguments of war and strategy by authors including Martin van Creveld, John Keegan, Alastair Iain Johnson, and Mary Kaldor.[32]

The second reason, given the unchanging nature of war, is the value and utility to the strategist's education of what Colin labeled "the classical canon" of general strategic theory.[33] Colin's general theory and the ideas included in Clausewitz's *On War* were necessary for an education in strategy but insufficient alone. Other canonical works offered insights into the general theory of strategy, which Colin rank-ordered into five "divisions," not unlike those of a sports league, the first three of which he considered essential reading. He went so far as to say "our general theory of strategy is to be found in ten books at most" including works by Clausewitz, Sun Tzu, Thucydides, Niccolo Machiavelli, Antoine Henri de Jomini, Basil Liddell Hart, J. C. Wylie, and Edward Luttwak.[34] By reading through these works, a prospective student would grapple with all the ideas encompassed in a general theory of strategy: war and conflict causation, deception and information, cost/benefit calculations, specific strategy types, the conduct of warfighting, and the reason for the paradoxical logic of strategy and its influence across different levels of activity. Understanding the general theory of strategy, its inherent elements, and the nature of war would not only aid a student in exploring different historical contexts but also be an important step in preparing them for future challenges.

From Foundations to Qualities and Attributes

Knowledge of a general theory of strategy alone is insufficient education for a strategist, according to Colin. More is required to develop the sort of synthetic "genius" for strategy and war of the kind envisioned by Jomini, Clausewitz, J. F. C. Fuller, and more recently, Harry Yarger and Everett Dolman. For Jomini and Fuller, knowledge of "scientific principles" and their application to different problem sets was enough.[35] Yarger expands on Clausewitz and Gray in his discussion of genius and aptitude.[36] For Dolman, the strategist transitions from artisan to artist and "learns by seeing and by being inspired by great works of art in all manner of manifestations, through experience and practice, and by introspection and thought," experiences "the breakthrough to genius" and self-actualizes.[37] Others suggest the notion of a "master strategist" or "genius" is fundamentally flawed, a "myth," for structural and systemic reasons.[38] They point out the idea of the "master strategist" is appealing to the military. As it is equated with

genius, the "master strategist" confers upon "the armed forces a special role and responsibility."[39]

Problems teaching strategy are not limited to the military and the creation of genius through knowledge. Colin identified a different pitfall awaiting civilians and civilian programs teaching strategy. This trap, of "strategism," is not limited specifically to "civilian would-be educators in strategy."[40] It consists of thinking of strategy exclusively in the intellectual realm, an abstract puzzle in need of solving. Such thinking can lead to studying strategy as an exercise in intellectual history, one disconnected from the reality of its practice.[41] Strategism can also occur in military education; advanced degrees, study, and a general theory of strategy are necessary but insufficient, and even perhaps dangerously misleading. The trap of strategism can lead to the quest for unduly clever or elegant plans, designed to overawe an opponent with puissance and achieve some form of strategic paralysis. Such plans are likely to end in grave disappointment if not disaster.[42] Quoting Clausewitz, who warned theory "should not accompany the commander to the battlefield," Colin suggested instead it serve to hone within the prospective strategist specific qualities and attributes.

Colin's warning against "strategism" was grounded in what he consistently identified as an inescapable reality of strategy: its practical dimension. Strategy is ultimately a practical venture that must be done—either through threat or action—to have any value or utility;[43] it is difficult and fraught with much peril, inherently, due to the nature of the struggle between two opponents because of the use of force and its paradoxical logic;[44] and, too often, it and its practitioner, the strategist, have unrealistic expectations attached to them both to be able to achieve "the acme of skill."[45] One cannot wait for the fortuitous arrival of "true strategic genius." Perfection is the enemy of "good enough" in strategy, which is all that is required and the standard to which strategists should be educated.[46] Theory, experience, and practice must work hand-in-hand in Colin's estimation. Such practice can include previous experience, practice in the form of planning and execution, as well as simulation in different scenarios should actual opportunities not exist. In this manner, the strategist can achieve a "coherently constructive fusion of relevant theory and practice."[47]

The ultimate output of this constructive process is a series of desired attributes for the strategist. The first of these attributes is creativity. Colin argued creative genius is possessed of "the ability to turn brilliant insights into effective command performance. In other

words, it is not sufficient to educate strategists who know what should be done, or at least what might with great boldness be attempted. Also, there is an absolute requirement for a few, fortunately probably only a very few, strategists who are people of action as well as creative thought."[48] Creativity should not be confused with imagination, which Clausewitz dismissed as a "frivolous goddess" and "liable to do more harm than good."[49] It is a function instead of well-honed critical thinking seemingly constrained at the same time by processes, procedures, rules, and geography—the boundaries of a conflict, in other words. Sufficient creativity of the strategist may not fashion something completely unique and new, as the connotation of the word "creativity" suggests, but in the context of strategy lies in "the clever manipulation of those boundaries."[50]

The yang to creativity's yin for the strategist, as Colin suggests, is sound judgment. At first glance this attribute appears blithe and perhaps even cliché. In the context of strategy, however, Colin was updating some of Clausewitz's ideas for the twenty-first century. Casual readers of *On War* might connect judgment to *coup d'oeil*, or the notion of an intuitive "inner eye," a form of genius first identified by a predecessor of Clausewitz, the English writer Henry Lloyd.[51] There are several dimensions to this attribute beyond native intelligence: they include an ability to function in the face of imperfect, contradictory, overwhelming information; to develop and assess a range of potential options; to identify those most suitable for the situation intuitively; and to possess, in Clausewitz's word, the moral "courage to follow this faint light" and put the option into action.[52] Judgment is related to creativity in the same way that capability is linked to enthusiasm.[53] The latter is a necessary attribute for the strategist but no substitute for the former. Judgment also relies on healthy skepticism, offset with a level of confidence that the approach or option has a better than average chance of succeeding—a strategy "good enough" for the circumstances at hand.[54]

Colin was forthright in his assessment of how judgment is enhanced through a third and final attribution: contextual knowledge. In Colin's words, the strategist "requires knowledge, especially historical understanding, of what succeeded and failed in which circumstances in the past, and why."[55] Empirical data, in the form of deep exploration of historical case studies, was both a crucial element and hallmark of Colin's study of strategy throughout his career. Such knowledge was necessary for several reasons. First, armed conflict, particularly major

war between nations, is relatively rare. Therefore, the best the future commander can do is draw upon previous experience as a necessary but imperfect substitute for one's own.[56] Previous experience, considered through mapping of cause and effect in critical enquiry, becomes something more than just an internal database of case studies for the strategist to compare and contrast with the conflict situation with which they are confronted. Through critical analysis, such empirical evidence becomes knowledge, informing intuition. Such knowledge need not be exhaustive but rather, in keeping with his theme, "good enough" in the situation. Educated judgment provides part of the means to help the strategist avoid well-known cognitive biases and pitfalls associated with such knowledge, including the availability heuristic.[57]

True to form, Colin combined philosophical and analytic inquiry with pragmatic and positivist advice. In *Schools for Strategy*, he suggested strategists could and indeed should be educated in PME; he identified pitfalls and obstacles to be avoided in the process, connected study to praxis, and concluded with seven major points that served both to recapitulate his argument as well as an additional seven "points for consideration" as opposed to recommendations. Those looking for specific "action items" or "due outs" in the work were bound to be disappointed. In keeping with his approach, Colin raised and answered many more of the strategist's questions of "why" and "so what" in the course of his monograph than those of greatest interest to the practitioner, or those tasked with educating strategists: "what" and "how." This chapter now turns to look at how one PME institution and its faculty answer these latter questions.

The SAASS Approach to Teaching Strategy

The author is tempted, given the opportunity presented here, to fill this section with the narrative form of a marketing brochure for the SAASS. Such information and marketing has already been done admirably in a number of different forms: two edited compendium volumes showcasing student and faculty research and writing on various dimensions of airpower (1997) and space power (1999);[58] an insightful article on the genesis of the school, student qualifications, curriculum, and post-graduation employment of students by the late Stephen D. Chiabotti in *Joint Forces Quarterly* (2007);[59] and, most recently, a

compendium of eclectic faculty explorations on the subject of strategy itself (2016).[60] The basic details of the school suggest nothing special or uniquely interesting: each year, 45 students take 11 core courses. The students are mostly active duty officers, but other slots are offered to officers from the National Guard and Reserve, other armed services, and at least three foreign countries. In addition to course work, students write a master's-level thesis of between 50 and 80 pages.[61] The program, course work and thesis, runs a total of 49 weeks. Students are instructed by 12–15 teaching faculty, who are split between uniformed military officers and civilians. The mission statement of the school "is to produce strategists for the Air Force, the Space Force, and the Nation."[62]

SAASS differs from most JPME in several crucial ways, many of which are intangible and not immediately obvious. These differences start first and foremost with the heart of the school: its students. As an Advanced Studies Group program within PME broadly defined, students are not selected but rather volunteer for another year of schooling after their IDE year.[63] They compete for a slot at SAASS and are in the top two-to-three percent of their respective Air Force communities, or "tribes," among other mid-career (10–15-year point) officers. Routinely there are four students who apply for each slot. The reward for selection is admission into what students affectionately refer to as "the book-a-day club;" they are expected to consume reading loads of between 200 to 300 pages for every course day, most often in the form of entire books as opposed to selections or articles. Seminars run four days a week for 36 out of 49 weeks, with courses lasting anywhere from three to five weeks. Students are expected to discuss works each seminar day, with inquiry conducted in the Socratic manner, and are evaluated and graded on their performance.[64] Faculty guide discussions with questions, redirections, clarifications, and additional information with a very light hand. Students, however, carry the burden of the exploration themselves. At the end of each course, faculty expect students not just to synthesize concepts and ideas, but also to demonstrate their knowledge and communicate clearly in different instruments of evaluation that range from standard 3,000-word essays to in-class examinations, briefings, and short-form writing assignments. At the end of the year, students sit for a two-hour comprehensive examination in which they are questioned about any material they have studied and are graded on how well they connect concepts and contexts in their responses.

If the students are the heart of SAASS, the faculty and staff, with some of their own unique qualities and attributes, are its soul. Despite the civilian and military divide, all faculty are "terminally credentialled," or have PhDs, which is an exception to the nontraditional faculty in most JPME identified by Johnson-Freese and Kelley.[65] The faculty example is set by the leadership of the school, as both the commandant and deputy commandant teach courses and advise theses in addition to their command and administrative obligations running the school. In addition, most of the uniformed military faculty are graduates of SAASS who competed to undertake PhD studies after completing their master of philosophy (MPhil) and who are expected to complete their studies, including defending their dissertation, in three years.[66] All faculty bring a mix of civilian, military, and operational experiences to their teaching and advising, doing so as subject matter experts across the curriculum. The military faculty rotate through the school as they would any other assignment, between two-to-five years, ensuring the most recent current operational concerns and perspectives are represented in the curriculum and to hedge against the scourge of "strategism" identified by Colin. If the military cadre brings operational currency and fresh perspectives to the faculty, the longer-term civilians provide stability and continuity to the curriculum and serve the purpose of preserving institutional knowledge.

As the soul of the school, the faculty are given considerable responsibility, which leads to healthy tension and debates. The faculty serve as stewards of the curriculum and determine what subjects should be covered and how they should be covered, and in SAASS's case, in the best interests of the Department of the Air Force and its Chief of Staff according to the school's charter. JPME programs, in contrast, have many of their requirements dictated by the Officer Professional Military Education Policy (OPMEP), to certify "joint" officers. Curricular ownership necessitates faculty maintaining currency in their academic fields, while course directors review this material and determine what material to cover in each course. Faculty present and discuss frequently and review the entire curriculum periodically, with courses added, modified, or deleted to address needs.[67] The sources of debate and tension are those common to most military education and include level of continuity as opposed to change, curriculum relevance according to needs on the basis of short-term as opposed to longer-term requirements, and many others. Of the various subjects of debate, no one is more contentious than the question of

that plaguing all PME: relevance. Other Advanced Studies Group (ASG) programs demonstrate relevance by devoting considerable time to honing planning and process skills used by their graduates in immediate follow-on assignments. The SAASS faculty, in contrast, take a longer-term view and discuss the value and utility of the master's-level thesis in honing and refining critical thinking and communication skills.

The question of how to best prepare students to return to operational assignments is probably the most contentious, and although the faculty have endorsed various innovative approaches, no one approach has proved entirely satisfactory. Much of the tension in the relevance of the curriculum is driven by competing demands: changes in policy interest and focus mentioned previously and the need to respond to them in a meaningful manner, against maintaining a level of continuity consistent with the nature of war and strategy and body of empirical evidence. To help guide the faculty through these debates, both the curriculum and its courses follow a relatively straightforward triptych in terms of design in varying degrees: theory or broad ideas associated with a subject, practice or experience and how it differs from theory, and application of ideas and former experience in a range of contemporary and future scenarios. Some courses are more heavily weighted to theory and concepts, such as the Foundations of Military Theory and Foundations of International Politics courses. Others rely more on contextual examination and empirical inquiry, such as Airpower in the Age of Total War and Airpower in the Age in the Limited War. In this way SAASS students are not just exposed to a range of different concepts and contexts but consider them in depth and detail and are able to draw upon them as a form of "a strategist's toolkit," or knowledge transformed into capability, throughout their military career and afterward.

It would be easy to map Colin's attributes of a strategist against the SAASS curriculum and process and assign it a "grade" for how well or poorly it follows Colin's directions. I recognize, however, that I cannot do so objectively. Instead, I argue the SAASS program accomplishes its mission by cultivating attributes implied but unstated by Colin. In particular, there are four attributes in addition to creativity, sound judgment, and contextual knowledge. They too are linked together and include humility, empathy, flexibility, and advocacy.

Humility seems intuitively to be at odds with Colin's idea of the "Master Strategist." The master strategist ideal, however, seems more

the interpretation of others than the reality Colin was suggesting.[68] In his estimation, master strategists are both products of their contexts (culture and time) and are hostage to timing (opportunity), making them incredibly uncommon indeed. Humility in this discussion refers primarily to the intellectual kind. To develop intellectual humility, aspiring strategists need to confront the limits of their knowledge and realistically assess their cognitive and behavioral strengths and weaknesses, a task which becomes more difficult to accomplish the older a person gets.

SAASS students arrive at the apex of their career fields in their respective ranks as tacticians, and most have done extremely well in IDE. Given the intense pace of SAASS, and the level of competition inherent in a group of "apex predators," many students confront some of their limitations comparatively early in the school year. In addition to peer rivalry, faculty take time to provide detailed feedback to students pointing out limitations—in logic, argumentation, use of evidence, and ability to communicate clearly—which can come as a rude shock. Many also recognize while they may have read sections or a part of works previously, they have not fully understood their meaning—much less their implications at the time and in the future. Faculty attention, mentoring, and continued engagement in discussions helps students develop a level of confidence in their critical thinking skills and their ability to connect to other ideas within and between courses. In the seminar environment, faculty push students beyond the surface level of finding flaws in works they read to seeing value and utility in them. Operating in an almost daily competitive "marketplace of ideas," students soon learn that surface-level observations will be challenged or ignored and that effectiveness in being discussion leaders and facilitators, or the quality of their insights, is more important than mere frequency alone. The sum of such interaction tends to create various degrees of humility. Studying empirical evidence, or history, instills additional humility: concepts and ideas that appear novel and new in fact appeared before and were ahead of their time, the result of a long evolution of other ideas, and "equip today's professionals with a means of avoiding costly reinvention of the wheel."[69]

The thesis project, based on a topic the student selects and refined with faculty assistance and often based on a recurring problem they have seen throughout their careers, helps develop intellectual humility in different ways.[70] This personal, intellectual journey is, by nature,

lengthy and insightful. Students move beyond tearing down works to developing and sustaining an argument of their own, based on a theory or model they have developed or modified and explored through several empirical case studies. In this author's opinion, few exercises are as valuable in fostering intellectual humility as the lengthy process of identifying, framing, researching, writing, and revising a product over which the student has full intellectual ownership. Through peer comparison and competition, faculty feedback and mentoring, and intellectual ownership, these future strategists realize they cannot and will not have the answers to very difficult questions but can combine their practical experience with how they have learned how to frame problems, scope them down, and seek answers to them, developing professional competence and intellectual humility based on confidence in their experiences and abilities, as well as a recognition of their own limitations.

Empathy, the next quality, is closely associated with humility. While this attribute also seems at odds with a perceived cold, calculating, hyperrealist strategist, this is a misperception. A strategist succeeds not only if judging situations and circumstances correctly but also if assessing them from another's perspective. Empathy is important to the strategist for several reasons, all of which orbit around understanding. Such understanding includes current and future enemies and opponents and what they value and fear, an understanding useful in designing coercive approaches well beyond the level of mere targeting. In addition, understanding also includes partner perspectives and concerns, whether they are within the joint force, between interagency organizations and coalition or alliance members, or both.[71] Such empathy is inherent in Colin's "contextual understanding" but is unstated. Clausewitz's method for studying historical context, by gathering and processing information and then assessing decisions based on information available at the time, is crucial in developing this empathy. Students learn to evaluate events and decisions on the basis of the circumstances at the time, as opposed to their outcome.[72]

Few events in the SAASS curriculum spur empathy more than the fall "field practicum," which involves students both reading about and assuming the perspective of a historical actor in a campaign on the site of where the action took place.[73] Such affective learning is immensely valuable in preventing students from judging events by their outcome and understanding how and why different actors took the

actions they did or argued for courses of action, some of which succeeded despite the odds and others that subsequently failed at the strategic, operational, and tactical levels.[74] The field practicum both illustrates and allows students to build knowledge of the problems of currency conversion central to Colin's understanding of strategy.

Both humility and empathy contribute to another attribute of the strategist: flexibility. Such flexibility for the strategist refers to the intellectual sense, as opposed to the physical or moral. Students arrive at SAASS as master tacticians, experts well-grounded and proficient in their weapons or other systems, and confident in their abilities. Underpinning this proficiency and confidence is a strength of conviction. The various elements of the SAASS academic year should not challenge the veracity of these convictions but rather nudge students from arguing based on their convictions exclusively to moving them out of their comfort zone. By questioning and challenging assumptions, and seeing other points of view, students learn to avoid playing to their strengths and beliefs rather than assessing problems differently.

No skill better characterizes SAASS graduates, and is the hallmark of a strategist, than the ability to evaluate situations across and between different levels, from tactical to policy through strategic and operational, and tailor responses that best suit the one at hand. SAASS graduates, throughout their career, seek to ensure action is consistent with policy intent and meaningful currency conversion occurs. Adaptability and flexibility, as Colin reminded us, are central to effective strategic performance.[75] Flexibility can and should be a core attribute of those seeking to ensure such performance, which is one reason the SAASS program cultivates it.

Tactical competence, practical knowledge and experience, creativity, judgment, and contextual knowledge are linked together with one final attribute of a strategist: advocacy. Advocacy translates to communicating and convincing others effectively of the merits of a proposed course of action. Note that the faculty take great care in ensuring no one strives to always "win" discussions or bludgeon through arguments using brute force, and so risk crossing the line into zealotry. Steve Chiabotti liked to refer to the SAASS approach as "responsible advocacy" instead. He suggested, "The biggest problem with zealots is that they are seldom listened to. Responsible advocates, on the other hand, whether airminded or otherwise, create influence in proportion to the power of their logic and persuasion of their rhetoric."[76] In addition to using their education responsibly, the key

words in his assessment are "influence" and "persuasion." As SAASS graduates move upward in rank, and gain more leadership and practical experience, they should be able to advocate effectively at whatever level, whether tactical, operational, strategic, policy or grand strategy, as well as between levels.

Conclusion

After the preceding section, the reader might conclude that SAASS is indeed *the* "school for strategy." Doing so would be both self-congratulatory and severely lacking the humility SAASS seeks to develop in its students. No one school within the DOD should lay claim to the title. The DOD, through its various schools, provides educational opportunities designed to fulfill highly specific requirements at different career, rank, and experience levels. In other words, not every DOD school should strive to be a school for strategy.

SAASS performs some educational functions for strategy well and indeed better than most in two key regards. The first is in the "product," the graduates of the program. Demand for SAASS graduates from service, joint, combatant commands, and other staffs continuously outstrips supply, which is also a function of the percentage who go immediately to command operational units. Senior leaders seek SAASS graduates for their ability to think laterally, problem frame, and develop and advocate for solutions. More importantly, the ability to think strategically serves graduates well beyond the next assignment—it should do so throughout their career. The second is in the coherence of the specifically designed courses as well as the curriculum, in terms of their individual and overall "narrative or story arc."[77] Such coherence reflects a mixture of a classic liberal arts approach and social sciences to content and delivery, while never losing sight of the primary mission of the school: to produce critical-thinking, problem-solving strategists with the attributes outlined above. Colin placed a heavy emphasis on the liberal arts education of military strategists: "To be able to offer prudent military advice, senior soldiers have need of some political and social-cultural, as well as strategic, sense. It should go without saying, but I will say it anyway, that an educated strategist is a person who both possesses, and on occasion consults and is known to consult, A moral compass."[78] In other words, the strategist should not only be a rational decision maker but an ethical

one as well. The best guarantee of bolstering a moral compass, beyond ingrained beliefs and principles, is a liberal arts education of the type SAASS provides even if this occurs at the expense of planning and process acumen.

The reality with education, regardless of its setting, is there is little uniformity in terms of outcomes beyond the title "graduate." Not everyone learns at the same rate, and the education process should never end with graduation, as exemplified by graduates such as General James M. Holmes (SAASS Class III). If SAASS does its job well, graduates will leave knowing how much they do not know but with a continuing desire to read, learn, and grow. Although SAASS strives to "change the habits of thought and patterns of inquiry" of our students, the level and continuity of change and continual growth are down to individual psychology, personality, and priorities.[79] Individual human agency, psychology and predisposition, and personal responsibility play an outsized role in the degree to which the seeds of an education in strategy bear fruit for SAASS graduates or are subsequently trampled into the ground the further up the rank ladder one climbs. The education provided by SAASS bears fruit best when it is followed up by years of forced exploration into other areas of knowledge, as well as additional self-guided journeys and experience(s).

One other element is central to the ability of strategists to practice their craft: opportunity. As much as schools like SAASS teach strategy and prepare strategists, there is no guarantee they will put the combined output of education and experience into practice. Whether one calls it chance, luck, fate, or Fortuna, elements outside of the strategist's control may deny them the opportunity. For those less inclined to ascribe their future to such forces, another element may just be poor timing—the veritable right person for the job at the wrong time. A level of synthetic genius is what the school strives to produce, one good enough to meet future strategic challenges. Real strategic genius, as Colin suggests, is so atypical and elusive that designing a program to foster it is a fool's errand. The corollary is also true: cultivating genius, without humility and empathy, creates not zealots but individuals convinced of their omniscience unable or unwilling to advocate should the opportunity occur.

As a school of strategy, SAASS performs its mission of educating strategists well enough. The challenges and issues the faculty confront, associated with relevance and responsiveness, are minor in comparison to those of other PME and ASG schools. An intimate

and responsive learning environment, motivated students, faculty collegiality, and a common purpose and shared sense of mission go a considerable length in ensuring these challenges and issues are addressed through discussion, experimentation, and revisitation. The level of education and expectations Colin identified for a school of strategy are high indeed. While SAASS and indeed no other program can perhaps reach this goal, the school's approach to educating strategists is remarkably similar and has remained relatively stable for more than 30 years. The core of the SAASS approach is summarized well by Colin, even though he was not talking about the school specifically. He wrote, "A well-constructed curriculum and a wise mix of educational methods, certainly is able to teach what can be taught in order to help educate those who are educable in strategy."[80] By cultivating the attributes identified by Colin as well as the others identified in this chapter, SAASS strives to do more than just educate—its leadership and faculty seek to instill knowledge through various methods and forms so that it becomes "so absorbed into the mind that it almost ceases to exist in a separate, objective way."[81] Thus, as Clausewitz makes so clear, SAASS strives to turn knowledge into capability. It is more than fitting that SAASS, whose leadership and faculty labor to create strategists along many of the lines Colin suggested, has named one of its positions in his honor: "The Professor Colin S. Gray Visiting Professorship in Strategic Studies."[82]

Notes

1. Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 1800.01F, *Officer Professional Military Education Policy,* 15 May 2020, A-1, https://www.jcs.mil.

2. The Joint Staff, *Joint Doctrinal Note 2-19: Strategy,* 10 December 2019, I-1, https://www.jcs.mil/.

3. Each of the Armed Services has an Advanced Studies Group school, which the U.S. Army pioneered with the opening of the School of Advanced Military Studies in 1983. Others soon followed suit: the U.S. Marine Corps' School of Advanced Warfighting (SAW; 1990); the Air Force's School of Advanced Airpower Studies, later changed to SAASS (1991); and the Naval Operational Planner Course, later changed to the Maritime Advanced Warfighting School (1998). Based on an initiative from the Office of Net Assessment within the Office of the Secretary of Defense, and with the support of the Chairman of the Joint Chiefs of Staff, the Joint Advanced Warfighting School was created in 2004.

4. Richard J. Bailey Jr., "Widening the Aperture: The Quest for Strategic Understanding," in *Strategy: Context and Adaptation, from Archidamus to Airpower,* eds. Richard J. Bailey Jr., James W. Forsyth Jr., and Mark O. Yeisley (Annapolis, MD: Naval Institute Press, 2016), 1.

5. Colin S. Gray, *The Strategy Bridge: Theory for Practice* (Oxford: Oxford University Press, 2010), 18.

6. Throughout this chapter, the author uses the more familiar given name as opposed to surnames used for other authors. It is not only fitting in such a volume but also reflects the author's relationship to him: PhD advisor, mentor, and friend.

7. Stephen D. Chiabotti, "A Deeper Shade of Blue: The School of Advanced Air and Space Studies," *Joint Forces Quarterly,* no. 49 (2nd Quarter 2008): 73.

8. Joan Johnson-Freese and Kevin P. Kelley, "Meaningful Metrics for Professional Military Education," *Joint Forces Quarterly,* no. 84 (1st Quarter 2017): 65.

9. The largest IDE school, in terms of class size, is the US Army Command and General Staff College with 1,088 students in 2021. For some demographic information about its student body, see "CGSOC Class of 2021 Demographics," Command and General Staff College Foundation, Inc. website, https://www.cgscfoundation.org/.

10. For those interested in learning more about military planning generally, and its connection to design, a useful primer is Joint Staff J-7, *Insights and Best Practices Focus Paper: Design and Planning*, July 2013, https://www.jcs.mil/.

11. Everett C. Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (London: Frank Cass, 2005), chaps. 1 and 2. Although Dolman would take issue with the word "decisive" and its implications, the ideas here are his interpreted by the author.

12. For some examples of such claims, as well as the basis for them and discussions of methods of teaching strategy, see chapters 4, 5, 6, 7, & 10 written by Army or Navy War College faculty in Gabriel Marcella, ed., *Teaching Strategy: Challenge and Response* (Carlisle Barracks, PA: Strategic Studies Institute, 2010). For a critique of the necessity of "produc(ing) thousands of strategists a year," see James Joyner, "Does the U.S. Military Really Need More Strategists?," *War on the Rocks* blog, 8 November 2018, https://warontherocks.com/. The U.S. Army has a unique "Functional Area" (FA) designation of certain program graduates as "FA 59, Strategist."

13. The 2007–2009 debates resulted in several publications, including Colin's *School for Strategy* monograph at the heart of this chapter, as well as a compendium on the how, when, and why to teach strategy. See Gabriel Marcella, ed., *Teaching Strategy.*

14. Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* (Washington, DC: Department of Defense, 2018), 8. The 2018 charge was unique given its marquee appearance in the 2018 National Defense Strategy, its source the always well-read and controversial James Mattis, not to mention the bluntness of its presentation quoted above.

15. One popular national security blog, *War on the Rocks*, has hosted ten submissions in its "Educating the Force" series, available here: https://warontherocks.com/.

16. For more on the Strategic Thinkers Program, see their website: https://sais.jhu.edu/.

17. Colin S. Gray, "Can Strategy be Taught?," *Infinity Journal 6,* no. 3 (Winter 2019): 4–8, https://www.militarystrategymagazine.com.

18. Lawrence Freedman, "Strategy's Evangelist," *Naval War College Review* 74, no. 1 (Winter 2021): 23.

19. Colin S. Gray, *Schools for Strategy: Teaching Strategy for 21st Century Conflict* (Carlisle Barracks, PA: Strategic Studies Institute, November 2009), v.

20. Donna Webster and Arie Kruglanski, "Individual Differences in Need for Cognitive Closure," *Journal of Personality and Social Psychology* 67, no. 6 (1994): 1049–62, communicationcache.com.

21. Prem S. Fry, "A Consideration of Cognitive Factors in the Learning and Education of Older Adults," *International Review of Education 38,* no. 4 (July 1992): 303–25.

22. Gray, *The Strategy Bridge,* 5. One basis for Colin's claims regarding Clausewitz is the recurring utility of an incomplete text from 1832 to strategists and thinkers on a range of different contextual experiences: the first era of thinkers on the implication of thermonuclear weapons, officers and strategists attempting to make sense of the outcome of the Vietnam War, and more recently, similar queries related to the wars in Iraq and Afghanistan.

23. Colin S. Gray *Fighting Talk: Forty Maxims on War, Peace, and Strategy* (Westport, CT: Praeger Security International, 2007).

24. Listed in Gray, *The Strategy Bridge,* 262 and explored in detail in 28–95.

25. Colin S. Gray, *Theory of Strategy* (Oxford: Oxford University Press, 2018), 43–120.

26. Gray, *Theory of Strategy, 1.*

27. Gray, *Theory of Strategy,* 8–11. Gray acknowledges the intellectual debt he owes to emeritus SAASS professor Harold Winton, who identified the first five functions in an article on military theory. Colin added a sixth function, "uniting," to account for differences between military theory and a general theory of strategy.

28. Colin S. Gray, *Tactical Operations for Strategic Effect: The Challenge of Currency Conversion,* JSOU Special Report (MacDill AFB, FL: JSOU Press, 2015), https://www.hsdl.org/. The central metaphor and recurring theme explored most explicitly in his monograph on special operations.

29. Carl von Clausewitz, *On War,* ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 89.

30. Gray, *The Strategy Bridge, 100–101.* For a more detailed exploration, see Thomas Waldman, *War, Clausewitz, and the Trinity* (London: Ashgate, 2013). Colin contributed the Foreword to Waldman's book.

31. Authors have questioned the legitimacy of Clausewitz's "flagrant pen" (Baron Antoine Henri de Jomini) and laid the blame for the cost and/or conduct of war in the wake of the First and Second World Wars (Basil Liddell-Hart) and more recently Iraq and Afghanistan (Stephen Melton) or suggested modern motivations, methods, or means have invalidated Clausewitz's logic (see next footnote for details).

32. See Martin van Creveld, *The Transformation of War* (New York, NY: Free Press, 1991); John Keegan*, A History of Warfare* (New York, NY: Random House, 1993); Alastair Iain Johnson, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History* (Princeton, NJ: Princeton University Press, 1995); Mary Kaldor, *New and Old Wars: Organized Violence in a Global Era* (London: Blackwell, 1998).

33. Gray, *The Strategy Bridge,* 240–41 and 264–66.

34. Gray, *The Strategy Bridge,* 240. The specific works by these authors are listed here.

35. Antoine-Henri Jomini, *The Art of War* (Mineola, NY: Dover Publications, 2007); and J. F. C. Fuller, *The Foundations of the Science of War* (London: Hutchinson & Co., 1926).

36. Harry Yarger, *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century* (Westport, CT: Praeger Security International, 2008), 4–6.

37. Dolman, *Pure Strategy, 194.*

38. Freedman, *Strategy: A History* (Oxford: Oxford University Press, 2013), 237–44.

39. Freedman, *Strategy,* 240.

40. Gray, *Schools for Strategy,* 54.

41. Gray, *Schools for Strategy,* 18.

42. James D. Kiras, *Special Operations and Strategy from World War II to the War on Terrorism* (London: Routledge, 2006), 113–14.

43. Andre Beaufre, *Introduction to Strategy: With Particular Reference to Problems of Defense, Politics, Economics, and Diplomacy in the Nuclear Age,* trans. R. H. Barry

(New York: Praeger, 1966), tables one and two, 37–41. Beaufre uses the analogy of fencing to distinguish between deterrence and a "strategy of action."

44. David Jablonsky, "Why is Strategy Difficult?" in *The Search for Strategy: Politics and Strategic Vision, Contributions in Military Studies, no. 143,* ed. Gary L. Guertner (Westport, CT: Greenwood Press, 1993), 3–45; and Edward N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, MA: Harvard University Press, 1987).

45. Gray, *Schools for Strategy,* 54–55. According to the ancient Chinese practitioner Sun-Tzu, "To subdue the enemy without fighting is the acme of skill." Sun Tzu, *The Illustrated Art of War: The Definitive English Translation,* trans. Samuel B. Griffith (New York: Oxford University Press, 2005), 115.

46. Gray, *The Strategy Bridge,* 256–57.

47. Gray, *Schools for Strategy,* 54.

48. Gray, *Schools for Strategy,* 31.

49. Clausewitz, *On War,* 110.

50. Dolman, *Pure Strategy,* 7.

51. Clausewitz, *On War, 102.* Lloyd's introduction of the term is contained in Patrick J. Speelman, ed., *War, Society, and Enlightenment: The Works of General Lloyd* (Leiden: Brill, 2005), 20.

52. Clausewitz, *On War,* 102.

53. Pete Geren, "April 10, 2007—Gen. Peter Schoomaker, Chief of Staff of the Army, Change of Responsibility to Gene," US Army, https://www.army.mil/. The phrase "Never confuse enthusiasm with capability" is attributed to General Peter Schoomaker, stemming from his experience as a commander during the ultimately disastrous hostage rescue mission in Iran in 1980, Operation Eagle Claw.

54. Gray, *Schools for Strategy,* 47–50.

55. Gray, *Schools for Strategy,* 49.

56. A point made by Clausewitz and echoed frequently by Gray.

57. Amos Tversky and Daniel Kahneman, "Availability: A Heuristic for Judging Frequency and Probability," *Cognitive Psychology* 5, no. 2 (1973): 207–32. The more recent, popular work by Kahneman touching upon this subject, *Thinking, Fast and Slow*, is a work SAASS students read early in the academic year.

58. Phillip S. Meilinger, ed., *The Paths of Heaven: The Evolution of Airpower Theory* (Maxwell AFB, AL: Air University Press, 1997); and Bruce M. DeBlois, ed., *Beyond the Paths of Heaven: The Emergence of Space Power Thought* (Maxwell AFB, AL: Air University Press, 1999).

59. Chiabotti, "A Deeper Shade of Blue."

60. Bailey, Forsyth, and Yeisley, *Strategy, 2016.*

61. In a study of the page length of student theses written from 1992 until 2007, conducted by the author in his capacity as research director for the school, the average completed length was 94 pages as opposed to what was required. Students tend to write more on topics they selected and in which they are intellectually invested.

62. For a concise overview, see Chiabotti, "A Deeper Shade of Blue."

63. There are other circumstances, including deferral after selection for command or other opportunities. The description that follows applies to the majority of cases and acknowledges that a limited number of exceptions to the norm exist.

64. James Tucci, "Classical Strategy: A Socratic Dialogue," in *Strategy: Context and Adaptation, from Archidamus to Airpower, eds.* Richard J. Bailey Jr., James W. Forsyth Jr., and Mark O. Yeisley (Annapolis, MD: Naval Institute Press, 2016) , chap. 4 but most especially 79.

65. Joan Johnson-Freese and Kevin P. Kelley, "Meaningful Metrics for Professional Military Education," *Joint Forces Quarterly,* no. 84 (1st Quarter, 2017): 68–69. In con-

trast, a number of teaching faculty with JPME are active duty or retired majors, lieutenant colonels, and colonels who have experience but lack academic credentials, which creates issues of its own.

66. The average completion time for a PhD program ranges from 7 to10 years.

67. Courses are discussed as they are being taught in weekly faculty meetings, while upcoming changes are discussed in biannual faculty offsites. Review of the curriculum in toto is accomplished by a commandant-appointed Curriculum Review Committee (CRC), whose members are drawn from the faculty with as much diversity of experience and perspectives as possible. The CRC briefs its findings and recommendations to the Committee of the Whole, or entire faculty, for discussion and action. To avoid potential "groupthink," a visiting professor from outside of SAASS is frequently asked to provide an unvarnished assessment of a curricular issue.

68. Freedman, "Strategy's Evangelist," 21–22.

69. Richard R. +Muller, "The Airpower Historian and the Education of Strategists," in *Strategy: Context and Adaptation, from Archidamus to Airpower,* eds. Richard J. Bailey Jr., James W. Forsyth Jr., and Mark O. Yeisley (Annapolis, MD: Naval Institute Press, 2016), 126; and Muller, "Four Reasons Why Airmen Should Study History," *in Strategy,* ed. Bailey et al, 123–26. Muller makes an impassioned and eminently reasonable case in these four short pages.

70. The faculty-to-student ratio mentioned previously is based on manning for the thesis project, which the faculty consider a year-long course and the only elective (student chosen option) in the academic year. Eleven weeks in the academic calendar are identified specifically for student thesis development. The reality students grapple with is the thesis takes more time and they must learn how to balance competing requirements: health and family, coursework, assignments and moves with the thesis.

71. A recent anecdote offers some insight. During a meeting to discuss revisions to his thesis chapters, a student related how he was asked by a section chief in an air operations center to relay specific requests for support to a partner nation. After researching and writing on a different topic but involving the partner nation, the student declared, "I had no idea how much we're asking of them, given their decision authorities and resources, and it's embarrassing not to realize how unrealistic it was."

72. Clausewitz, *On War,* 166–67.

73. While the SAASS field practicum has not been a constant feature of the curriculum, mostly due to budget constraints and more recently, health-related ones with COVID-19, previous class-field practicum trips have explored continuity and change in visits to England, France, Belgium, Italy, Malta, Greece, Crete, and Vietnam.

74. Gray, *The Strategy Bridge,* 165–66, n. 68. While initially skeptical of the idea, Colin acknowledged the utility of such excursions after discussions with the students and faculty of SAASS during one of his visits.

75. Gray, *Schools for Strategy,* 27.

76. Chiabotti, "A Deeper Shade of Blue," 76.

77. Gray, *The Strategy Bridge,* 172–78.

78. Gray, *Schools for Strategy,* 51.

79. SAASS owes its Dean of Academics, Dr. Thomas Hughes, for this widely used observation.

80. Gray, *Schools for Strategy,* 52.

81. Clausewitz, *On War,* 147.

82. Air University Chief Academic Officer to SAASS Command Staff, memorandum, subject: Formal Name for Visiting Professorship, 10 June 2021. Valerie and Tonia Gray, his wife and daughter, graciously and enthusiastically supported the idea throughout the process.

Chapter 2

The Enduring Value of Strategic History
The War in North Africa as a Case Study

David Lonsdale

Introduction

Colin Gray is perhaps best known for his works on universal strategic theory, as well as for developing our conceptual understanding of strategy in specific contexts and domains.[1] Yet, his theoretical works were infused with historical references. Indeed, Gray took a consciously inductive approach to theory building.[2] He was insistent on the value of historical experience to our understanding of and formation of best practice in strategy. This position stems from Gray's firm belief that the nature of strategy is universal. Consequently, "it has to follow that we should allow ourselves to seek education from historical experience."[3] Gray rightly bemoaned the scarcity of works dedicated to strategic history.[4]

Beyond filling his theoretical works with historical cases, Gray's engagement with strategic history reached its zenith in *War, Peace and International Relations: An Introduction to Strategic History*. Although it contains the odd chapter on theoretical subjects (including, for example, one on Clausewitz's theory of war and one on the role of geography in strategy), this work is essentially a history of strategic practice from the French Revolution onward. As to be expected, the book takes in all the major conflicts of the modern period, yet it also examines important developments in war and strategy, including mechanization in the interwar period, the development of irregular warfare, and nuclear strategy. In this book, Gray has left us with a superior history of modern strategic practice, replete with analytical insights into the nature and challenge of strategy.

Despite his obvious regard for strategic history, Gray was aware of the methodological limits of historical research.[5] As a consequence, strategic history must be carefully handled. One tried and tested method of historical research is the case study approach. This can take various forms. One approach is to study a number of cases to test a particular hypothesis. In such work, it is often useful to identify

most likely and least likely cases to test the stipulated hypothesis in a range of different contexts with varying conceptual challenges. Another approach, taken in this chapter, is to take a deep dive into one case study.[6] Owing to the multidimensional nature of all strategic practice, every case study is rich in a diverse range of components and lessons to extract. For instance, every historical case of strategic practice will have a command element, logistics, technology, geography, and so on with all the dimensions.[7]

With this diversity in mind, this chapter examines the case of the war in North Africa during the Second World War. Specifically, the chapter will provide a brief overview of events during 1940–43, before seeking to draw out some of the main strategic lessons from the conflict. These lessons relate to logistics and resources, command, the strategy bridge, and tactical and operational performance.

The War in North Africa—A Brief Historical Overview

Although the great campaigns and battles on the Eastern Front and in Western Europe seem more obviously decisive in terms of the outcome of the Second World War, the significance of the Mediterranean should not be underestimated. Indeed, Douglas Porch correctly regards the Mediterranean as pivotal to the outcome of the Second World War.[8] Even for the Germans, who initially intended to leave the region to their Italian ally, the Mediterranean developed a growing prominence and potential.[9] After the fall of France, the German high command was looking for a way to take Britain out of the war. Eventually, Nazi Germany would embark on the invasion of the Soviet Union, at least in part to deprive Britain of its main continental ally. Before that decision, however, Admiral Raeder advocated a Mediterranean strategy that attacked Britain's colonial possessions, something that Stalin had anticipated.[10] Moreover, events in North Africa could have very specific, yet significant, influence. Setbacks in North Africa in 1942 influenced Hitler's decision to continue the battle for Stalingrad. Of a similar ilk, the Allied invasion of Sicily in July 1943 encouraged Hitler to bring the Battle of Kursk to a close.[11]

The Mediterranean was important for several reasons. Middle Eastern oil reserves were an important source of fuel for the Royal Navy and Britain's mechanized forces.[12] Additionally, the Suez Canal provided an important connection to British colonies, most notably

India. French North Africa played an important role in the somewhat complex politics of occupied France. The Mediterranean and Africa also represented an obvious outlet for Italian imperial ambitions. Geostrategically, the Mediterranean represented the southern flank of the expanding German empire in Europe. As German forces advanced against the Soviet Union in June 1941, Hitler was conscious of the need to secure and stabilize the southern flank, with an eye to the Balkans, Greece, and even the Italian peninsula. Protection of the Romanian oilfields from air attack was also an important factor in German decision making in the Mediterranean. Moreover, control of the eastern Mediterranean offered the promise of a link-up with Axis forces in the Crimea and Caucasus. This became especially important in 1942, when German focus on the Eastern Front shifted south with Operation Blau.[13]

For the Allies, aside from the need to defend important bases (Malta, Alexandria, Crete), resources, and communication routes, the Mediterranean fit nicely with Britain's preferred peripheral strategy. For Britain, rightly wary of a premature assault on Nazi-occupied western Europe, but at the same time conscious of the need to open some form of Second Front, the Mediterranean represented an opportunity to engage, distract, and deplete Axis forces. For example, operations in the Mediterranean diverted Luftwaffe assets and trucks from the Eastern Front and U-boats from the Atlantic.[14] Also, Britain needed to prove itself to the United States. Before Pearl Harbor in December 1941, US active involvement in the Second World War was less than assured. Moreover, even after US entry into the war, a Germany-first approach needed to be nurtured. Consequently, Britain needed to show itself a worthy ally for the United States, capable of taking on the Axis powers.

Different adages and metaphors can be used to describe the flow of events in North Africa: "to and fro," "pendulum of war," and "seesaw," whereby the Axis powers and Allies pursued each other east and west in a frustrating search for strategic decision. To some degree, this pattern to the war reflected the geography of the theater. Much of the strategic focus from 1940 to 1943 took place along the 1,400-mile coastal strip from Tripoli to Alexandria. Add to this the rigors of operating men and complex machinery in the heat and sand of North Africa, plus the challenges of moving supplies across the hostile waters of the Mediterranean, and it quickly becomes apparent that logistics

imposed severe limitations on what was operationally and strategically possible.

The opening moves in the Mediterranean largely reflect Italy's quest for an empire and Mussolini's desire to fight a parallel and independent war, free from German interference. Under Mussolini's leadership, Italy lacked a coherent strategy. In these early months of the war, Mussolini's focus oscillated between the Balkans, Greece, French North Africa, British East Africa, and Egypt.[15] Having initially attacked British Somaliland in August 1940, the Italians shifted their focus to North Africa in September, launching an attack on British and Commonwealth forces (for brevity, hereafter referred to as British forces). Enjoying overwhelming numerical superiority (the Italian Tenth Army numbered 250,000, facing 36,000 British forces), the Italians drove the British back to Sidi Barrani in Egypt. However, and in what would become emblematic of the war in North Africa, the hesitant Italian commander, General Graziani, failed to exploit his initial success. With the advance in North Africa stalled, Mussolini launched an ill-conceived invasion of Greece in October, with Italian forces eventually being forced back into Albania. The Italians suffered an equally catastrophic reversal in December, when British forces, under the command of General O'Connor, launched Operation Compass. In what has been described as one of the "epic marches of history," two British divisions (4th Indian and 7th Armored) destroyed eight Italian divisions, capturing Tobruk, and eventually cutting-off the Italians at Beda Fomm in Libya. Along the way, O'Connor captured 130,000 prisoners of war, 400 tanks and 1,200 artillery pieces.[16] Aside from stymieing Italian imperial ambitions, the most significant outcome of the reversals in Greece and North Africa was that Germany felt compelled to come to the aid of its Axis ally. Consequently, German forces invaded Greece and were moved to Tripoli.

Before recounting the next series of operations in North Africa, it is worth noting three other events that had significance for the flow of strategy in the Mediterranean. First, as a consequence of its scatter-gun approach to strategy, Italy failed to attack Malta. And, although the island suffered prolonged siege and heavy bombing throughout the next few years, it remained in British hands. This represented a significant strategic oversight by Italy because Malta played an important role as a base for British ships and aircraft to harry Axis shipping and supplies. Indeed, Churchill noted that Malta's "strategic importance was never higher."[17] Second, in October 1940, Hitler failed to

bring Franco's Spain into the war on the side of the Axis Powers," this most notable outcome of this was the abandonment of Operation Felix, the plan to capture Gibraltar from the British. Finally, in a daring raid that prefigured the Japanese attack on Pearl Harbor, British Swordfish biplanes from the carrier HMS *Illustrious* attacked the Italian fleet at Taranto in November 1940. Alongside the naval victory at Matapan, this helped secure British control of the eastern Mediterranean Sea.[18]

German involvement in the Balkans, Greece, and North Africa had important consequences for the wider war. Most notably, these actions further stretched German resources and gave Britain a means of engaging German forces. However, the German intervention in Greece had a more immediate effect on events in North Africa, leading to one of the most contentious strategic decisions of the war. With the fall of Greece imminent, Churchill diverted four divisions to aid the Greeks. Importantly, this stripped O'Connor of experienced units, and arguably prevented him from finishing off the Italians in North Africa and perhaps even capturing Tripoli, Rommel's entry point to the North African theater.[19]

In disturbing echoes of Dunkirk, 50,000 retreating British forces had to be evacuated from Greece, leaving behind 12,000 casualties. Although Churchill's decision has been heavily criticized as a strategic blunder, the situation is not so clear cut. Some historians have questioned whether O'Connor's offensive could have really pushed on much further.[20] His forces were exhausted, in need of a refit, and, typical of the fighting in North Africa, were nearing their logistical limits. Moreover, Wavell had already made the decision to shift the experienced 4th Indian division to East Africa.[21] Furthermore, although there is some debate concerning the military advice Churchill received on the matter, it seems that Wavell was cautiously supportive of the idea to defend Greece.[22] Additionally, it has been argued that politically, and indeed strategically, Churchill could not have let Greece go without a fight. In the first instance, under an April 1939 agreement, Britain had committed itself to come to the aid of Greece if her independence was threatened.[23] Moreover, with Greece and the Balkans under German control, Churchill feared that Turkish neutrality would soon collapse. Finally, a decent show in Greece would raise Britain's standing in the eyes of the United States.[24]

At the same time, February 1941, that Churchill was making the decision to shift forces to Greece, Rommel arrived in Tripoli with lead elements of the 5th Light Division. Initially regarded as a blocking

force to prevent further British advances, Hitler refused Rommel's request to invade Cyrenaica. However, ever looking for an opportunity for offensive operations and personal aggrandizement, Rommel took advantage of the complex command hierarchy in the Third Reich and launched an attack in April 1941. The British were somewhat caught by surprise, at least in part because they had intercepted German communications signalling that Rommel should remain on the defensive. This is a sober warning for those defense professionals who automatically equate intelligence with success. As with all other aspects of strategy, the intelligence dimension must be viewed in context. In this instance, the British did not adequately account for the personality of Rommel and the chaos of German high command.[25]

As the British had done to the Italians under O'Connor, so Rommel's daring advance forced the British into a headlong retreat that finally came to a halt at Bardia, 80 miles east of the port of Tobruk. The latter, although held by the British, was quickly besieged by Axis forces. However, showing that there were limits to his tactical abilities, Rommel's attempted assaults on Tobruk failed, leaving him strategically frustrated. With British-held Tobruk resting on his supply lines, Axis forces could not carelessly march into Egypt. Indeed, Tobruk has been described as "a continual distraction to Rommel's ambition."[26]

Under pressure from Churchill, May and June 1941 brought two failed attempts to relieve Tobruk, Operations Brevity and Battleaxe, respectively. Despite a numerical advantage in armor, British forces were naive in their approach to combined arms warfare and failed to cope with strong German antitank defenses. In the same month, May 1941, Germany launched Operation Mercury, the airborne assault on Crete. In the first large-scale assault of its kind, German paratroopers under General Student fought and won a desperate battle for control of the key airfields on the island. Once again, the British had good intelligence on German intentions but could not translate this into operational success. Specifically, the British commander on Crete, General Freyberg, wasted valuable forces in defensive positions against an anticipated amphibious assault that never came. Arguably, the most important outcome of the battle for Crete was that the heavy losses suffered by the Germans destroyed Hitler's confidence in large airborne assaults. This may partially explain his reluctance to support Field Marshal Kesselring's plan for an invasion of Malta.[27]

Disappointed with this series of setbacks and failures in North Africa, Churchill replaced his theater commander, Wavell, with General

Auchinleck. Under pressure from the prime minister, Auchinleck prematurely launched another attempt to relieve Tobruk in November 1941, Operation Crusader, initially under General Cunningham and later under General Ritchie. Despite a significant 4–1 advantage in tanks, this poorly organized operation led to a chaotic battle on both sides. As was his style, although initially on the defensive, Rommel made an ambitious raid toward Egypt, the "dash to the wire." However, having reached his logistical limits, the German commander was forced to lift the siege of Tobruk and initially retreat 50 miles west to Gazala, before ignominiously completing his return to El Agheila. Nonetheless, as before when they had the Italians on the ropes, British armor losses, plus supply issues, restricted any opportunities for further decisive advances. Moreover, in echoes of O'Connor's predicament, the Japanese attack in the Pacific in early December 1941 forced Britain to shift forces from Auchinleck's command.

Once he had rebuilt his forces and supplies, Rommel reinitiated the swing of the pendulum in North Africa in January 1942. In another series of rapid offensive maneuvers, Axis forces forced the British back to the Gazala line. Ritchie constructed a series of static defensive boxes. Unfortunately, the defensive boxes were too far apart to offer sufficient mutual support, and the mobile armored reserve force was insufficiently mobile.[28] Just as significantly, Ritchie's defensive line could be flanked to the south. Under Operation Theseus, Rommel, now aided by an advantage in air power, drove the Italian forces directly at the British defensive line, while the 15th and 21st Panzer divisions and 19th Light initiated a southern flanking maneuver. Rommel was initially denied his dashing victory as both sides became bogged-down in an attritional battle in the aptly named "Cauldron." However, once again disjointed combined arms operations stymied British efforts to destroy the Germans, and thus began the "Gazala Gallop," a rapid retreat, back into Egypt. To Hitler's delight and Churchill's chagrin, Tobruk fell to the Axis on 21 June 1942.

British fortunes seemed to have reached their nadir. However, in the complex and oscillating environment of the war in North Africa, the Axis advantage was far more precarious than it appeared. Most significantly, Rommel had reached the limit of his logistical system. Second, there was dissension and confusion in the German command at this point. The theater commander, Field Marshal Kesselring, had advocated that Malta should be captured first to secure the supply route across the Mediterranean. However, playing upon the

chaotic command structure in the Mediterranean, Rommel got his way and advanced deeper into Egypt, and Malta remained in British hands.[29] Third, British forces were falling back on the strongly defensive position of El Alamein. With just 40 km between the coast and the Qattara Depression, El Alamein negated much of Rommel's operational advantage in dynamic flanking maneuvers. Fourth, just as Italian failure had persuaded the Germans to intervene in the Mediterranean, so the current British predicament gave President Roosevelt the opportunity to increase US involvement in the region, culminating in Operation Torch, the Anglo-American amphibious invasion of French North Africa. The resource imbalance was moving further in favor of the Allies. Finally, the air power balance also shifted toward the Allies.

Although the Second Battle of El Alamein receives much of the attention in popular discourse, the first battle to take place there (July 1942), under the command of Auchinleck, was equally important. Most immediately, it stopped Rommel's advance and gave the British forces time to rebuild and reorganize. In terms of the latter, the most important developments were the appointments of Lieutenant-General Alexander in place of Auchinleck (regarded as not aggressive enough by the ever-impatient Churchill) and Montgomery as the commander of Eighth Army. Montgomery's command abilities will be discussed at length in the section on command. For now, it is important to note that Monty understood the limits of the heterogeneous Eighth Army, understood the nature of the battlespace at El Alamein, and understood the character of his opposing commander, Rommel. Anticipating an attack from the offensively minded German commander, and using the preparatory planning of Auchinleck, Monty established a robust line of interlocking defenses at Alam Halfa, with well positioned antitank defenses, and blunted Rommel's final attack in late August. Subsequently, Monty created a meticulous offensive plan that played to his numerical strengths and firepower from centralized artillery and air power. For this, he rigorously trained the Eighth Army and fired up their morale.

There has been some debate about the necessity for the Second Battle of El Alamein.[30] It is certainly true that Operation Torch (8 November 1942) alone would have forced Rommel to retreat west to defend his lines of communications. Nonetheless, Second Alamein was still important for several reasons. First, and rather obviously, it made operational and strategic sense to attack the weakened Axis

forces in Egypt. There was the possibility, especially with the poor state of their supplies, that the Germans and Italians could have been finished off before they reached Tunisia. Moreover, victory at El Alamein was important for British politics and morale. In a strategic world of Clausewitz's trinity, these elements that constitute two-thirds of the trinity should not be underestimated.[31]

As it was, Second Alamein followed the themes of earlier North African battles; namely, it became rather muddled and confusing. Rommel actually missed the opening salvos of the British attack in October. Exhausted and ill, he had returned to Austria to recuperate. Even upon his return, with limited fuel, Rommel could do little to prevent the inevitable outcome. Indeed, he described the events at El Alamein as a "battle without hope."[32] The British Desert Air Force dominated the skies, and although British tanks became bottlenecked as they fought their way through determined Axis defenses, the heavy losses on both sides were more detrimental to the resource-strapped Axis than to the well supplied Allies. With defeat inevitable, on 4 November, Rommel began his long retreat west. In what was to cause yet more controversy among military historians, despite a series of running engagements, Monty failed to isolate and destroy Rommel's forces, which eventually joined the battle in Tunisia.

By approving the landings in French North Africa (Morocco and Algeria), President Roosevelt went against the advice of his military advisors and Secretary of War, Henry Stimson. Many in Washington were angling for an early invasion of Northern France. However, at this stage in the war, the British were firmly against a cross-channel operation. Additionally, FDR realized that North Africa presented the United States with an opportunity for a morale-boosting victory. It has also been suggested that North Africa gave the Allies much-needed battle experience against the Germans, until a more critical assault on France. However, despite these strategic benefits, by arguably landing too far west and dispersing at three different sites, the Allies gave the reinforced and newly designated Fifth Panzer Army time to secure its position in Tunisia.[33] As a consequence, the campaign to clear French North Africa lasted far longer than anticipated (8 months) and cost the Allies 70,000 casualties.

For their part, it has been argued that the Axis powers perhaps should have cut and run from North Africa, rather than leaving 250,000 men isolated between Allied armies advancing from east and west. As it was, the Italian strategy bridge had all but collapsed. In

Germany, Hitler still wanted to provide some protection to southern Italy (Sicily was invaded by the Allies in July 1943) and was hoping for some much-needed success at this stage of the war. In this sense, he was perhaps responding to the growing sense of failure on the Eastern Front.[34] The main problem for the Axis forces was, as ever, logistics. By May 1943, their supplies had dropped to 3,000 tons/month, from a high of 64,000 tons only a few months earlier.[35] The Axis had some moments of triumph, most notably Kasserine Pass (February 1943), but these amounted to little more than spoiling attacks, merely delaying the inevitable. Although it is claimed that Eisenhower did not offer a coherent strategic focus to the campaign, and some of the Allied commanders (Anderson, Fredendall) were of questionable quality, the resources of the Allies continued to bear down on the Axis forces.[36] There were some notable achievements for the Allies, including Monty's masterful defensive battle at Medenine against three panzer divisions. And, on 22 April 1943, the Allies launched Operation Vulcan, capturing Tunis on 7 May. On 9 May, the Fifth Panzer Army finally surrendered. The war in North Africa was over, and attention shifted to Italy. Reflecting the scale of Axis losses, the defeat in Tunisia has been described as on a par with the defeat at Stalingrad.[37]

Lessons from North Africa

Logistics and Resources

It should be apparent from the above discussion of the war in North Africa that logistics and resources played a central role in the outcome. Indeed, in his excellent study of the Wehrmacht during the Second World War, Robert Citino describes supply as "not just a problem, but the problem."[38] Likewise, John Ellis writes that when seeking to understand the war in North Africa, "the key word is logistics."[39] To some degree, this was because the theater of operations was at some distance from the main protagonists, and the majority of supplies had to be transported via a maritime route that was often under threat from enemy action.[40] And although the Italian merchant marine continued to cross the Mediterranean, the Axis failure to take Malta increased pressure on their supplies as the war headed toward its climax.

Within North Africa itself, the supply bases of both sides were at the eastern and western limits of the 1,400-mile theater of operations. Additionally, the scarcity of major settlements meant that everything had to be transported along with the forces.[41] Indeed, Ellis reports that for much of the campaign, the main problem for Axis forces was not getting supplies to North Africa but rather moving supplies from Tripoli to the frontline. This was due to the scarcity and vulnerability of road transport and the fuel to power it.[42] Finally, although the North African terrain represented good tank country, it took a heavy toll on vehicles, limiting the tempo of advances.[43]

The prominence of logistics goes some way to explain the to and fro of the war in North Africa. Advances that were initially successful eventually ran out of logistical steam, having forced the enemy back onto their supply bases. This same enemy would reinforce and resupply, go on the offensive itself, and the cycle would repeat. Additionally, although important, North Africa remained peripheral to the main areas of decision on the European continent and, consequently, was not as well resourced. This was especially the case, and particularly problematic, for Nazi Germany. Until 1943, the Germans never had more than 55,000 troops and 332 tanks on the frontline in North Africa. This compares to over 3 million troops and approximately 3,000 tanks on the Eastern Front.[44] Moreover, Germany lacked the naval power to successfully take on the Royal Navy and, at the same time, could not devote enough air assets to the theater, as these were badly needed elsewhere (increasingly on the Eastern Front and for defense of the Reich from Allied bombers).

Since, until June 1944, the Mediterranean was the main effort for western-Allied forces in Europe, over time the Allies devoted an increasing number of men and amount of equipment to the war in North Africa. The impact of this can be seen at Second Alamein, where, in almost all categories, British forces were double that of their Axis rivals (195,000 troops to 104,000, 1,039 tanks to 527, 908 field and medium guns to 518).[45] It should also be remembered that at this same moment over 100,000 Allied troops were heading for French North Africa. The resource issue was not entirely straightforward for the Allies. As previously noted, at different times, the British had to shift resources to the Pacific and East Africa. For example, with the opening of the Pacific War, Auchinleck lost four divisions and a considerable number of bombers and antitank guns.[46]

As difficult as logistics were for the Allies at times, they have been described as the Achilles heel for Germany,[47] even though the Prussian-German tradition was very much based on mobile operations conducted on a logistical shoestring.[48] As on the Eastern Front, supply and replacement problems severely limited German operational choices.[49] Indeed, the experience of the Axis powers in North Africa acutely demonstrates the complex interactions that occur among the dimensions of strategy and how friction can undermine a daring operational approach built upon limited resources. In this case, we witness important interactions among logistics, command, policy objectives, and military operations, to name just four.

Nazi Germany allowed itself to be sucked into a war that did not directly serve its strategic needs nor could be sufficiently and reliably resourced to achieve success. At most, Germany needed to secure its southern flank in the Balkans, while supporting its Italian ally as the Axis bedrock in the Mediterranean. However, Italian incompetence in Greece and North Africa dragged Germany into these areas. Consequently, Rommel's adventures presented to Berlin the tantalizing possibility of destroying British presence in the Middle East and linking up the Mediterranean with the Caucasus. The rather obvious problem with this turn of events was how to resource and supply an increasing presence in the Mediterranean while the main event was developing on the Eastern Front. It will be remembered that Germany launched Barbarossa (June 1941) at approximately the same time as British forces were seeking to relieve Tobruk with Operation Battleaxe.

Ironically, these issues were exacerbated by Rommel's tactical and operational proficiency, especially his ability to do much with little. Ultimately, this proved catastrophic, and was aggravated by the fact that Rommel was "disinterested in the dreary science of logistics, the details of which he left to his Staff."[50] Indeed, Rommel's final offensive into Egypt in 1942 was only made possible with captured British supplies.[51] Although it is easy to become lost in the romance of daring mobile operations across the desert, good command requires an appreciation of all aspects of combat power, including reliable husbanding of supplies. Moreover, the success of German offensive operations was dependent upon key equipment that was increasingly not in abundant supply as the war developed. For example, Rommel's armored thrusts relied upon the Panzer III and IV, and his ability to counter increasing numbers of Allied tanks depended upon antitank guns, such as the Pak 38 and the 88mm.[52] Not surprisingly, these

same assets were much in demand on the Eastern Front. As if to illustrate this very point, Douglas Porch reports the extraordinary figure that German Panzer divisions, which had started the war with an average of 328 tanks, by 1943 were down to 73 tanks.[53] As his forces assembled for the final assault at Alam Halfa, Rommel's four mobile divisions were 33% below their manpower allocation and had received only 40% of required supplies. This explains why Rommel only had four and one-half days of fuel for the forthcoming offensive, and why once Monty attacked, German commanders had to withhold their artillery ammunition.[54]

Although Allied forces too suffered from moments of acute difficulties in supplies, as the war in North Africa developed, Allied logistics improved, and eventually the imbalance became decisive.[55] In the first half of 1941, Britain was shipping an average of 5,000 tons per day to Egypt.[56] This was, at least in part, due to the fact that Allied forces had an alternative route into the Mediterranean via the Cape of Good Hope and the Suez Canal.[57] Indeed, rather than suffering from issues of supply, Allied failures were often the result of commanders wasting resources with tactical incompetence. It was, therefore, not a lack of resources that stymied Allied plans, rather it was the poor quality of command, outdated doctrine, and green forces that meant the resource imbalance took some time to play a decisive role in the theater. Perhaps most importantly, an improving resource situation gave the Allies time to learn from their mistakes.[58] Over time, logistical advantage was able to compensate for deficiencies elsewhere.

Military Command

Although the military historian Niall Barr is perhaps correct to bemoan an overemphasis on the influence of individual commanders in North Africa, it is still the case that as Colin Gray wrote, "people matter most" in strategy.[59] Without diminishing the significance of the quality and courage of the troops involved, in many respects the war in North Africa was shaped by those tasked with command and the complex relationships they had with their respective political masters. From the Allies' perspective, battlefield commanders (men such as O'Connor, Cunningham, Ritchie, and Montgomery) appear to have played significant roles in the fortunes of battles and operations. Likewise, theater or expedition commanders (Wavell, Auchinleck, Alexander, and Eisenhower) loom large in our understanding of the war

in North Africa. For the Axis powers, Erwin Rommel stands above all others as the dominant individual, with important cameos played by Graziani and Kesselring.

In the expected complex drama of war, British fortunes waxed and waned in response to varying levels of command performance relative to the enemy.[60] At the level of theater command, the first British commander, Wavell, although a diligent individual, had little real interest in soldiery and possessed a veiled personality.[61] He also had little understanding of mobile operations.[62] Indeed, Porch, perhaps somewhat harshly, describes Wavell as a chateau general.[63] In turn, his replacement, Auchinleck, made poor choices in his subordinates.[64] When he finally took battlefield command himself, he never adequately stamped his authority on Eighth Army. That being said, he fought a decent battle at First Alamein, and constructed plans that proved useful for Montgomery at Alam Halfa.[65] Alexander, who is said to have complemented Montgomery well, is credited with rationalizing "the sprawling bureaucratic jungle of GHQ [General Headquarters] Cairo, making it more responsive to the needs of the army in the field."[66] However, he was regarded as incapable of exerting authority and out of his depth as a strategist.[67]

In the early months, Wavell was initially well served by O'Connor. The latter's leitmotif of mobility brought the Allies potentially to the cusp of victory.[68] Resembling Rommel, O'Connor realized that the open terrain of North Africa favored ambitious armored flanking maneuvers. He also ensured that his men were meticulously trained within theater.[69] In contrast, O'Connor's replacements, Cunningham and later Ritchie, seemed not to have grasped the modern combined arms approach. Indeed, Cunningham was a man with no experience of armor, and Ritchie was too indecisive for this type of warfare.[70] Barr complains that at Gazala "Ritchie seemed to be making decisions in slow motion."[71] As a consequence, he failed to adequately direct the battle, especially in "the Cauldron" when the opportunity to destroy German armor presented itself.[72] At Operations Brevity, Battleaxe and Crusader, British combined arms naivety and tentative command led to failure or confused battles. It is at least arguable that these operations were launched somewhat prematurely by theater commanders under understandable pressure from the Prime Minister.

It is certainly true that in some important respects Montgomery inherited a better operational situation than most of his predecessors; some of it was down to the work of Auchinleck and much the result

of increasing resources. However, this should not detract from the fact that he was able to transform a defeated Eighth Army into one capable of victory at Second Alamein. Monty rigorously trained his men, gave them confidence, and created a meticulously planned, straight-forward operation focused on material superiority and fire-power. As was his way, he insisted on maintaining a firm grip on the battle and advanced on a narrow front, with considerable depth and air superiority.[73] Importantly, he also understood how to engage Rommel, refusing to fight a mobile battle.[74] In doing so, he initially fought a masterful defensive battle destroying German armor along the Alam Halfa ridge. Then, at Second Alamein he fought a slow at-tritional battle, intent on "crumbling" Rommel's Panzerarmee in a *schwerpunkt*.[75] And, although Operation Lightfoot did not go entirely to plan (primarily because of congestion in which X Armored Corps became entangled in the narrow corridor through enemy lines), his flexibility with Operation Supercharge deserves recognition.[76]

For all of this success, his limits for offensive flair were evident in Monty's failure to capture and destroy the Axis forces as they retreated westward.[77] This reflected, in part, a doctrinal gap for armored break-through.[78] Additionally, Citino criticizes British commanders for a lack of planning for the pursuit.[79] This position is somewhat chal-lenged by Barr, who claims that Monty's pursuit of Panzerarmee Afrika was fairly rapid (more rapid than its own retreat), and indeed was enabled by excellent logistical forward planning.[80] Moreover, when seeking to understand the failure to destroy Rommel's forces, one must take into account the wider strategic context. In his own words, Monty was conscious of not repeating earlier defeats in the desert "which negatived [*sic*] all the success gained."[81] It must also be re-membered that Monty was increasingly aware of Britain's manpower shortages. Britain could not afford another costly defeat.[82]

Not unlike Montgomery, Erwin Rommel has been the subject of much historical discussion. Described by Murray and Millett as the "outstanding battlefield commander of the war,"[83] the Desert Fox is regarded by some as the epitome of command in armored warfare, leading from the front with a penchant for seizing the initiative, even if it sometimes conflicted with orders from above.[84] On occasion, Rommel's aggressive "maneuverist" approach served him well, leading to deep encroachments into Egypt and eventually capturing Tobruk. However, it also can be seen as an impetuous style of command intent on personal glory. Alongside Rommel's great tactical and operational

achievements, historian David French identifies two important fail-ures: his dash to the wire during Operation Crusader and getting his forces trapped in the Cauldron in May/June 1942. Illustrative of Rommel's impetuousness is that during his offensive into Egypt in 1942—which, it will be remembered, went largely against the advice of the theater commander Kesselring—Rommel pushed his forces beyond the reach of Luftwaffe support.[85]

The above discussion of Rommel's abilities relates primarily to the tactical and operational levels. However, analysis at the strategic level is even more damning. Arguably, his innately offensive approach was ill suited to the Mediterranean. Before his first foray against the British, German forces were designed as a blocking force to protect Tripoli. Because of his early success, North Africa became a much more sig-nificant theater for Germany; one they could not adequately resource, but one that nevertheless diverted crucial resources from elsewhere. Rommel, it seems, was too focused on the lower levels of strategy, and did not fully comprehend the strategic implications of his actions. That being said, Porch concludes that since he was in command of the materially weaker army, Rommel was compelled to stay on the offensive, seeking to keep his opponents off-balance.[86] In this sense, Rommel was somewhat caught in an operational dilemma, albeit one of his own making, without adequate strategic guidance from above.

The Strategy Bridge

As is evident from Rommel's situation, any discussion of com-mand leads us inevitably onto the strategy bridge, the point at which military command interacts with policy makers. As indicated above, actions at the tactical and operational level must serve the wider pol-icy objectives. Similarly, policy choices must be achievable at the lower levels; strategic decisions must be commensurate with what can be delivered in the theater of operations or on the battlefield. Therefore, the strategy bridge must be the home for robust dialogue.

When discussing the Allies in North Africa, Winston Churchill is clearly the dominant figure on the strategy bridge. The Mediterra-nean strategy was very much Churchill's baby. Rightly wary of an early cross-channel invasion of occupied Europe, Churchill saw the Mediterranean as an area for strategic opportunity. Italian adventur-ism had to be resisted, and British interests defended. Beyond this, the Mediterranean offered the promise of diverting Axis resources

and attention away from the main centers of gravity in Europe. It acted as a training ground for Allied forces and commanders, and offered the possibility of gaining important, albeit not decisive, victories to boost the morale of Allied populations. Finally, and eventually, it could be exploited as a route into southern and central Europe. In this sense, Churchill was endowed with an ability, albeit imperfect, to see the various strategic connections at play in the Mediterranean.

As a political animal, Churchill was conscious of the vagaries of domestic and alliance politics. Consequently, the prime minister often demanded military operations at odds with, especially in terms of timing, the thinking of his generals. This is evident in his demands for the relief of Tobruk and the deployment of British forces to Greece in early 1941. Moreover, General Kennedy, head of the Joint Planning Staff, complained that Churchill was too taken by a wide range of ideas, demanding detailed study of them all. Reflecting on this, Kennedy quipped, "It would almost have been worthwhile to have two staffs: one to deal with the Prime Minister, the other with the war."[87]

It is in these instances that we begin to see some of the challenges of working on the strategy bridge. Military commanders, even theater commanders such as Wavell and Auchinleck, understandably are concerned primarily with issues relating to logistics, training, equipment, and operational art. As a consequence, they normally chafe against policy demands to attack early or for the diversion of their forces to other theaters and campaigns. For their part, political leaders, even ones like Churchill, with a deep interest in military matters, can become impatient with valid military concerns when the policy world is demanding results. In the case of North Africa, it seems that neither Wavell nor Churchill properly understood the situation of the other. Their relationship has been described as one of mutual distrust, with Wavell adopting a stance of secrecy to prevent Churchill from interfering in his operational plans.[88] Similarly, Craster notes Churchill's "relentless pressure on Auchinleck,"[89] leading inevitably to another difficult relationship.[90] Nonetheless, Churchill's constant prodding of his generals can be regarded as an important aspect of strategic leadership, ensuring the proper functioning of the unequal dialogue.[91]

There is, sadly, no simple answer to these tensions on the strategy bridge. As Gray wrote, "policy is king," but military matters must be given their due respect.[92] As evidenced above, the unequal dialogue did not always function smoothly for the British in North Africa, but it worked sufficiently well over the course of the war. Indeed, by 1942

Britain had in place a decent strategic decision-making process, operating with a series of committees, within which Churchill, Alan Brooke, and General Ismay managed, despite some personal issues, to make the unequal dialogue function.[93] Murray concludes that much of this was due to "Churchill's driving personality and intelligence."[94] Perhaps just as importantly, an increasingly favorable resource situation gave the Allies a safety net when things went awry.

Although not directly present for much of the war in North Africa, the United States became increasingly important to the outcome of events in the Mediterranean. In the first instance, US resources began to give the British the edge in Egypt and Libya. And, from Torch onward, US forces, albeit often finding the going difficult in combat operations, helped finish off the Axis forces in North Africa. This important contribution owes much to President Roosevelt and his appreciation of strategy. Against the advice of much of his military high command and secretary of defense, Roosevelt backed Churchill's peripheral strategy in the Mediterranean. It appears that Roosevelt, too, was also conscious of the need to build momentum against Nazi Germany while also cognizant of Churchill's domestic pressures. In this sense, FDR understood the challenges of alliance politics.[95]

Although ultimately successful, the US strategy bridge creaked quite severely in French North Africa. Roosevelt may have understood the strategic rationale for deploying American forces into the Mediterranean, but the execution of strategy there ran into various problems. Inexperienced US forces struggled in theater, and Roosevelt's choice for Commander-in-Chief Allied Expeditionary Force, General Eisenhower, complicated matters with his controversial dealings with the representatives of Vichy France.[96] Furthermore, Eisenhower did not garner respect from some of his subordinates. Montgomery was cutting in his appraisal: "He knows practically nothing about how to make war, and definitely nothing about how to fight battles." Likewise, General Patton categorized him as "just a staff officer, not a soldier."[97] Despite his shortcomings, Eisenhower had notable strengths that proved important on the strategy bridge. In particular, he is credited with understanding alliance politics and how to manage difficult personal relationships among the high command. Consequently, over time, he created a more harmonious inter-Allied, combined command in the Mediterranean.[98]

If the Allies' strategy bridge was battered by heavy winds in North Africa, that of the Axis powers came close to collapsing. Both Hitler

and Mussolini suffered from strategic myopia. Both were prone to strategic distraction and overoptimistic strategic opportunism. Despite being an absolute dictator, Hitler was surprisingly prone to indecision, often pursuing various options at the same time.[99] Aside from creating the obvious problem of a lack of strategic focus and the resulting resource implications, Hitler's approach to strategic decision making created massive workload issues for the Oberkommando der Wehrmacht (OKW) and Oberkommando der Heeres (OKH), who had to plan various campaigns and contingencies simultaneously.[100] It is one of the great conundrums of the Second World War that Nazi Germany was able to achieve so much in the early stages of the conflict, despite the dysfunctional nature of its strategic processes.[101] Indeed, Geoffrey Megargee concludes that the German high command was dominated by confusion in the crucial period between the fall of France and invasion of the Soviet Union, precisely the period when it became increasingly embroiled in North Africa.[102] The latter theater has been described as the most complicated in the Third Reich, with command ill-defined among the Italians, OKW, and OKH. Into this already chaotic mix was added Rommel, whom Halder described as "stark mad," as he dispatched Paulus in a hopeless attempt to rein him in.[103]

Hitler's opportunism, married to Rommel's ambition, undermined German strategic fortunes in the Mediterranean. To the opportunist Hitler, Rommel's startling successes presented the Führer with tantalizing, if unobtainable, opportunities. And, although the practice of strategy requires some ambition (see Clausewitz's description of a military genius), it also needs a degree of level-headedness to offset the nonrational forces at play in the trinity. On a strategy bridge dominated by opportunism, the culminating point of victory is likely to be ignored.[104] This was especially problematic in Nazi Germany, because political and military power was concentrated in the hands of Hitler as Führer und Oberster Befehlshaber der Wehrmacht (Leader and Supreme Commander of the Wehrmacht).[105] In contrast to Britain, Germany lacked the equivalent of a war cabinet and joint chiefs of staff. A Council of Ministers for Reich Defense had been formed in 1939, but it only lasted for three months.[106] As a consequence, there was no formal process for making strategy; everything depended on the whim of the Führer.

While it made perfect sense for Hitler to secure his southern flank, arguably, this did not require a substantial German presence in North

Africa. To be dangerously blunt in this strategic analysis, from June 1941 onward, the war would be won and lost on the Eastern Front. Despite this, and somewhat mistakenly in support of this point, Hitler allowed himself to become increasingly drawn into the Balkans, Greece, and North Africa. As previously noted, this was, at least in part, due to Rommel's initially unsanctioned opportunism. The latter was enabled, at least in part, by the increasingly unclear command structure in Nazi Germany. As the war progressed, high command became divided between the OKH and OKW.[107]

To reiterate the comments regarding the unequal dialogue, those on the strategy bridge must ensure that policy objectives are met and military needs respected. However, in the case of Nazi Germany, policy objectives were too prone to change in light of military events. Consequently, Germany allowed its policy objectives to expand at the behest of a military machine that was incapable of achieving these same expanded objectives. At the same time, the Wehrmacht did not adequately communicate to Hitler what was militarily achievable. In fact, men such as General Jodl were naively optimistic about military prospects.[108] Most damaging for Germany, and in what some regard as the German tradition, Nazi political and military leaders sought operational solutions to strategic problems.[109] Moreover, once the war was clearly lost in North Africa, Hitler refused to withdraw gracefully. Instead, in a case of policy asking the impossible of the military, he insisted that Axis forces hold their ground in Tunisia, essentially sacrificing 250,000 troops to inevitable defeat.

Mussolini's approach to strategy was equally broken. Indeed, Italy's decision making during the war has been described as inchoate, based purely on the will of the Duce, with little actual planning.[110] In Italy the strategy bridge barely functioned. There was an absence of coordination between objectives and military planning.[111] However, the catastrophic consequences of this were more readily apparent because the Italians lacked the quality of forces and commanders to compensate for strategic failure. Mussolini had grand policy objectives for sure but appears to have been even more unfocused than Hitler. Mussolini's ambitions in Greece, the Balkans, and North and East Africa were never translated into realistic strategic plans.[112] He made few military preparations commensurate to these policy goals. John Ellis reports that in June 1940, of the 73 army divisions raised, only 24 were in any way combat ready, and even these were poorly equipped.[113] Not surprisingly, as Mussolini's lustful gaze swept across

southern Europe and the Mediterranean, jumping from one adventure to the next, Italian forces lurched from failure to failure. In this way, none of the levels of strategy seemed to function in Fascist Italy.

Tactical and Operational Performance

As noted, strategic objectives must be realized in the theater of operations and on the battlefield. The war in North Africa contains important indicators of the tactical and operational competences of the different belligerents. Arguably, for most of the Second World War, German forces fought with considerable skill and commitment. Indeed, Jürgen E. Forster describes the Wehrmacht as "one of the most formidable military machines in history."[114] This was true even in the latter stages of the conflict, especially in Normandy and the Italian peninsula, where the Wehrmacht put up a dogged defense.

The key to German success was effective modern combined arms, built upon the Prussian-German tradition of wars of movement at the operational level. The operational goal was a battle of encirclement, leading to a *kesselschlacht* (cauldron battle) and destruction of the enemy.[115] It is easy, perhaps, to fall into the trap of assuming that German tactical and operational advantage emanated from its mastery of tanks. Important though these vehicles were as armored spearheads in the advance or acting as defensive hardpoints, German success was really the product of an effective and intimate coordination of armor, infantry, artillery, and air power. Time and again in North Africa, the British would learn to their cost that tanks fighting on their own were extremely vulnerable without infantry and gunnery support. This was especially the case when they faced a German Panzer division fighting in a tight box formation.[116]

Effective combined arms doctrine is insufficient, on its own, to provide significant tactical and operational advantage. Additionally, the Germans benefited from a cadre of effective commanders at all levels, trained and psychologically equipped to seize the initiative and inspire the men under their command.[117] In turn, the Wehrmacht was also endowed with a ferocious fighting spirit and loyalty to the Führer.[118] It is, of course, true that attitudes to the Führer and National Socialism varied across the many different units of the Wehrmacht. Nonetheless, overall, it seems that a close relationship had been established between the leader and the led. Under Hitler, the Wehrmacht had flourished. Moreover, the latter shared the Führer's hatred

for, and fear of, Bolshevism, with some also sharing his intense anti-Semitism. Forster reports that Halder, and much of the military leadership, was "willing to let the troops participate in the forthcoming ideological war."[119]

Alongside the Germans, their Italian allies were initially unprepared for war in terms of doctrine, training, equipment, and leadership. Tactically and operationally, they were unimaginative, and they were often slow to learn lessons, either from their own experiences or that of others.[120] That being said, improvements did occur after the Compass disaster. Italian motorized and armored divisions contributed to the fall of Tobruk, aided the escape of German forces from the Cauldron, and Italian antitank guns proved effective during Brevity and Battleaxe.[121]

In contrast to their German foes, British forces entered the war in North Africa with much to learn about modern warfare. Under the right commander (O'Connor), and against the right enemy (Italians), British forces could achieve remarkable results. However, when they came up against the proficient Germans, their inadequacies became evident. It took the British quite some time to develop an understanding of modern combined arms. As reported by Murray, this was, at least in part, due to the regimental system, the conservatism of the cavalry, and the lack of common doctrine and rigorous training.[122] Indeed, one can argue that the British never fully mastered modern combined arms operations, as evidenced by the performance in Normandy. A particular deficiency of the British, especially as it relates to armored forces, was a propensity for dispersion, a failure to concentrate at the decisive point.[123] In this sense, Ellis reports that British armored doctrine was naive, perceiving tanks as a largely isolated vanguard. Taken together, these doctrinal failings squandered some technological advantages enjoyed by the Allies.[124] Britain also suffered from poor communications and a lack of adequate in-theater training, both of which proved problematic for conducting fast, mobile operations.[125]

An advance that significantly aided British operational performance in North Africa was the establishment of the Desert Air Force under Air Vice-Marshal (AVM) Arthur Coningham. Indeed, Barr concludes that air support was crucial for the survival of Eighth Army in 1942.[126] This was especially important during the retreat east after the Battle of Gazala, when the Royal Air Force (RAF) delayed the advancing Axis forces sufficiently to enable Auchinleck to establish a

defensive line at El Alamein.[127] The Allies also benefited from improving equipment. This is evident, for example, in increasing numbers of the M-3 Grant tank from 1942, which, with its thick armor and 75mm gun, was a match for most German tanks in theater.[128] Another area where Britain proved superior was in coordination of the three services in the Mediterranean.[129] This partly explains how, as the war in North Africa developed, British land forces increasingly benefited from superior air cover and a more stable supply situation relative to the Axis powers. For example, Rommel's eventual retreat during Crusader was significantly influenced by supply issues. As Barr notes, this coincided with British Naval Force K operating more aggressively out of Malta.[130]

Akin to their British allies, the United States entered the war in North Africa woefully unprepared. Owing to an aversion to a large standing army, the United States lacked sufficient pre-war preparation and paid for this during the war. Operations in North Africa also suffered because the US Army received the lowest quality recruits and had a poor officer class. Inevitably, this produced poor performance in modern combined arms operations, especially against the experienced Germans (as evidenced at Kasserine Pass). With plenty of resources, good logistics, and an aptitude for heavy artillery support, US operations tended toward an attritional style of fighting, albeit one that preferred material over men. In this sense, the United States, which did have an offensive mindset, compensated for operational flaws with logistical abundance.[131]

Conclusion

Taking Colin Gray's approach to heart, this chapter has utilized a historical case study to extract conceptual lessons about the conduct of strategy. Although all the dimensions of strategy were inevitably in play in North Africa, for the sake of brevity this chapter has focused on just four. As is so often the case in war, but especially so in North Africa, logistics dictated what was operationally and strategically possible. Often, both sides were rightly fixated on the shipping battle in the Mediterranean. In this sense, the Axis failure to capture Malta stands out as one of the major strategic oversights in the war. On the coast of North Africa, major offensives failed to deliver decisive strategic effect, often because logistical limits had been reached. In the

end, Allied resource advantage proved decisive at Second Alamein and the war in Tunisia, despite the dogged resistance of Axis forces.

Of course, logistics and resources have a symbiotic relationship with command and operations. In North Africa, Rommel achieved much despite his logistical shortfalls—although, ironically, his negligence of logistics perhaps prevented him from achieving even more, albeit over a longer, more cautious time frame. In turn, because of poor combined arms doctrine and tentative decision making, Allied commanders often wasted resource advantage. Arguably, it was Montgomery who finally realized how to fight Rommel in a resource-rich manner. Montgomery was fortunate that the resource imbalance had reached a tipping point by late 1942 and that the terrain of El Alamein enabled him to successfully fight a resource-intense battle.

To be fair to some of the earlier British commanders, both battlefield and theater, they often had to go on the offensive earlier than they would have preferred or had forces stripped from them at inopportune moments. This was due, primarily, to Churchill's impatience for battlefield success and the expanding demands of a global conflict. In turn, we must give Churchill some leeway and due credit, for the prime minister had to deal with difficult political circumstances both domestically and within the alliance. As it was, the Allied strategy bridge functioned well enough, again with time and resources enabling it to absorb mistakes and losses. In contrast, the strategy bridge was severely dysfunctional in both Germany and Italy. In both Axis powers, strategy, if indeed it consciously existed, was at the whim of the Führer or Duce. Since both men lacked strategic clarity and focus, and at the same time were often indifferent to military counsel, long-term success was unlikely. In the case of Germany, tactical and operational performance compensated for, at least for some time, an absence of strategic sense.[132] This was abetted by failure in Allied forces to comprehend and enact modern combined arms operations. Again, it was resources that allowed the Allies to survive tactical and operational failure, and eventually overcome Axis forces in North Africa.

Taken as a whole, the war in North Africa demonstrates that although there may be dimensions (logistics) that appear to dominate a particular case study, the real insight is to be found in the complex interactions that occur among the dimensions, in this particular case, logistics, command, operations, and strategy.[133] At a pedagogical level, therefore, we see the value of Colin Gray's approach to strategic studies. His theory, itself inductively built upon historical knowledge,

is instrumental in enabling us to comprehend and extract lessons from strategic history. In turn, our enhanced understanding of the past will hopefully increase the prospects for better strategic practice in the future.

Notes

1. Colin S. Gray, *War, Peace and Victory* (New York: Simon and Schuster, 1990); Colin S. Gray, *Modern Strategy* (Oxford: Oxford University Press, 1999); Colin S. Gray, *The Strategy Bridge* (Oxford: Oxford University Press, 2010); Colin S. Gray, *Theory of Strategy* (Oxford: Oxford University Press, 2018); Colin S. Gray, *The Leverage of Sea Power* (New York: The Free Press, 1992); Colin S. Gray, *Airpower for Strategic Effect* (Maxwell AFB, AL: Air University Press, 2012); and Colin S. Gray, *The Second Nuclear Age* (New York: Lynne Rienner, 1999).

2. Gray, *The Strategy Bridge*, 24.

3. Colin S. Gray, *Strategy and History: Essays on Theory and Practice* (London: Routledge, 2006), 6.

4. Gray, *Theory of Strategy*, 124.

5. Gray, 127.

6. Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2005).

7. The dimensions of strategy were developed most fully by Colin in *Modern Strategy.*

8. Douglas Porch, *The Path to Victory: The Mediterranean Theater in World War II* (New York: Farrar, Straus and Giroux, 2004).

9. Williamson Murray and Allan R. Millett, *A War to Be Won: Fighting the Second World War* (Cambridge, MA: Belknap Press, 2000), 108.

10. Evan Mawdsley, *World War II: A New History* (Cambridge: Cambridge University Press, 2020), 241; and Geoffrey P. Megargee, *Inside Hitler's High Command* (Lawrence, KS: University Press of Kansas, 2000), 91.

11. Murray and Millett, *A War to Be Won*, 287.

12. Niall Barr, P*endulum of War: The Three Battles of El Alamein* (London: Pimlico, 2005), 3; and Correlli Barnett, *The Desert Generals* (London: Weidenfeld & Nicolson, 2011), Kindle edition, 24.

13. Jürgen E. Förster, "The Dynamics of Volksgemeinschaft: The Effectiveness of the German Military Establishment in the Second World War," in *Military Effectiveness, Volume 3, The Second World War*, eds. Allan R. Millett and Williamson Murray (Cambridge: Cambridge University Press, 2010), 197.

14. Murray and Millett, *A War to Be Won*, 268; and Megargee, *Inside Hitler's High Command*, 99.

15. Murray and Millett, *A War to Be Won*, 92.

16. Ian Beckett, "Wavell," in *Churchill's Generals*, ed. John Keegan (London: Weidenfeld and Nicolson, 1991), 77.

17. Winston S. Churchill, *The Second World War: Volume 3, The Grand Alliance* (London: Penguin Books, 1985), 50.

18. John Ellis, *Brute Force: Allied Strategy and Tactics in the Second World War* (London: Andre Deutsch), 231.

19. Barnett, *The Desert Generals*, 63.

20. Barr, *Pendulum of War*, 5.

21. Beckett, "Wavell," 77.

22. Beckett, 78; and Churchill, *The Second World War: Volume 3*, 90.

23. Barrie Pitt, *Wavell's Command: The Crucible of War, Book 1* (Sharpe Books, 2019), Kindle edition, Location 4454.

24. See Murray and Millett, *A War to Be Won*, 102; Churchill, *The Second World War: Volume 3*, 90; and Pitt, *Wavell's Command*, Location 4571, for further discussion of Churchill's decision.

25. Ralph Bennett, *Behind the Battle: Intelligence in the War with Germany* (London: Pimlico, 1999). Bennett offers a superior analysis of intelligence in the Second World War.

26. Barrie Pitt, *Auchinleck's Command, The Crucible of War, Book 2* (Sharpe Books, 2019), Kindle edition, 10.

27. Shelford Bidwell, "Kesselring," in *Hitler's Generals*, ed. Correlli Barnett (London: Phoenix, 1995), 277.

28. David French, *Raising Churchill's Army: The British Army and the War Against Germany 1919–1945* (Oxford: Oxford University Press, 2000), 220.

29. Murray and Millett, *A War to Be Won*, 270. There is some debate within the historical literature on this point. Alan F. Wilt, for example, states that Kesselring too had doubts about invading Malta. See Alan F. Wilt, *War from the Top: German and British Military Decision Making During World War II* (London: I. B. Tauris, 1990), 186.

30. Porch, *The Path to Victory*, 290.

31. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 89.

32. Robert M. Citino, *Death of the Wehrmacht: The German Campaigns of 1942* (Lawrence: University Press of Kansas, 2007), 285.

33. Albert Seaton, *The German Army 1933–45* (London: Weidenfeld and Nicolson, 1982), 198.

34. Porch, *The Path to Victory*, 371.

35. Porch, 407.

36. Porch, 413.

37. Murray and Millett, *A War to Be Won*, 301.

38. Citino, *Death of the Wehrmacht*, 127.

39. Ellis, *Brute Force*, 248.

40. There were some notable exceptions to this. For example, over 5,000 aircraft were flown into Cairo, having been assembled in Takoradi on the Gold Coast. See Deborah Wing Ray, "The Takoradi Route: Roosevelt's Prewar Venture beyond the Western Hemisphere," *The Journal of American History* 62, no. 2 (1975): 340–58; and R. Martinez-Val, "Technical Considerations on the Takoradi–Cairo Air Route of the Second World War," *Journal of Aerospace Engineering* 233, no. 16 (December 2019): 5929–42.

41. Citino, *Death of the Wehrmacht*, 116.

42. Ellis, *Brute Force*, 255–61.

43. Barnett, *The Desert Generals*, 28.

44. Wilt, *War from the Top*, 177.

45. Wilt, 194.

46. Barnett, *The Desert Generals*, 128–29.

47. Murray and Millett, *A War to Be Won*, 266.

48. Citino, *Death of the Wehrmacht*, 123.

49. Förster, "The Dynamics of Volksgemeinschaft," 202.

50. Citino, *Death of the Wehrmacht*, 117; and Pitt, "Wavell's Command," Location 5063. This view is challenged by others, who claim that Rommel had a good grasp of logistical matters. See, for example, Martin Blumenson, "Rommel," in *Hitler's Generals*, ed. Correlli Barnett (London: Phoenix, 1995), 293–316.

51. Barr, *Pendulum of War*, 39.

52. Ellis, *Brute Force*, 244.

53. Porch, *The Path to Victory*, 215.

54. Citino, *Death of the Wehrmacht*, 277–81.

55. Citino, 124.

56. Williamson Murray, "British Military Effectiveness in the Second World War," in *Military Effectiveness, Volume 3, The Second World War,* eds. Allan R. Millett and Williamson Murray (Cambridge: Cambridge University Press, 2010), 103.

57. Mawdsley, *World War II*, 241.

58. Williamson Murray, *Military Adaptation in War: With Fear of Change* (Cambridge: Cambridge University Press, 2011). Murray explores the value and challenges of adaptation.

59. Barr, *Pendulum of War*, xxxix; and Gray, *Modern Strategy*, 26.

60. Murray and Millett, *A War to Be Won*, 301; and Murray, "British Military Effectiveness," 91.

61. Beckett, "Wavell," 70–71.

62. Murray and Millett, *A War to Be Won*, 100.

63. Porch, *The Path to Victory*, 239.

64. French, *Raising Churchill's Army*, 231.

65. Barr, *Pendulum of War*, 32.

66. Brian Holden Reid, "Alexander," in *Churchill's Generals*, ed. John Keegan, (London: Weidenfeld and Nicholson, 1991), 112.

67. Porch, *The Path to Victory*, 298.

68. Barnett, *The Desert Generals*, 25.

69. French, *Raising Churchill's Army*, 213.

70. Barnett, *The Desert Generals*, 85, 130; and Michael Craster, "Cunningham, Ritchie and Leese," in *Churchill's Generals*, ed. John Keegan (London: Weidenfeld and Nicolson, 1991), 205.

71. Barr, *Pendulum of War*, 14.

72. French, *Raising Churchill's Army*, 230.

73. French, 257–59.

74. Michael Carver, "Montgomery," in *Churchill's Generals*, ed. John Keegan (London: Weidenfeld and Nicolson, 1991), 154.

75. Citino, *Death of the Wehrmacht*, 273–74; and Ellis, *Brute Force*, 279.

76. Carver, "Montgomery," 155.

77. Barnett, *The Desert Generals*, 288; and Carver, "Montgomery,"149.

78. Barr, *Pendulum of War*, 410.

79. Citino, *Death of the Wehrmacht*, 275; and Ellis, *Brute Force*, 284.

80. Barr, *Pendulum of War*, 407–8.

81. Quoted in Wilt, *War from the Top*, 196.

82. French, *Raising Churchill's Army*, 242.

83. Murray and Millett, *A War to Be Won*, 100.

84. Seaton, *The German Army*, 197.

85. Barr, *Pendulum of War*, 35; and French, *Raising Churchill's Army*, 239.

86. Porch, *The Path to Victory*, 197.

87. Wilt, *War from the Top*, 180.

88. Beckett, "Wavell," 75, 77; and see Pitt, *Auchinleck's Command*, 11.

89. Craster, "Cunningham, Ritchie and Leese," 204.

90. Philip Warner, "Auchinleck," in *Churchill's Generals*, ed. John Keegan (London: Weidenfeld and Nicolson, 1991), 138.

91. Porch, *The Path to Victory*, 105; and Eliot Cohen, *Supreme Command: Soldiers, Statesmen, and Leadership in Wartime* (New York: The Free Press, 2002).

92. Colin S. Gray, *Fighting Talk: Forty Maxims on War, Peace, and Strategy* (Sterling: Potomac Books, 2009).

93. Murray and Millett, *A War to Be Won*, 262–63; Murray, "British Military Effectiveness," 92–93; and Michael Carver, "Churchill and the Defence Chiefs," *in Churchill: A Major New Assessment of his Life in Peace and War* eds. Robert Blake and Wm Roger Louis (Oxford: Oxford University Press, 1993).

94. Murray, "British Military Effectiveness," 92.

95. Allan R. Millett, "The United States Armed Forces in the Second World War," in *Military Effectiveness, Volume 3, The Second World War,* eds. Allan R. Millett and Williamson Murray (Cambridge: Cambridge University Press, 2010), 56–57.

96. Porch, *The Path to Victory*, 357–66.

97. Quoted in Porch, 339.

98. Murray and Millett, *A War to Be Won*, 272, 301; and see Porch, *The Path to Victory*, 340.

99. Megargee, I*nside Hitler's High Command*, 88.

100. Megargee, 93.

101. It is beyond the remit of this chapter to offer a general discussion of German strategic performance in the Second World War. As one would imagine, the reasons for early success and later failure are complex and varied. Suffice to say, German tactical and operational performance, allied to the high morale and fighting spirit of its forces, was able, at least for a while, to cover many of the deficiencies at the higher levels of strategic decision making.

102. Megargee, *Inside Hitler's High Command*, 88.

103. Megargee, 97.

104. For a description of the culminating point of victory, see Clausewitz, *On War*, 566–73.

105. Förster, "The Dynamics of Volksgemeinschaft," 181–82.

106. Förster, 182.

107. Megargee, *Inside Hitler's High Command*, 94–95.

108. Förster, "The Dynamics of Volksgemeinschaft," 195.

109. Megargee, *Inside Hitler's High Command*, 88; Citino, *Death of the Wehrmacht*, 4; and Förster, "The Dynamics of Volksgemeinschaft,"191.

110. Murray and Millett, *A War to Be Won*, 91.

111. Porch, *The Path to Victory*, 80.

112. MacGregor Knox, "The Italian Armed Forces, 1940–3," in, *Military Effectiveness, Volume 3, The Second World War*, eds. Allan R. Millett and Williamson Murray (Cambridge: Cambridge University Press, 2010).

113. Ellis, *Brute Force*, 230.

114. Förster, "The Dynamics of Volksgemeinschaft," 181.

115. Citino, *Death of the Wehrmacht*, 5.

116. French, *Raising Churchill's Army*, 217–18.

117. French, 217–18.

118. Förster, "The Dynamics of Volksgemeinschaft," 207; A good analysis of the complex relationship between the *Wehrmacht* and National Socialism can be found in Matthew Cooper, *The German Army 1933–1945: Its Political and Military Failure* (New York: Bonanza Books, 1984).

119. Förster, "The Dynamics of Volksgemeinschaft," 196.

120. Knox, "The Italian Armed Forces, 1940–3."

121. Citino, *Death of the Wehrmacht*, 219.

122. Murray, "British Military Effectiveness," 110–13.

123. Murray, "British Military Effectiveness," 111–12 and 126; see also French, *Death of the Wehrmacht*, 219.

124. Ellis, *Brute Force*, 241–42.

125. Citino, *Death of the Wehrmacht*, 225.

126. Barr, *Pendulum of War*, 37; see also French, *Death of the Wehrmacht*, 237.

127. Barnett, *The Desert Generals*, 193; and Murray, "British Military Effectiveness," 107.

128. Citino, *Death of the Wehrmacht*, 129.

129. Barr, *Pendulum of War*, 3.

130. Barr, 11.

131. Millett, "The United States Armed Forces in the Second World War," 46–77.

132. For a discussion of strategic sense, see Gray, *Theory of Strategy*, 140–47.

133. David J. Lonsdale, "Ordering and Controlling the Dimensions of Strategy," *Defence Studies* 16, no. 4 (December 2016): 1–18.

Chapter 3

Efficient and Effective? A Comparative Study of British Strategy over Two Centuries

Kenton White

Introduction

In his book *Strategy and History,* Colin Gray wrote, "Strategy is the bridge between military power and political purpose. Its state of repair is highly variable. Moreover . . . it is a bridge that must allow two-way traffic between tasking from policy and evidence from military feasibility."[1] Strategy is unique to each situation, but it consists of common practice and structure which can be seen throughout history. Gray was a great advocate of the use of history to inform current strategy, viewing that history through the lens of strategic theory. He wrote of the historical continuity and discontinuity of strategy; he questioned what changes and what does not: "Since the past provides the only evidence upon which theories may be constructed, the time is long overdue for strategists and arms controllers . . . to seek out the relevant past in a systematic fashion for the purposes of policy-science today."[2] He went on to write that military history for its own sake should not be dismissed. However, the analysis of history can be time consuming and difficult. The same is true when analyzing strategy.

Gray went to great lengths to caution against attempting to take a successful strategy from the past and apply it, unchanged, to a current or future circumstance. Military history can be employed to inform future strategy-making, but it cannot be used as a template to create strategy. Nevertheless, examples from history are central to illustrating the use and validity of theory when practice is analyzed. We can compare different periods of history to see continuity or disparity between victory and defeat or successful and unsuccessful strategy.

In this chapter I will discuss exactly that theme. I will focus on the land components of the campaign by the British and Allied armies to liberate Portugal during the Napoleonic Wars and compare that to the concepts for defeating a Soviet invasion of Western Europe by the British Army of the Rhine (BAOR) and the Northern Army Group (NORTHAG) in NATO between 1968 and 1989.

The political continuity between the chosen examples is striking. Similarities between the two strategic environments are clear. Both British governments, 170 years apart, committed their main army to the defense of a European nation. Political support for the deployments was not wholehearted. Economics, or rather the Treasury, had a disproportionate influence on military activities. The Treasury holds the purse strings for any activities of the British government. Any endeavor required support from the Treasury, otherwise it would never succeed.

The military continuity, at first glance, might be less obvious. On closer examination we see some connections which overshadow the technological differences and changes in the character of warfare between the studies. The provision of materiel support was not as full, or constant, as it might have been. Military operations were carried out "on the cheap" to keep costs down and maintain support from the Treasury.

Using Gray's work to illuminate decisions and outcomes, it is possible to analyze the creation of strategy, its use and result, and to identify patterns of political and strategic culture which persist. This approach can also identify less successful areas where politics and military action overlap. Military victory can be just as problematic as defeat.[3] But what does victory look like for each combatant? How was it to be achieved? This aspect of strategy has proved problematic for governments and military commanders recently, and this problem will be addressed toward the end of this chapter.

The Importance of Strategy

Strategy is composed of several levels, each enmeshed with the others to varying degrees. In its simplest form, it comprises ends, ways, and means. Two further elements should be added to this triumvirate—risks and assumptions. Risks are uncertainties regarding the outcome of any action that might lead to adverse results. Assumptions are those views and opinions that make a policy and strategy valid. The goal of strategy is to achieve the political objectives using military means. This means war.

Very often, the nitty-gritty of warfare is left out of the calculus of strategic design, but as part of the ends, ways, and means calculation, it cannot be ignored. Gray was scathing of those theorists who ignored

the practical demands of ways and means. "As to the terrain between theorists and doers of strategy, the former are skilled in the prediction of complexity and are unlikely to enjoy the empathy for operational realities that makes strategic ideas really useful." He went on to say, "Many strategists have presented seemingly clever briefings to policymakers and senior officers whose eyes crossed and brains locked at the sight of the third PowerPoint slide."[4] His criticism was based on the need for strategy to be internally coherent, of a quantity and size to achieve the policy ends, and to achieve those ends using military force. The research presented here focuses on the end-to-end consistency of British strategy using Gray's criticisms as a foundational set of principles.

Fundamental to Gray's work was a deep understanding of Clausewitz's work. Clausewitz wrote that the study of military history and those experiences gained from it provided the reader with an acquaintance of the subject of war. He wrote, "Whenever an activity deals primarily with the same things again and again—with the same ends and the same means, even though there may be minor variations and an infinite diversity of combinations—these things are susceptible to rational study. . . . It is an analytical investigation leading to a close acquaintance with the subject; applied to experience—in our case, to military history—it leads to a thorough familiarity with [war]."[5] We can use military history to enlighten future strategy-making, but it cannot be used as a template to design strategy. Colin emphasized, "Unlike strategy, all strategies are temporal."[6]

A more recent writer, and one for whom Gray had a great respect, was Bernard Brodie. Brodie approached strategy in a straightforward manner: "Strategy is a 'how to do it' study, a guide to accomplishing something and doing it efficiently. As in many other branches of politics, the question that matters in strategy is: Will the idea work?"[7] Understanding strategy is simple, but creating strategy is difficult. Strategy is difficult to comprehend, and more difficult to formulate. This dichotomy derives from the variety of ways that strategy can be designed. Thus, *inter alia,* success cannot be predicted. The clarity required for understanding strategy has been undermined by the adoption of the word by commercial business, generally to mean simply "a plan."[8] Business places emphasis on precision and profit that has no place in creating strategy: "The higher reaches of policy and strategy do not lend themselves to conclusive scientific analysis metrically verifiable by testing."[9] The blurring of the meaning of "strategy"

affects military activity negatively and will continue to cause problems in developing theory as well as formulating and practicing strategy.[10] The evidence for the declining precision of the word can be seen in the most recent Ministry of Defence (MoD) review.[11]

We must, however, note Gray's caution regarding the difference between strategic theory and application. The demands of economics and politics have "the characteristic of immediacy of relevance to official decisions, which is to say of disinterest in solutions that cannot be attempted and completed in the near term. The strategic theorist as strategic adviser to the polity is obliged—if he or she would be useful—to accept the world view and terms and conditions of those to be advised."[12]

The Case of British Policy

The geopolitical outlook of successive British governments over the last 250 years saw sense in stopping any one country from dominating Europe. Maintenance of the balance of power on the continent would enable Britain to trade with the rest of the world without fear.

Historically, as an island nation which relies on trade for its survival, the British government has been reluctant to commit to large-scale military action on land, relying instead on the Royal Navy to defend the islands. However, occasionally Britain commits troops to counter a threat to dominate the continent. When British forces have been on active service in Europe, history shows there are common threads that run through their formation and operation. The availability of resources, such as money, men and arms, problems with logistics, and even the political support for those forces have all played a part.

Problems with recruitment have dogged the British army, forcing a reliance on part-time or even nonmilitary personnel. There are many reasons why this occurs, including poor pay and living conditions and failure to offer a career comparative to the private sector. A particular problem has been with logistical personnel and capability. Gray wrote, "The science of supply and movement, which is to say logistics, is literally essential to strategy at all levels of inclusiveness and of every character. . . . Just as military doctrine does not feature prominently in the writings of civilian theorists, neither does the subject of logistics."[13]

As an island nation, Britain retained, until quite recently, a large maritime carrying capacity. This declined significantly after the Second World War. However, once any ships had unloaded their cargo, storage and transportation of materiel became a problem. The British army has struggled to find an answer for centuries but repeats the same errors. Thus, when the studies compared performance in both periods, logistics was problematic. Wellington was sometimes poorly served by his logistical tail. During the Napoleonic Wars, an organization, called the Commissariat, was set up in Britain to provide supplies for the army. Essentially uniformed civilians, they were poorly regarded. Historian Richard Glover states that the British government "chose to regard all the varied duties of supplying the troops engaged in active operations as simple enough to be performed by wholly inexperienced and untrained men—a conveniently economical theory in peacetime, which regularly proved a most costly delusion in war."[14]

The same problems of supply and transportation were to surface in both World Wars. During the post-1945 reorganization of the army, Field Marshal Montgomery "understood how badly the army had been handicapped in the early years of the Second World War because it had lacked sufficient logistical . . . units, and so he readily embraced the need . . . [to] field properly balanced formations with their full complement of rearward services."[15]

Despite Montgomery's proposals and an existential threat throughout the Cold War, the British government repeatedly cut the defense budget as a percentage of gross domestic product (GDP) to fund other programs, such as welfare and health. The result of these cost saving measures was the reduction of materiel available to the armed forces and an increased reliance on the use of reservists.

Overall, the MoD had warned in 1977, "There are serious logistic implications in terms of storage, transport and manpower both in peace and war."[16] The fighting units, whatever services they belonged to, depended on a logistical tail for supplies of fuel and ammunition and other essentials which would be used up in enormous quantities in the event of a war. The assistant chief of the Defence Staff cautioned, "Undermanning of logistic units in order to maintain the strength of combat units is near the point where the combat troops may not be effective because of lack of initial logistic support."[17] As late as 1981, the government was warned that the BAOR in Germany could not be maintained for more than 72 hours without full

mobilization, which could take up to four weeks.[18] After the end of the Cold War and the disappearance of the Soviet threat from Western Europe, the widely publicized "Peace Dividend" allowed most NATO countries to reduce their defense budgets significantly.[19]

It is worth comparing the findings above with a statement from General Carter in his evidence to the House of Commons Defence Committee in 2014: "There is another set of circumstances where there are capabilities, of which logistics is an example, where it is a relatively straightforward task that does not need a great deal of collective training. Those capabilities could therefore be in the Reserves."[20]

These cuts have assumed that the previous strategies and policies of NATO, and even before NATO, were successful. It is the fervent hope of this author that the relevance of this article is not lost on those readers familiar with the latest MoD Integrated Review.[21]

Wellington in the Peninsular[22]

Gray asserted, "When policy fails to command it finds itself the servant of warfare, the reverse of the only legitimate terms of the relationship."[23] These opposites are demonstrated by the Peninsular War in Portugal and Spain. Napoleon's policy was driven by the demands of war as he over extended his Empire in an attempt to close Europe to British trade and influence. In contrast Wellington understood the limitations of the forces available to him and worked within them. This was set within the British government's policy of continued opposition to Napoleon's rule of France and his waging aggressive war throughout Europe. Wellington had a firm grasp of the environment, both physically and politically, in which he was to campaign. For Wellington victory had only one outcome and that was the defeat of the French armies and their removal from the Iberian Peninsula. In conjunction with Britain's allies, this would result in the downfall of Napoleon, which was the goal of Britain's government.

Wellington developed a military strategy for the Peninsular War in conjunction with the broader, wider policy of the government of Great Britain. Using the British army and that of the Portuguese, Wellington was to defend Portugal from the French. Once Portugal was secure, he would proceed to evict the French from Spain. Wellington campaigned over several years to fulfill the strategy utilizing all the resources available to him. Conversely, the local French commanders

had no influence over French strategy. This was dictated by Napoleon alone, and remotely. Napoleon, according to Gray, was "good at winning battles, but he failed catastrophically as a strategist."[24] However, more problematically, Napoleon also dictated operational plans and instructed commanders on the organization of their tactical formations.[25]

Initially the ends for Wellington were clear. Keep the French out of Portugal. If they invaded, stop them from occupying the country by any means possible. Large amounts of money were promised to retrain the Portuguese Army; Wellington commanded the main field army Britain had at the time, which was comprised of 30,000 British and King's German Legion troops, and there was dedicated support from the Royal Navy. In the early stages, political support at home was uncertain as French success was seen as almost inevitable. However, with the public support of the Royal Family, Wellington was given almost complete control of the fight against France in Portugal. This included control of the Portuguese government, despite some objection from certain parts of Portuguese society, and direction of the Portuguese economy and society. Wellington fought with a unified command, at least after the debacle of the 1809 campaign in which the British and Spanish allies encountered Clausewitzian friction over supplies and intelligence.

The focus of the Napoleonic Wars was, understandably, always wherever Napoleon was. In Spain, there never was a truly unified French command under a general or marshal capable of performing with anything approaching the genius of Bonaparte. No truly independent command was set up that consolidated overall control in one commander, although attempts were made and generally ignored by those commanders in the peninsula. Perhaps no single commander was trusted because that person could then challenge Napoleon's authority. Joseph, Napoleon's brother, was nominal commander, but did not have the same charisma or competence as his brother. Closest in capabilities to Napoleon may have been Masséna when he was at his peak, but by the time he was appointed to the command of the army of Portugal in 1810, he was a shadow of his former self. The greatest source of friction for the French was the inability of Napoleon to understand the restrictions the campaign placed on his armies and his insistence on issuing orders which were worthless as they were written.

For each campaign he undertook, Wellington set out his plans with clarity and considered what he believed would be the operations

of the enemy. Initially, Wellington's plans were what might be termed "indirect," or as he called it, his "cautious system."[26] He would avoid battle if possible, withdrawing his forces in the face of the enemy advance and hopefully luring the French toward the prepared positions around Lisbon. If he had to offer battle, or the opportunity arose of doing so in a secure location, Wellington was satisfied he could do so without risking the army. He wrote to Charles Arbuthnot, secretary to the treasury, stating, "They won't draw me from my cautious system. I'll fight them only where I am pretty sure of success; and if I should succeed, they must be destroyed."[27] As the war progressed and Wellington became more confident in his army and staff, so the cautious system was replaced by a more aggressive series of campaigns.

Wellington's capabilities were reflected in Colin's suggestion "that even strategic competence can be hard to find. The principal reason for this poverty is nothing more sinister than the awesome difficulties that typically harass and therefore impede strategic performance."[28] Wellington was surprised by the French commanders on several occasions but was flexible enough to compensate and adjust successfully. The French fought many battles without gaining dominance over the Peninsula, with Wellington "countering the formulaic pattern of French tactics."[29]

Operationally the Imperial armies fought an unsustainable war. There was never quite enough force concentrated to overwhelm and defeat the enemy at once. The French official figures for 1811 show just under 300,000 men under arms, with 350,000 troops in total in the peninsula. Most of the time the troops needed to be dispersed in garrisons and foraging parties. As Henri IV of France is supposed to have said, "In Spain, small armies are beaten and large armies starve." Dispersal was the only means the French had of maintaining their forces in the peninsula. But this very act demonstrated the limitations of French power, which reached only as far as a musket shot or cannon shot from where French soldiers were stationed. Collecting and maintaining sufficient troops to overwhelm the enemy would be difficult, even without the antagonism between the marshals.

The guerrilla war they were fighting also made French operations much more difficult than they were used to. Although never a threat to the Imperial armies, they provided the worst sort of friction to all operations undertaken by the French, intercepting messages and denying them control of the food supply. In contrast, the guerrillas

provided the allies with those intercepted dispatches, denying the French any sort of operational surprise.

The commanders of the armies should have done much of their work before battle commenced. The disposition of the troops, their supplies, and general fitness should all have been overseen. Logistically, the two armies in Iberia had to face the same problem of lack of supplies generally. Strategy naturally has a logistical component and an economic component. If these are ignored, or paid scant attention, any attempted strategy will fail at the operational and tactical levels. Much of the problems associated with this part of strategy can be euphemistic; planners discuss "wastage," or "supply problems" rather than death and famine. Perhaps that is why it is an under-studied part of any military operation.

Wellington learned very quickly not to rely on others for supplies but, instead, fell back on the tried-and-tested method of magazines.[30] Everything would be supplied directly to the magazines via Lisbon using the Royal Navy. If supplies were needed locally, they had to be paid for, preferably in hard cash rather than promissory notes.[31] He established a functioning logistical system that was perfected by the end of the war in 1814 but then almost immediately dismantled.

The armies suffered dreadfully from disease during the war, both men and animals. Wellington's army in the Peninsula accounted for some 76% of British losses during the Napoleonic Wars, but the majority of these were due to sickness rather than battle. Thus, there was an unceasing drain on those victorious armies which needed constant replenishment. Combat deaths, even in the worst fought battles, never rivaled those losses to epidemics.[32]

Wastage applies equally to the logistic support for an army as it does to the loss of soldiers. This was demonstrated in the number of horses the French lost in the invasion of Portugal 1810. Of the more than 14,000 horses listed in the army of Portugal in September 1810, only around 11,000 were present on 31 December 1810. In the first two weeks of March 1811 alone, the army lost a further 700 horses. The wastage of horses—the main transport animal—was enormous. Much of the French cavalry became useless as the state of the horses deteriorated, leaving them incapable of carrying a fully laden cavalryman. But food was not just a problem for the horses. The task of feeding and clothing an army was as immense then, as it is even now, and seemingly never-ending.

Wellington reported to the Earl of Liverpool, at the end of January 1810, the state of the provisions in the magazines in Portugal, which included 1,792,160 pounds of biscuit, 113,990 gallons of rum, 99,062 pairs of shoes and 2,235 blankets.[33] The French had the same staggering logistical demands. During Reynier's corps' march across Biscay in February 1810, nearly 3 million rations of biscuit were ordered to be provided by the bakeries of Vittoria, San Sebastian, Burgos, and Madrid. Millions of rations were needed, and much of the supplies had to risk the journey from France itself. The problem of supplying even a small army was made clear by Marshal Marmont. In 1812 he wrote to Napoleon, complaining: "We could only get food for daily consumption in our cantonments by using armed force."[34]

Marmont went on to say that if the emperor disagreed with his evaluation of the situation, he'd be happy to let another commander have a go. The contrast with the British habit of paying for supplies was stark and resulted in many French soldiers starving or being murdered by guerrillas while searching for food.

The commissariat of Wellington's army was sometimes hard pressed to keep up with the army's advance. At some points, many Allied units went for several days without receiving food or supplies. During the campaign of 1810–11, the Portuguese commissariat failed completely, despite pressure on the Portuguese government by Wellington to remedy the situation. Portuguese troops had to be supplied from the British commissariat on several occasions.[35] The flexibility provided by the Royal Navy allowed the logistical tail to be moved once an advance began, but it still took time for the new supply situation to stabilize.

Tactically, the French suffered from a failure to develop doctrine and adjust to adverse circumstances. Orders issued at the beginning of the battle relied on the sub-commanders' understanding of the prevailing doctrine. As the war progressed, the French units consisted of an increasing number of conscripts and were filled out with other foreign troops. These units contained prisoners of war and deserters from enemy armies. Some army corps were made up almost entirely of new or foreign regiments and one-third of the infantry in the fourth battalions had been collected from various depots in France. The discipline needed for deployment under fire and on uneven terrain takes confidence and training, so as the ranks of the army were filled out with more conscripts, so the task of learning new tactics became too difficult. As the quality of troops deteriorated

from their peak soon after the invasion of Spain, the French found it more difficult to employ complex tactics against the allies. The consequence of this reduction in the quality of troops was that officer casualties increased as they repeatedly moved to the front of the unit to encourage soldiers to maneuver and fire. These officers became targets, especially for the rifles of armed soldiers in the allied skirmish lines.

From the tactical level through what we now describe as the operational level, Wellington adapted to meet the circumstances, while the French commanders failed to do the same. Strategy is always subject to chance and friction. Clausewitz wrote that a general can best demonstrate his strategic capability "by managing a campaign exactly to suit his objectives and his resources, doing neither too much nor too little."[36] Wellington exemplified this approach.

Britain, NATO, and the "Counterstroke"

Some 170 years after Wellington fought the French, the British army was again on the continent, this time as part of a peacetime alliance. Unlike the coalitions against Napoleon, NATO was formed as a purely defensive organization. The British Government's post–Second World War view was that the further to the East the front line of any war could be pushed, the better.[37] However, relative economic decline and financial problems meant that defense did not attract the funding it might have. "From Marlborough . . . through Wellington . . . Britain feared invasions. The Cold War . . . has revealed a strategic historical narrative of anxiety that essentially is unchanged. Britain behaves, albeit often belatedly and sometimes minimally, as a parttime European strategic actor. The British military commitment to security in Europe is as modest a deployment as alliance politics allows."[38]

As fear of nuclear war developed and reached its main crisis in 1962 over Cuba and Berlin, NATO began to revise its Massive Retaliation strategy, replacing it in 1967 with a supposedly more adaptable strategy known as "Flexible Response."[39] This new strategy hoped to raise the nuclear threshold by strengthening conventional defenses allowing a nonnuclear response to any Soviet aggression. The strategy relied upon deterring an attack by the Soviet Union and Warsaw Pact. There is a difference between credible deterrence and credible defense. Deterrence requires the appearance of credibility, whereas defense in wartime must consist of a workable strategy, doctrine, and tactics:

credible defense must be sustainable through sufficient forces, equipment, and supplies to defeat the enemy. The assessment of the levels required for credibility is different depending on whether one is considering deterrence (minimum deterrence) alone or deterrence *and* defense (warfighting deterrence). Conventional defense will inevitably require larger forces than deterrence. The Continental European view of deterrence was different from the US view, with Britain being somewhere in between the two.

The strategy proposed warfighting deterrence. We may draw a metaphorical line from NATO strategy through the means provided to NATO by the alliance members, finally to the ways for executing the defense of Western Europe. Once we comprehend the full scope of that line, we may then examine the credibility and capability of those strategic components.

The British government had repeatedly stated its commitment to NATO, dedicating the entire Royal Air Force and Royal Navy and more than 100,000 soldiers to the defense of Western Europe in time of war. Central to NATO's defense of the Federal Republic of Germany (FRG) was the concept of "Forward Defense." NATO planning had initially based its defense to the west of most of the FRG, along the line of the Rhine–Ijssel rivers. This would involve giving up a large portion of FRG territory and was naturally unacceptable to the FRG Government. The defense line was moved eastward over successive years, eventually settling on the Inner German Border, the frontier between East and West Germany. As the Warsaw Pact (WP) threat in the Central Region increased, so NATO had to think of new ways to respond.

The WP Operational Maneuver Group (OMG) concept had been developed under Soviet Chief of the General Staff Marshal Ogarkov. The aim of the OMG was to punch holes through the NATO front, allowing the OMG to attack the rear areas and encircle NATO forces. WP ground force structure and strength were adapted in line with these warfighting theories. By 1985 the WP had grown to approximately 200 divisions. The WP armies were tank heavy. The ratio of armor-to-infantry increased, and the mobility of divisions was enhanced with improved transport and logistical support troops. The WP order-of-battle was increasingly adapted to the combined-arms structure for conventional operations in the nonnuclear or a low-contamination environment. The NATO armies acknowledged that heavy attrition on any attacking armor in the first few days of battle

was necessary. That capability would be required throughout any war. Only profligate use of antiarmor weapons of whatever sort would act as an equalizer to balance the numerical preponderance in WP armor.[40]

In 1980 Lieutenant General Sir Nigel Bagnall was appointed to command I Corps (1st British Army Corps) in West Germany and brought with him a determination to revise the British doctrine of defense against invasion. BAOR doctrine followed the change in NATO strategy from rigid linear defense to mobile counterattacks against the main Soviet thrusts. He commanded an army larger than anything Wellington ever led and with far greater resources and capacity for destruction.

General Bagnall's developments in the British army doctrine known as "The Counterstroke" promoted the use of mobile defense and maneuver rather than the previous static, attritional defense. There would be "a greater emphasis on offensive action."[41] These ideas converged with a heightening of East–West tensions and improvements in weapons technology and communications technology. Bagnall's stimulus may have developed in part from the method of flexible defense and counterattack used by Manstein in Russia in 1943, the seeds of which may be seen in Bagnall's analysis of the Six Day War.[42]

The British army developed new doctrine and tactics to counter the "creativity" estimated capabilities of the Warsaw Treaty Organization on the offensive. Wargames were carried out with the intention of proving their worth and to understand the weapons mix and densities required for a particular level of counterattack. The doctrinal changes improved the morale of the units in Germany and showed the way ahead for the British army.

The Defence Operational Analysis Establishment gave a very precise description of the deployment of I Corps and the intended method of defense against an invasion. The British army was planning to use "Counterstroke" forces in a very different way from the doctrine that had gone before: "The main defensive phase of the new concept is radically different from the current concept, since it involves the intermingling of [Soviet] and [NATO] forces."[43] This reduced the possibility of using tactical nuclear weapons, with the troops of both sides in proximity. NORTHAG intended to absorb the first echelons of a WP attack using flexibility and maneuverability before delivering its counterstroke. The credibility of this doctrine relied entirely on the reinforcements arriving in a timely fashion and being supplied with resources sufficient for their role.

Bagnall was appointed General Officer Commander (GOC) NORTHAG in 1983 and extended the doctrine as the "NORTHAG Concept," which saw positional battles as the precursor to counterattacks. This expansion of the doctrine caused concern in allied army corps in NORTHAG, especially 1(GE) Corps to the North. The West German preference for Forward Defense, certainly from the British perspective, tended to limit options for mobile defense and thus restricted flexibility of action. After minor modifications and compromise between corps commanders, the doctrine was further refined by General Farndale, who succeeded Bagnall as GOC NORTHAG.

The Counterstroke relied upon mobile forces identifying and attacking weaknesses in the enemy advance at short notice and using reserves specifically kept for this purpose. It relied upon mobility in a fluid battle, highly trained troops, good communications between the units involved, and flexible command.

The Counterstroke was expected to unfold in the following way. In response to an attack across the Inner German Border, BAOR would prepare what was known as the Main Defense Area. The ammunition and other supplies necessary would be out loaded. There were expected to be two days of fighting withdrawal by the Aggressive Delaying Force (ADF) and the main fighting troops. The expected WP attacking forces would consist of two mechanized armies in two echelons. Most of each division's armor and mechanized infantry would be deployed initially in conventional defensive positions on the Forward Edge of the Battle Area. This force, after inflicting maximum casualties on the invading forces, then would withdraw to positions on the expected axes of the enemy advance. The counterstroke would be prepared by the middle of day three of the war, with a brigade sized battlegroup formed from reserves and the remains of the ADF to counterattack the WP penetrations. Heavy attrition of the enemy tank regiments was expected after the counterstroke attack.

Large quantities of helicopter-borne antitank guided weapons (ATGW) were required for the Counterstroke to work effectively.[44] However, ATGW-armed helicopters had not been provided in the quantities required by NATO; instead, the British government had opted for more tanks and ATGW vehicles. A tank or vehicle mounted ATGW does not have the flexibility of a helicopter mounted system, in terms of either tactical maneuverability or speed of deployment.[45] This limitation was understood by the government but accepted as a cost-saving measure.[46] Furthermore, helicopters would be vulnerable

even to small caliber antiaircraft fire. The WP was well equipped with prodigious numbers of hand-held and mobile antiaircraft missiles and guns.[47] The attrition rate for helicopter antitank sorties was expected to be 50% per sortie. The result, according to British army wargames, was almost total loss of ATGW helicopters by the end of the first day of fighting.[48] Evidence from the Soviet equipped Syrian attack on the Golan Heights in 1973 reinforced this point, suggesting the Israelis lost three out of every five aircraft sent in to attack the Syrian tanks to antiaircraft fire.[49]

The small number of antitank helicopters available to BAOR at the beginning of a conflict would have had serious implications for any counterattack which relied on them in any number. Thirty were required for a brigade level counterattack, which equated to 40% of the entire complement of ATGW equipped helicopter force available to BAOR. Attrition in any action was expected to be heavy, thus denuding BAOR of vital close antitank support whether a counterattack took place or not.

The plans for the Counterstroke were inconsistent with the availability of ammunition, fuel, and spares to prepare for, and execute, the attack. Existing ammunition levels were inadequate and no replenishment in a highly mobile combat environment had been provided. A prototype armored load carrier had been developed and built by the British army for just this type of operation but for cost reasons was never pursued. Vehicles which provided ammunition supply to the armored units were thus soft skinned and vulnerable to small-arms fire.[50]

Despite improvements in the number of trucks for the rear echelons' transport, there were not enough troops to crew them unless a fully-fledged mobilization took place. The British government was aware of the need for substantial war-stocks within a sustainable supporting infrastructure, but this prerequisite was almost entirely ignored over the years. Reducing the purchase and stockpiling of ammunition and spares was a quick, money-saving option. Defense in depth, and an extended war, would require a large, established industrial base capable of switching to war production very quickly. No Western government had such capabilities, nor were they interested in creating them.

Regardless of the tactical and operational competence of the NATO forces, simple arithmetic showed a lack of essential supplies. Calculating ammunition use against the level of stockpiling, NATO

forces would very quickly have simply run out of ammunition, leaving the commanders with two choices: first use of tactical nuclear weapons to stop the WP advance or a complete surrender of NATO. Given the resources of the time, no NATO country could have countered a Soviet invasion of Western Europe for more than one or two days. The implication was extreme risk if war ever came to Europe. This simple fact indicated a structural interruption between ways and means in NATO's strategic design and its implementation by the members.

The Counterstroke was expected to begin on day three of a war, but ammunition was expected to begin to run out through lack of reserves by day two, which would have left any planned attack short of ammunition, fuel, and other supplies. The evidence suggests it was difficult for any of the armed forces to continue to fulfill their operational roles while being cut to the extent they were. The fighting troops and weapons may have looked formidable, but there was no depth to the forces, and no sustainability. The misconception was being promoted that the armed forces could become more "efficient," apparently aiming for some transcendent state of pure efficiency at some undetermined point in the future. The strictures of strategy—aims, ways, and means—were not fulfilled for the Counterstroke to work in the European theater even during a slow-moving crisis. Gray's insight into a reduced, professional, and "excellent" force is particularly applicable to Britain: "If military excellence is attained by a relatively small armed force, the effect of combat losses will be disproportionately devastating."[51]

The Shape of Victory

What does victory look like for each of the commanders? How was it to be achieved? Victory does not always come wingéd and bearing a wreath of laurel. Victory comes in a variety of guises. Gray identified, through Clausewitz and Jomini, that the concentration of force at a particular point can be the turning point in a campaign, and the key to final victory.[52]

For Wellington, as we have seen, victory in battle was a step on the road to victory over the French forces in the Iberian Peninsula. The fight could then be taken to France itself. However, defeat of the French in the Peninsula did not necessarily mean victory over Napoleon. The coalition of forces sponsored by British money included

Russia, Prussia, Austria, and other nations as well as nascent nations. The combination of battles won in central and northern Europe, combined with Wellington's success in Iberia, meant defeat for Napoleon. This was the policy objective of the British government and thus constituted success. But victory came at a cost for Britain, and the government immediately began to dismantle the war machine it had built over the previous decade. Swathes of the army were demobilized or dispersed to various parts of the Empire. Within a few months, the British government was racing to recall the troops to face the renewed threat from France as Napoleon returned from Elba, finally defeating the Imperial army at Waterloo. Britain's policy ultimately succeeded against Napoleon but only in alliance again with the other continental powers.

The fundamental question of victory in a Third World War was posed by Gray in the final stages of the Cold War: "So even if the growing number of optimists among NATO analysts were proven correct, and the Soviet Union could indeed be denied a swift continental victory—and perhaps any victory at all—the strategically intriguing question would remain: 'How do we win?' "[53] Superficially, the policy and strategy of Flexible Response appeared convincing but contained sufficient ambiguity to appear as a worthy compromise between the demands of NATO members. The aim of NATO policy, defined in the strategic concept document MC 14/3, was to prevent aggressive action by the WP through credible deterrence.[54] But if deterrence failed, NATO would seek to restore the status quo ante by employing force proportionate to that used by the aggressor or threatening escalation.[55] Had the WP invaded West Germany, it was assured of quick success in the conventional battle simply by remaining in the fight. The limitations of BAOR's ability to operate under warfighting conditions were demonstrated by the action of British forces in the first Gulf War (1991). The victory was presented to the public as the success of the policies and doctrine modifications undertaken between 1979 and 1991 in BAOR and NATO. Closer analysis exposes the severe constraints under which the armed forces were working. Almost the entire resources of BAOR—resources meant to sustain an entire corps of four divisions—were barely adequate to put a reinforced division into the field.

Victory in any conventional start to a Third World War in Europe, however brief, would go to the combatant capable of absorb-

ing attrition better. The inevitable consequence of NATO's lack of preparedness would be surrender or escalation to nuclear first use.

Conclusion

In the words of Albert Sorel, the French historian, this chapter has demonstrated the "eternal dispute between those who imagine the world to suit their policy, and those who arrange policy to suit the realities of the world."[56] This chapter has moved from high strategy of nations and alliances to details of doctrine, tactics, and warfare. This is not a mistake. This range is intended to show the problems in focusing too closely on one aspect of strategic design. Ignoring components of strategy leads to problems and possibly defeat. Bringing strategy to fruition is complex. Consciously avoiding difficult decisions in that process demonstrates serious negligence.

There is one significant parallel in the studies above which influenced the application of the chosen strategy. Both commanders led the only large field army Britain had at the time. Failure would mean disaster not only for the army but also for the nation. With an eye on history, Gray wrote, "Britain persistently failed to design, train, equip and employ its army in a way so as to complement most effectively the excellence of its navy and the efforts of its continental allies."[57] Dominance in the Iberian Peninsula would come from superior operational command compared to the French. BAOR would not have been so lucky.

Both armies would be dogged by inconsistencies and dislocations between policy and military strategy. In both cases, much of the logistical tail of the army was reliant on reservists or civilians rather than regular troops. Neither had sufficient transport for their needs. In Wellington's case, ammunition was plentiful, but transporting food was problematic, and at times his men went hungry. For Bagnall, the opposite was the case. While hungry men can fight, well fed men without ammunition are useless for the prosecution of a war. Although Bagnall's men had weapons, they lacked stockpiles of ammunition. Some main ammunition, such as antitank missiles, would last no more than two days in a high intensity conflict. As the House of Commons Defence Committee found in the aftermath of the first Gulf War, "It is no use making front line forces highly mobile if they outstrip their logistic support."[58]

Both armies faced a numerically superior enemy and relied on allies to balance the numbers. Some allies were more reliable than others. In both cases, the commanders had to compensate for allies who talked a good fight. NATO and its member states chose to talk about raising the nuclear threshold, strengthening conventional forces, and improving deterrence, while, certainly at a national level, perfectly aware that any war would be short and end in a nuclear exchange.

A good strategy can accommodate poor troops, and even some poor campaigns but, *inter alia,* relies on persistence; this was something Wellington and the British government demonstrated. Despite the setbacks in his campaigns in Iberia, the overall strategy was robust enough to succeed. The ways and means given to Wellington were adequate, barely in some cases, to achieve the desired political and military ends. However, the critical point is that British strategy was better, if only just, than the French. The difference need not be large for strategy to succeed, but strategic superiority will invariably bring success.

Conversely a poor strategy cannot be saved by excellent troops or even dynamic operations. NATO strategy hoped for the best and planned for the best too. Britain was by no means the only nation in NATO to miss an opportunity for easy cost-savings. As a result, the armies of the allies were not equipped to fight the expected war. Far from being a flexible strategy, in the event of a war it was likely to fail in its objective of raising the nuclear threshold. Only under a narrow set of circumstances could NATO be mobilized in time, but once mobilized, NATO did not have the staying power to fight for more than a few days. Bagnall's Counterstroke would be abortive through lack of ammunition and reserves. The ways and means were not available to provide for the desired end.

There is a possibility that, in private, British politicians and senior military officers considered a low nuclear threshold as inevitable. Contrary to the public declarations regarding improvements in the armed forces' efficiency, raising the nuclear threshold, getting greater value for money, and cutting the tail to improve the teeth, the fundamental defense policy may have been different. Evidence can be seen in a document from 1968 produced by the Chiefs of Staff Committee (COS): "In major hostilities . . . we believe that tactical nuclear weapons would almost certainly become necessary; and since we do not envisage prolonged hostilities thereafter we do not believe that NATO resources should be devoted to those conventional capabilities ap-

propriate only to sustained operations at the higher level, or to a campaign dependent on the attrition of the enemy's forces or war making material."[59] The COS believed nuclear weapons would be used relatively quickly, and, therefore, resources should not be committed to providing for a long or attritional, conventional war.

The way in which the Soviet Union collapsed and the Cold War ended means the cause cannot be identified solely in the strategy and policy adopted by NATO after 1967. Care must be taken lest a *post hoc* analysis is applied to its demise. The fact that a war never happened in Europe during the Cold War is not proof that NATO strategy worked. We should not be led into current or future vulnerabilities by believing so.

The cuts to the armed forces in the UK have been viewed as a continuation of the "Peace Dividend" after the end of the Cold War. Academics, military officers, and politicians have sounded warnings that the cuts are too deep and have gone too far for the armed forces to fulfill their purpose. These cuts are not a recent phenomenon limited to the post-Cold War world. Contrary to popular belief, relative spending on the armed forces was cut during the Cold War and at a time of great threat. In the view of many politicians, the apparent success of these cuts, and subsequent active deployments, indicated to politicians that the armed forces could be cut further without a threat either to national security or to Britain's ability to project force around the world. As the cuts continue, there will come a point beyond which the reduced armed forces are unable to perform even limited operations. Some would argue that point has already been reached.[60]

Several papers were published during the first decade of the millennium relating to value-for-money acquisition of defense equipment and technology, but the next big change came in 2010 with the Strategic Defence and Security Review (SDSR), which sought to "increase cooperation with our international partners to deliver defense more efficiently and effectively."[61] The SDSR still contained the words which have become familiar over the decades, in which the services needed to "generate and sustain forces more effectively and efficiently across the full range of future missions and tasks."[62] In January 2015, the Secretary of State for Defence said, "We've made some tough choices about the size of the armed forces. Although we did so in a way that has preserved our front line clout . . . and we recognized that if the department was to provide the military capability our country needs it had to become both more effective and more efficient."[63] The

findings of this research, and the continuation through the post-Cold War period of spending cuts, have been echoed in the *Chilcott Report,* particularly those relating to logistics, readiness and capability of equipment.[64] Well-known, but easily solvable problems, such as damage to vehicle engines caused by sand ingress, have continued, according to the report.[65] In addition, the "can-do" attitude of the British armed forces has come under scrutiny and is seen as a barrier to understanding the true situation within the services.[66] We see with the latest Integrated Review an example of ignoring history by trying to do more with fewer resources. Reducing one's capacity to fight has never worked out well.

Summing up the contrast between the two cases presented here, I will finish with Gray's comment regarding strategic history:

> Since the future is unforeseeable . . . we must use only assets that can be trusted. Specifically, we plan to behave strategically in an uncertain future on the basis of three sources of practical advice: historical experience, the golden rule of prudence (we do not allow hopes to govern our plans), and common sense. We can educate our common sense by reading history. But because the future has not happened, our expectations of it can only be guesswork. Historically guided guesswork should perform better than one that knows no yesterdays. Nonetheless, planning for the future, like deciding to fight, is always a gamble.[67]

The problems of security, whether it is national, resource, or data, are nothing new, but unique to the current situation. Politicians and military leaders alike ignore history at their peril.

Notes

1. Colin S. Gray, *Strategy and History: Essays on Theory and Practice* (London: Routledge, 2006), 1. "Introduction, Holding the Strategy Bridge."

2. Gray, 17.

3. Ben Barry, *Blood, Metal and Dust: How Victory Turned into Defeat in Afghanistan and Iraq* (Oxford: Osprey Publishing, 2020).

4. Gray, *Strategy and History,* 79–80.

5. Carl von Clausewitz, *On War,* ed. and trans. Michael Howard and Peter Paret (London: David Campbell, 1993), 162–63.

6. Colin S. Gray, *The Strategy Bridge* (Oxford: Oxford University Press, 2016), 74, Dictum Eighteen.

7. Bernard Brodie, *War and Politics: A Major Statement on the Relations Between Military Affairs and Statecraft by the Dean of American Civilian Strategists* (New York: Macmillan, 1973), 452.

8. House of Commons Public Administration Select Committee, *Who Does UK National Strategy?,* HC 435,(London: The Stationary Office Limited, 18 October 2010), 7.

9. Colin S. Gray, *Strategy and Defence Planning: Meeting the Challenge of Uncertainty* (Oxford: Oxford University Press, 2014), 3.

10. Kenton White, "'Effing' the Military: A Political Misunderstanding of Management," *Defence Studies* 17, no. 4 (2017): 346–58.

11. Ministry of Defence, *Defence in a Competitive Age: Presented to Parliament by the Secretary of State for Defence by Command of Her Majesty* (London: Her Majesty's Stationery Office, March 2021).

12. Colin S. Gray, *Modern Strategy* (New York: Oxford University Press, 1999), 122–23.

13. Gray, *The Strategy Bridge,* 75, Dictum Nineteen: strategy is logistical.

14. Richard Glover, *Peninsular Preparation, The Reformation of the British Army, 1795–1809* (Cambridge: Cambridge University Press, 1963), 256.

15. David French, *Army, Empire, and Cold War: The British Army and Military Policy, 1945–1971* (Oxford: Oxford University Press, 2012), 42.

16. D/MIN/JG/7/11, Army War Reserves, Ministry of Defence, *War Reserve Stocks*, n.d., para. 6, DEFE 13/1059, The National Archives (TNA).

17. ACDS(Ops) 8/52/1, 7th March 1978, Long Term Defence Programme—Task Force 1—Final Report, Annex G, *NATO Defence Planning Committee Meetings,* n.d., 16, FCO 46/1700, TNA.

18. D/DMO/77/18/1/MO3, Rapid Reinforcement Plan, Memorandum from Colonel Thorne, Annex A, 16 March 1981, *NATO Rapid Reinforcement Planning,* n.d., para. 3.c., FCO 46/2583, TNA.

19. For example, see Margaret Thatcher's comments, Margaret Thatcher, "The Path to Power" (speech, National Press Club, Washington, DC, 26 June 1995).

20. House of Commons Defence Committee, *Re-Thinking Defence to Meet New Threats,* HC 512, 17 March 2015, para. 157; see also oral evidence given by General Sir Nicholas Carter, Q108, 5 November 2014.

21. Ministry of Defence, *Defence in a Competitive Age,* (London: Her Majesty's Stationery Office, March 2021).

22. Arthur Wellesley was not made Viscount Wellington until 1809, and not a Duke until 1814. However, I will use the title of Wellington for convenience.

23. Gray, *Strategy and History,* 1, "Introduction: Holding the strategy bridge."

24. Gray, 78.

25. 16519, Napoleon to Berthier, Le Havre, 29 May 1810, Henri Plon and J Dumaine, eds., *Correspondence de Napoléon I,* vol. 20 (Paris, 1866), 385–87.

26. Wellington to the Earl of Liverpool, Celorico, 19 August 1810, John Gurwood, ed., *The Dispatches of the Field Marshal The Duke of Wellington. An Enlarged Edition in Eight Volumes,* vol. 4 (Cambridge: Cambridge University Press, 2010), 234.

27. Wellington to the Right Honourable C. Arbuthnot, Alcobaça, 5 October 1810, The 2nd Duke of Wellington, ed., *Supplementary Dispatches, Correspondence, and Memoranda Of Field Marshal Arthur Duke of Wellington, K.G.,* vol. 6 (London: John Murray, 1860), 612.

28. Gray, *Strategy and Defence Planning*, 48.

29. Colin S. Gray, *War, Peace, and Victory: Strategy and Statecraft for the Next Century* (New York: Simon and Schuster, 1990), 28.

30. Magazines were protected towns or locations where all the materiel required for operations would be stored until needed.

31. Wellington to the Earl of Liverpool, Viseu, 24 January 1810, John Gurwood, ed., *The Dispatches of the Field Marshal The Duke of Wellington. An Enlarged Edition in Eight Volumes.,* vol. 3 (Cambridge: Cambridge University Press, 2010), 699.

32. Andrew Bamford, *Sickness, Suffering, and the Sword: The British Regiment on Campaign, 1808–1815, Campaigns and Commanders Series,* vol. 37 (Norman: University of Oklahoma Press, 2013), 220.

33. Wellington to the Earl of Liverpool, Viseu, 30 January 1810, Gurwood, *The Dispatches,* vol. 3, 714.

34. Auguste Frédéric Louis Viesse de Marmont, *Mémoires Du Maréchal Marmont, Duc de Raguse*, vol. 4 (Paris: Perrotin, 1857), 344–45; and Marmont to Berthier, Valladolid, 26 February 1812.

35. Gurwood, *Dispatches,* vol. 4, 653, Memorandum, Cartaxo, 5 March 1811.

36. Clausewitz, *On War*, 208.

37. Field Marshal Montgomery on the Problem of Future War and the Strategy of War with Russia, memorandum, 30 January 1948, DEFE 48/5, TNA.

38. Colin S. Gray, *Strategy and Politics* (London: Routledge/Taylor & Francis Group, 2016), 91.

39. NATO, *A Report by the Military Committee to the Defence Planning Committee on Overall Strategic Concept for the Defense of the North Atlantic Treaty Organization Area,* MC 14/3, 16 January 1968.

40. Chaim Herzog, *The War of Atonement: The Inside Story of the Yom Kippur War* (London: Greenhill Books, 2003), 277. The Israelis ran out of some types of ammunition in the Yom Kippur War while fighting back the Soviet-trained Syrian attack on the Golan Heights. The ammunition expenditure was "inordinately high," and staff tables required dramatic revision.

41. *The Counterstroke Future Battlefield Study,* DOAE Note 663/202 (Defence Operational Analysis Establishment, 31 August 1983), para. 2, DEFE 48/1077, TNA.

42. Nigel Bagnall, *The Israeli Experience: A Study of Quality,* Defence Fellowship Study (Camberley: Staff College, 1974).

43. *Data Assumptions, Method of Analysis and Study Programme for DOAE Study 288* (1 (BR) Corps Concept of Operations 1985–2005), D/DOAE/44/616, 23 January 1980, para. 3, DEFE 48/1095, TNA.

44. *The Counterstroke Future Battlefield Study,* 10. Thirty Lynx/TOW (tube-launched, optically-tracked, wire-guided missile) were dedicated to a two-brigade attack.

45. Annex C to Section 2, Ministry of Defence, "BATUS (British Army Training Unit Suffield) Training Report," 1981, para. 7.

46. DP 14/81(Final), Appendix 2, Annex A, Serial EL05, *NATO Long Term Defence Planning,* FCO 46/2586 (Kew: The National Archives, 1981), TNA.

47. US Department of the Army, Field Manual 100-2-3, *The Soviet Army: Troops, Organization and Equipment* (Washington, DC: Department of the Army, June 1991), 4–10.

48. *The Counterstroke Future Battlefield Study,* para. 34.

49. Sunday Times Insight Team, *The Yom Kippur War* (London: Andre Deutsch Limited, 1975), 161.

50. Ministry of Defence, Criticisms of BAOR, memorandum, D/DS6/7/19/31, Comment 6.A, 15 September 1978; and *British Army of the Rhine* (Kew: The National Archives, 1978), FCO 46/1735. Originally there were 14 Stalwarts allocated to each armored regiment. These were replaced in the mid-1980s by the Medium Mobility Load Carrier.

51. Gray, *War, Peace, and Victory*, 171.

52. Gray, *Strategy and History*, 75.

53. Gray, *War, Peace, and Victory*, 22.

54. MC stands for Military Council of NATO.

55. NATO, para. 17.a.

56. Quoted in E. H. Carr, *The Twenty Years Crisis, 1919–1939: An Introduction to the Study of International Relations* (London: Macmillan, 1946), 11.

57. Gray, *War, Peace, and Victory*, 42.

58. House of Commons Defence Committee, *Preliminary Lessons of Operation Granby,* HC 287, 17 July 1991, para. 44.

59. COS 43/68, Annex A, The British Contribution to NATO in the Long Term, Part IV - Capabilities Required by NATO, Conventional Capabilities, Chiefs of Staff Committee, *Revision of NATO Strategy* (MoD, 1968), para. 114, DEFE 13/635, TNA.

60. See comments by General Odierno, US Army Chief of Staff, and others, House of Commons Defence Committee, HC 512, (London: The Stationery Office, 17 March 2015); See also "General Sir Richard Shirreff in Russia Warning to West," https://www.bbc.co.uk/news/uk-28948121; and "UK Military Ill-prepared to Defend an Attack, Says Retired Chief," *BBC News,* https://www.bbc.co.uk/news/uk-37391804, accessed 20 September 2016.

61. Ministry of Defence, *Adaptability and Partnership: Issues for the Strategic Defence Review,* Cm 7794 (London: The Stationery Office, February 2010), Introduction.

62. MoD, *Adaptability and Partnership,* 43.

63. Michael Fallon, *Reforming Defence: Keeping Fighting Fit* (speech, Institute for Government, 28 January 2015).

64. See, for example, Sir John Chilcott, *The Report of the Iraq Inquiry* (London: The House of Commons, 6 July 2016), sec. 6.3, Military Equipment.

65. Chilcott, paras 36–38.

66. Chilcott, section 9.8, para. 197.

67. Gray, *Strategy and History,* 80.

Part 2
Strategy and Culture

Chapter 4

The Origins of Defense Innovation

Cultural Roots of the American Strategic Experience

Brice Franklin Harris

Brice, a PhD student of Colin Gray, died on 17 March 2019 at the age of 41, leaving behind a wife and young son. He wrote his doctoral thesis in 2006, entitled "Conflict, Culture, and the American Strategic Experience: An Inquiry into Clausewitzian Theory and Strategic Culture." The work explored the roots of Network-Centric Warfare/Effects-Based Operations, and analyzed this strategy against Clausewitzian theory, judging it to be inconsistent with Clausewitz's teachings. This chapter is compiled from elements of that thesis, edited by a friend of Brice who is another former student of Gray. It is focused on the cultural roots of the Revolution in Military Affairs, which has evolved into today's US defense innovation movement.

America is the land of the bountiful. It is the land of opportunity. It is the land of the free and the home of the brave. America is also the birthplace of McDonald's hamburgers and denim jeans. It is where the magic of flight was first gifted to man, and where the automobile assembly line was first instituted. It is where the world's first bifocal eyeglasses were invented. And America played host to what is widely considered the "first modern war"—the American Civil War.[1] Modern it was not because of why it was fought—which, like all wars, was for political purposes—but because of how it was fought. During the timeframe in which the American Civil War was waged, an industrial revolution was taking shape, which was having an effect upon the very fabric of American civil society. People, were beginning to build and move things and communicate with one another across long distances in ways never before experienced. At the same time, the effects of the so-called "Industrial Age" were not lost on the institution of war. Railroads, for example, came to play an essential role in the movement of soldiers and materiel. Use of balloons for intelligence, surveillance, and reconnaissance became common. Rifled and repeat-fire small arms were introduced, and, as a result, use of cavalry

for first-line offense declined. The first duel between two ironclad ships took place, and the first naval vessel was sunk by submarine (when the doomed CSS *H. L. Hunley* sent the USS *Housatonic* to the bottom of Charleston Harbor).[2] In sum, industry and machinery rose in strategic prominence to the point that, in the views of some, the need for tactical and strategic competence was eclipsed. And, with that, the character of war (i.e., war's "subjective nature" in Clausewitzian parlance) seemingly was forever changed.

It is in this tradition that most in the American political and military establishment argued that civilization—Western civilization at least—was, in the years after 9/11, once again being driven to a new era of warfare. Those subscribing to this viewpoint claimed that fundamental changes in American society arising from rapid advancements in information and communications technologies (ICT) precipitated the Revolution in Military Affairs (RMA) that was "unlike any seen since the Napoleonic Age."[3] This RMA, in turn, effected what defense intellectuals and military practitioners in America and elsewhere refer to as a "new theory of war," know as Network-Centric Warfare (NCW). While limited experimentation with the networking of military assets already was underway at the military-service level in the late 1980s—namely with the development and testing of the US Navy's Cooperative Engagement Capability[4]—the emergence of the NCW vision was only to come on the heels of the so-called "information revolution" that came to engross corporate America in the 1990s. Armed with advanced business concepts, fueled by visions of incomparable strategic advantage enabled by technology, and buoyed by numerous military "victories" throughout the 1990s, America's defense establishment moved to define network-centric theory in military, operational terms. The resulting theory would come to be compared to the works of such prolific authors as Clausewitz, Sun Tzu, Machiavelli, and Jomini.[5] And, as with the changes wrought by the "Industrial Age," the so-called "Information Age" and its concomitant RMA is said to be fundamentally changing the character—some have argued the very nature—of war itself.

The term NCW first gained public currency in 1998, when VADM Arthur Cebrowski (USN) and John Garstka published an article bearing the concept's name. In that article, aptly titled "Network-Centric Warfare," Cebrowski and Garstka declared that, at the outset of a new millennium, "fundamental changes in American society" stemming from the complementary adaptation of business processes and organi-

zations, economics, and ICT are combining to redefine the character of war. As the two remarked, "The organizing principle of network-centric warfare has its antecedent in the dynamics of growth and competition that have emerged in the modern economy."[6] The *dynamics* to which Cebrowski and Garstka were referring have their roots in the Internet, and in the commercial ecosystems that emerged in the 1990s.[7] In their view—and, indeed, in that of NCW supporters writ large—the institution of war could not escape the effects of deep-seated change in and to the economic and corporate elements of American society made possible by rapid (many would say, "revolutionary") advancements in ICT.

Specifically at the corporate level, sea changes in the way dominant business competitors operated came from the introduction of new ICT and, as importantly, its innovative use. In functional terms, the most successful corporations shifted away from the "platform-centric" practices of old, or those that focused on the level of transaction between and among individual nodes within an economic community. In so doing, the prevailing approach among leading American businesses in the 1990s became one that centered on the network as a whole. This paradigm shift resulted from an underlying expectation among corporate decision makers about the power of networked computing systems. At a fundamental level, the concept of Network-Centric Operations is governed by what has come to be known as "Metcalfe's Law" of the telecosm, which is based on the main idea that information—or, more precisely, the communication of it—is a source of power. Named for Robert Metcalfe,[8] the inventor of the Ethernet protocol technology, "Metcalfe's Law" asserts that the value of a computer network "rises in proportion to the power of all the machines attached to it."[9] The potential value of a network is, therefore, held to be "a function of the number of potential information interactions between networked entities."[10] In other words, the greater the number of heterogeneous computational nodes in the network the greater the information transmission capability of that network; the greater the capability of the network to communicate information, the greater its potential value (i.e., power).

Forging a Culture of Technology

It is undeniable that these huge advances in technology and their applications made a major contribution to the emergence of NCW.

However, in truth, the roots of the RMA lie far deeper in American history than corporate innovations that preceded it by only a few years. Irrespective of the political persuasion of either the executive or legislative branches of its federal government, America's tendency to invoke technological solutions to strategic dilemmas remains constant. Indeed, in all aspects of American life, technology has long been exploited when and where man has been left wanting. Commenting on America's extraordinary acumen for, and dependence on, technology in all facets of its society, Colin Gray observed, "It was so from early in the nineteenth century when a shortage of skilled craftsmen . . . obliged Americans to invent and use machines as substitutes for human skill and muscle."[11] Gray also observed that, in practice, America's past, present, and likely future approach to military affairs "is quintessentially and uniquely technology dependent."[12]

America's approach to war and strategy in the information age has its roots in its culture, which itself is the product of America's unique history as a nation. Having left behind the vestiges of European society, the early Anglo-American settlers were free to develop a nation that retained many fewer European characteristics than the distinctly American traits it acquired. The absence of political repression and social aristocracy, coupled with the promise of unspoiled land and material wealth, drove those early pioneers of fate toward the pursuit of happiness and what would become the American way of peace and war. Along the path to national development, there would emerge two distinct segments of the American society. One would be dominated by farming and agricultural production, the other by industrial labor and entrepreneurship. The two classes harbored very different views on what the future should hold for American republicanism. These competing views ultimately culminated in the American Civil War, which pitted a Yankee business class against a powerful Southern plantocracy. But, for all their political differences, the two sides of that conflict shared in many more commonalities. One such commonality was an unwavering faith in, and reliance upon, machine technology. A by-product of America's westward experience, only technology was believed capable of affording Northerners the ability to meet the demands of a fledgling, though increasingly expansive, business empire. Likewise, for the agriculture-dominated South, technology was perceived as a conduit for the maximization of efficiency and the redressing of critical labor shortages. The passage of the so-called Land-Grant College Act signaled the rise of machine

technology as an institutional factor in America's public culture—one that came to be reflected in the nation's approach to strategy and statecraft. That the American Civil War is considered the first war of the modern era is a telling example of America's machine mindedness and, more broadly, what may be considered her "culture of technology." America's faith in science and machines would survive and thrive throughout her national development and across a litany of military conflicts, including two world wars, one cold war, and a host of other contingencies (both large and small, successful, and otherwise). It is America's culture that both personifies and reinforces the nation's approach to war and strategy in the information age.

In *The Making of Strategy,* Colin Gray traced the forging of America's strategic culture to a finite set of variables. Those variables, as Gray mentioned, may be found in the years surrounding America's birth as a nation through the nineteenth century. In this context, Gray identified five interconnecting factors that he argues conspired to produce the strategic culture of the United States, including America's vast territorial extension, the "myth" of manifesting a destiny of national success, and the endowment of an unusually large resource base when judged against the standards of history.[13] An innate belief in the superiority of American sociopolitical and economic ideals was another of those factors. But it was "the experience of a moving frontier" that, by Gray's account, resulted in what he referred to as the "American fascination with technology."[14] This note on America's love affair with technology is a sentiment echoed by historian Max Lerner, who once characterized Americans as a "machine-intoxicated" people.[15] Playwright Arthur Miller expressed this same feeling in a more personal manner when he said of himself, "I'm an American. I believe in technology."[16] According to US Army Maj Gen Robert Scales, "Techno-centric solutions are in [America's] strategic cultural DNA."[17] In more substantive terms, it is significant to note, as have Hans Morgenthau and Kenneth Thompson in *Politics Among Nations,* that already by the mid-nineteenth century, some 27 percent of all physical labor performed in the United States was done by mechanical devices, compared to just 22 percent of work done by people and 51 percent by animals. By 1948—that is, within the span of only a few generations—statistical data told of a lopsided 94 percent of all physical work in America being performed by machinery, with the remaining 6 percent being distributed among people and animals. The results of this "mechanical revolution," as Morgenthau and Thompson suggested,

could be found in levels of industrial and agricultural efficiency, which increased by orders of magnitude in correspondence with the rise of the machine in America.[18] But how did this romance between Americans and machines come about?

Alvin and Heidi Toffler once remarked that the way in which men and women wage war has forever reflected the way those same men and women work, and people have always waged war in a manner that reflects their culture.[19] Take, for example, the last of Gray's five points noted above. Gray's comment about America's obsession with technology being linked to her frontier experience harks back to the theme of a landmark essay written by Frederick Jackson Turner. That essay, entitled "The Significance of the Frontier in American History," sought to capture the essence of American democratic republicanism in a time of radical socio-economic change. Turner's paper, which was first delivered somewhat inconspicuously to a group of historians assembled at the 1893 Chicago World's Fair, came to serve as a benchmark theory against which the culture of America would long be weighed.

According to the Turner thesis, the study of early American history is more apt to be "the study of European germs developing in an American environment."[20] This is to argue that American ideals and institutions may be understood less in terms of their European origins than in the unique experience of melding civilization and savagery on the American frontier. Rebelling as he was against mainstream historical teachings, Turner argued that too much attention had been given to the European origins of the American character, and too little to the environmental factors that were unique to the nation's historical experience. It was with this notion in mind that Turner advanced his central proposition, which was that America's national development may largely be explained by "the existence of an area of free land, its continuous recession, and the advance of American settlement westward."[21] To this Turner would add: "The peculiarity of American institutions is the fact that they have been compelled to adapt themselves to the changes of an expanding people—to the changes involved in crossing a continent, in winning a wilderness, and in developing at each area of this progress out of the primitive economic and political conditions of the frontier into the complexity of city life."[22] Without question, Turner recognized that expansion into the great wilderness of North America could not alone account for America's social development. To suggest otherwise was a sin sometimes committed by the more zealous among Turner's followers,

but not by Turner himself. As one student of Turner's noted rightly, "equally important forces in shaping the nation's distinctive civilization" included the influence exerted by America's heterogeneous racial makeup, the fluid nature of the international political environment, and, inevitably, the persistence of some European character traits.[23] In terms of Turner's practical influence, there is an obvious connection between his thesis and Gray's argument concerning the extent to which America's frontier experience drove her fascination with—and, invariably, her social, economic, and military dependence upon—machine technology. Further evidence of Turner's persuasiveness may be found in the fact that other noteworthy scholars—Lerner among them—have come to question the relevance of America's public culture to Europe and the rest of the world.[24]

Turner would later reinforce his frontier hypothesis with a series of supplemental essays. Much as in his original paper, Turner sought in subsequent writings to attribute the character of American social institutions in large part to the experiences of conquering a vast wilderness frontier. Among the more important of those essays was one entitled, "Contributions of the West to American Democracy," in which Turner argued that it is vastly more important to explain the economic and social proclivities of nation-states than it is simply to affix to those states such labels as "monarchy" and "democracy." As his model of social and economic development applied to the American sociopolitical condition, Turner advised, "If, indeed, we ourselves were not pioneers, our fathers were, and the inherited ways of looking at things, the fundamental assumptions of the American people, have all been shaped by this experience of democracy on its westward march. This experience has been wrought into the very warp and woof of American thought."[25] In essence, Turner was arguing that the significance and meaning of what was then the American present—characterized by crisis at the hands of mammoth socio-economic change in the areas of agriculture, steel, steam, and communications—could be understood through critical examination of the nation's past. "American democracy," Turner concluded, "is fundamentally the outcome of the experiences of the American people in dealing with the West."[26]

To be sure, the story of America's westward expansion is one of extreme hardship. It is the story of life requiring what has been referred to as "individual competence in basic skills, and a willingness and ability to turn one's hand to whatever needed to be done."[27] From

the time of their arrival on the Atlantic coast through their arduous trek to the Pacific, the Anglo-American settlers assumed an existence that may best be described as "slow, countrified, [and] unsophisticated."[28] Indeed, even into the first years of the twentieth century, America remained in many ways a "crude, disorganized, violent country," as evidenced by the US Government's dealings with the Native American population.[29] Such conditions were understandable, for from their first days in the new world, the American pioneers were compelled to live life in a land that was at once devoid of societal support yet plentiful in natural challenges. Fortunately for them, the threat of being set upon by a first-rate native power was not an immediate danger. "There was no Aztec military empire," wrote D. W. Brogan, no American Indian Sparta like the Iroquois Confederacy. King Philip's War, serious ordeal as it was for New England, was a storm, not a hurricane like that which beat on New France. No frontier of New England or the Carolinas knew an ordeal like that inflicted for generations on New Mexico by Navajo and Comanche.[30]

While such threats would come in time, "the great enemy," as it were, proved to be the tyranny of space and distance and the treachery of wilderness.[31] To the settlers, the land was foreign, the terrain was difficult, and the availability of human resources for the provision of food and shelter was woefully inadequate. However perilous, these conditions could not keep the early pioneers from pursuing "the most important object in their lives"—land ownership.[32] But with the dream of a better life on the minds of so many, the local supply of quality land and mineral riches fell roughly in proportion to increases in the immigrant population. As the pace hastened at which new settlers arrived on the shores of the northeast so, too, did the inevitable southward and westward movement of the frontier line. So began the centuries-long process of taming a continent.

The period between the signing of the Treaty of Paris in 1783 and the commencement of the so-called Open Door policies of 1899 and 1900 can in many ways be regarded as America's "formative century," particularly in the realm of foreign policy. Characterized largely by the development of a number of enduring policy positions and her permanent entrée into the international political arena, the trend most apparent during America's formative years was the process of territorial expansion.[33] And the American assault on the western frontier did not take place in linear fashion, whereby the arc of settlement might have extended across the continent at a constant pace.

Rather, the pattern of migration took place at a rate that was highly variable across time and space. Likewise, there was significant variation in terms of the motivating factors that drove people westward. In essence though, the decision to move deeper into the American heartland seems to have hinged greatly upon three keynote factors: perception of the opportunities for desirable land that were expected to lie ahead; the level of effort required to move through and across nature's obstacles; and the extent to which local conditions obliged people to move.[34]

Similarly, movement across the American frontier in virtually all instances seems to have been conditioned by three factors: individuals' capital resources ("recurring economic panic" was in fact a strong force for movement);[35] the duration and difficulty of travel involved; and possession of the physical, mental, and technical wherewithal to survive the journey. Fur trappers generally paved the way, followed in close succession by (and sometimes parallel to) cattle herdsmen. These individuals would clear pathways, establish lines of communication, and map the local terrain. Incidentally, they—particularly the traders—were also responsible for spreading diseases, vices, and modern weaponry to and among the native peoples. The preponderance or scarcity of mineral resources drove the mining frontier, which advanced without any semblance of uniformity. However dissimilar were their lifestyles, these peoples were alike in that their use of the land was generally superficial. That is, this group of settlers tended to extract what resources were most readily available and move on to virgin territory. The same was not true of the second group, whose mission was not simply to use what nature had provided but also to subdue nature in its totality. It was principally the plantation farmers and their urban counterparts, the town-planters, speculators, merchants, and millers who fitted into this category. Indeed, it was they who would leave the deepest and most abiding footprint upon the lands and native cultures they encountered.[36]

All settlements underwent a similar process of habitation, although the result tended to vary in relation to local factors. Over the years, the process of settling the American frontier would be shaped by conditions that forced people to begin anew at the most basic levels of civilization. Indeed, it was, as one publication noted (in terms reminiscent of Turner), "the continuous renewal of society in the western wilderness that helped endow the American people and their institutions with characteristics not shared by the rest of the world."[37] This

process continued until the vast reaches of the continent were traversed and settled. From the experience of hardship and renewal there emerged in the American spirit "a pragmatism that translated into an engineering, problem-solving approach—an approach that at times has dismissed conditions as merely problems."[38] Indeed, as Thomas Clark once wrote, "Ingenuity and forbearance were the twin virtues of necessity when the white man placed himself in the arms of raw, untamed nature."[39] At practically every turn, local conditions compelled the early Americans to adapt—socially, personally, physically, intellectually, attitudinally—in order that they may survive and thrive in a sociopolitical and economic vacuum.

In the context of the preceding discussion, one may begin to understand America as a civilization and how she came to be imbued culturally with characteristics that include prudent individualism, a commitment to liberty and government noninterference, and the belief that anything may be achieved through the application of science and technology. From her birth as a nation through and until the late nineteenth century, America was what Max Lerner referred to as an "Enormous Laboratory."[40] And she had to be. With virtually none of the conveniences of modern society enjoyed by their brethren in old Europe, with no institutionalized societal support system, and with only a fraction of the population of European countries, Americans (particularly those out West) were forced to improvise and invent new ways for getting things done. It was these factors, among others, that led the American people to embrace machinery and, eventually, to assume the role as world leader in the production of machine tools.[41] As was noted previously, the population of early America did not include a great many skilled workers. Despite the promise of a new life, people with specialized training tended to remain in their native lands rather than make the long and arduous journey to a world riddled with unknowns (of both a known and unknown flavor). This acute shortage of laborers and technical ability, coupled with "the sheer scale of physical geography," obliged Americans to adopt the practice of substituting machines for human physical ability.[42] "Necessity bred preference and then excellence," as Colin Gray has written, "and the choice of mechanical solutions assumed a cultural significance that has endured."[43] But, where the author agrees with Gray in principle, Gray (like others) has overlooked a key factor in tracing the rising tide of technological dependency in American culture. That factor, which is discussed in some detail below, was the

creation of agricultural and mechanical (A&M) schools—the so-called land-grant colleges and universities.

Echoing Gray's thesis, Frederick Merk has made note of "the development and widespread use" of machine technology, which served to bring otherwise backward Middle America into the forefront of the world agricultural market late in the nineteenth century.[44] Such uniquely American innovations as corn planters and huskers, new generations of plows, and new methods for the production, storage, transportation, and marketing of grain were said to have ushered in a "revolution in farming comparable in extent and in significance to the Industrial Revolution."[45] Positive economic reinforcement, the drive to succeed, and the price of failure served to fuel these revolutions, each of which were influenced greatly by the experience of America's frontier settlers.

In effect, the propensity to embrace machine technology would not be confined to the American West. Rather, the western faith in science and technology may be viewed as a nationalizing influence insomuch as it came to be inculcated into American society overall, thereby forging a generally homogenous view of technology throughout the country. In other words, as Americans in the outer regions came to accept technological solutions as something akin to gospel, their innovative tools and techniques were disseminated to the more established areas in the eastern part of the country. The eastern experience with technology, in turn, would filter back to the frontier region in a self-propagating cycle of innovation and inculcation. This closed circle continued until a relative state of equilibrium was reached within the local (i.e., regional) areas of the country as such equilibrium related the specific needs of those areas. Indeed, throughout the whole of America, the state of technological sophistication came to reflect the demands made by the local-area population, which was responding in turn to local environmental and socio-economic conditions. For their part, the southern states applied machine technology and engineering skills to build what eventually became a powerful "plantocracy," or regime of land-plantation owners. Similarly, high technology and its derived methods of employment were embraced by the industrialized North only to become an integral part of life and labor in the manufacturing sector. On balance, and as history demonstrates, it was the capacity of the northern states—the harborers of industry and Renaissance-inspired academic viewpoints—for transforming technology into productivity that ac-

counted for much of that region's wealth and power vis-à-vis other parts of the country.

In sum, the diffusion of machine technology and ideas was what afforded the dominant classes—planters and industrialists—the ability to master their respective domains. These elite classes erected empires mainly using technology to strip away forests, open land for commerce, build railroads and throughways, harvest agricultural products, construct and efficiently operate factories, and harness natural energy resources.[46] Economic progress begat more innovation, which created new markets, which placed new demands on society, which in turn, drove more innovation and, ultimately, greater technological dependence. It was, in this sense, through principles of applied science and engineering that America was transformed from a harsh wilderness into a bastion of economic productivity. But while faith in machine technology had by the late nineteenth century become a dominant feature of the US socio-economic landscape, one may argue reasonably that it was the "extraordinarily favorable land legislation of the federal government" during that same period,[47] coupled with a Western-inspired education reform movement, which helped enshrine such faith in the public culture.

Utilitarianism and the American System of Higher Education

Beginning with the so-called Homestead Act of 1862—a law that bequeathed as much as 160 acres of public land, either free-of-charge or at only nominal cost, to Americans who had "never borne arms against the United States"[48]—the US Government moved to transfer land ownership to private citizens and state governments. The goal of such a measure was to create in America an ownership society that would aid in the reduction of poverty, the construction of a nation, and the fostering of a national identity. To be sure, the Homestead Act coincided with the passage of especially liberal immigration laws aimed at curbing America's population (i.e., labor) deficit, although it would be years before those laws would produce their intended results. With more land, more people, more farms, and more industry came more pressure to produce and to do so in an efficient and effective manner.[49] The competitive nature of a burgeoning marketplace would have a similar impact in this regard. While the Homestead

Act would prove to be a defining piece of legislation, it was understood that rampant poverty would persist in the absence of a workforce skilled in the areas of industry and agriculture. With demand for instruction in the practical arts and sciences very much on the rise, but the supply of institutions offering such education in the rut, the federal government's response would come in the form of land grants for A&M schools.

The practice of granting public lands to the states for use in educating people in vocational fields had the effect—albeit unintended—of institutionalizing in American culture an already common feature of the social landscape, which is to say the propensity for invoking technological solutions to the challenges of daily life. There are three persons of note in the story of land-grant schools in America. Jonathan Turner campaigned—albeit unsuccessfully—in the early 1850s for the establishment of industrial colleges to be supported through federal grants of land and capital. In his last will and testament, Thomas Clemson bequeathed the US state of South Carolina a sum of money that was used in founding the Clemson Agricultural College in 1889. But it was through the efforts of Justin Morrill—who, at the time, was a US Representative from the state of Vermont—and the passage of the so-called Morrill Act of 1862 that an actual system of land-grant schools came into existence.

Upon its enactment, the Morrill Act authorized the donation of public lands "to the several States and Territories which may provide colleges for the benefit of agriculture and mechanic arts."[50] Having allotted 30,000 acres of federal land for every member of the states' respective Congressional delegations (as pegged against the census of 1860), the Morrill Act—known officially as the Land-Grant College Act—allowed for the establishment of educational institutions for which the "leading object" was to be instruction in engineering and agriculture, as well as in the military sciences. The stated goal of this measure was to promote the "practical education of the industrial classes in the several pursuits and professions in life."[51] In principle, support for public education had long been a central tenet of American society. It was through the work of the Continental Congress that government support for public education was first established in 1787. Moreover, advocacy in favor of practical skills training—including the technical fields—in American schools dates back to the days of such noteworthy figures as Benjamin Franklin.[52] But, while America's acceptance of "the concept of social responsibility for edu-

cational and philanthropic activities and organizations" was "virtu-ally axiomatic" in principle,[53] government apathy and the stratification of society had in practice allowed curricula in traditional colleges to become "hopelessly antiquated" in the eyes of many Americans.[54] Specifically, as told by one author, the colleges that existed in America before the Morrill Act were small, four-year, church-connected insti-tutions that offered only the bachelor's degree, and whose primary concern was to shape the moral character of their students. The con-tent of their courses had been fixed for generations as the proper study for gentlemen. The faculty were clergymen, as were the trustees and presidents. Each young man took the same courses as every other; all students were drilled to learn by memory; and they were kept under close discipline. The college stood in place of the parent (in loco parentis), and its rule was heavy.[55]

Indeed, the character of the schools and the content of their curri-cula were reflected in the fact that, before the time of the Morrill Act, colleges in the United States—much like their European counterparts—focused nearly exclusively on literary education (i.e., the legal, medical, and ministerial disciplines). This form of higher education—which, at a minimum, was unsupportive of technical innovation, while, at most, had a stifling effect—persisted despite the floundering of America's manufacturing and agricultural sectors. Weak perfor-mance by the agriculture sector was at this time threatening the loss of wages, operating capital, and jobs, and placed in question the ability of America to provide for her own people.

The Morrill Act's passage was a watershed moment in the history of America, and federal government support for technical education subsequently came to be solidified in the American education system through legislative action that spanned several decades. Indeed, the Morrill Act was joined in importance by two other prominent laws. The so-called Hatch Act of 1887 provided monetary support to A&M institutions for the purpose of establishing agricultural experiment stations. Such stations were intended to refine and test the results of research that was taking place at the A&M schools. This was a unique development in the context of higher learning in America, given her education system's traditional focus on literary arts vice vocational pursuits. The Smith-Lever Act of 1914 completed the trilogy. That measure authorized land-grant schools to conduct extension work in agriculture and microeconomics away from the home institution. The Smith-Lever Act resulted in the diffusion of technology and ideas

from the academic community to the private sector. Such transfers were essential if the fruits of research at A&M schools were in fact to yield practical results, as was the intent behind the Morrill Act. Additional government support for land-grant institutions served to reinforce these measures. A second initiative sponsored by Morrill (who by then was a duly elected US Senator) and signed into law in 1890 by President Benjamin Harrison allocated additional funding to support land-grant schools or increase their existing endowments. Similar measures enacted respectively in 1907 and 1935 added still more funding to annual appropriations in support of A&M schools and fostered cooperative work between their experiment and extension stations. And, importantly, a law passed in 1917—known as the Smith-Hughes Act—paved the way for the establishment of vocational programs in secondary schools. Indeed, the effect of the Smith-Hughes measure was to instill technical knowledge and interest in the minds of young people, which, in turn, promoted and expanded still more research, development, and implementation activities in the technical fields.[56]

In its totality, the land-grant system effected a paradigm shift in American academia and, ultimately, in the public culture. The political movement aimed at establishing this new system of education effectively captured an American sentiment that had only been growing in pervasiveness. That sentiment, which reflected the practical approach to life to which most Americans had been conditioned, favored the refocusing of the academic community's attention away from classical literature and toward utilitarian-oriented education programs. Against this backdrop, there emerged in the period between 1865 and 1890 three conceptions of higher education. Those conceptions centered, respectively, "in the aim of practical public service, in the goal of abstract research on what was believed to be the pure German model, and finally in the attempt to diffuse standards of cultivated taste."[57] The first of these brands garnered the most appeal. As a result, in the years that followed the end of the Civil War, "almost every visible change in the pattern of American higher education lay in the direction of concessions to the utilitarian type of demand for reform."[58] This type of reform presented a fundamental challenge to the orthodox thinking of educators who ruled over the curricula followed both in public and private institutions. The ensuing tensions were most readily apparent between the reigning faculty of pre-existing state schools and private institutions on the one hand (who

held firm in their support of classical academic programs) and their A&M counterparts on the other (which offered baccalaureate degrees in livestock as opposed to Latin).[59] Nevertheless, with the rise in influence of educators from the American Midwest—people who not only embraced the idea of practical public service but who were also the personification of a society born of the frontier experience—the utilitarian reform movement took hold and flourished in American academia. This is to say that, in addition to being part and parcel of the land-grant education initiatives that accommodated the demands of the reformers, this movement embodied the perception of most Americans that education should be of a practical nature to allow the requirements of everyday life to be met. As with all social movements, the temperament of this one would be calmed by political intransigence on university campuses, as well as by a conservative counterforce. The calming of that movement, however, would not come before its mark upon the future of education in America was assured.

To summarize, and to paraphrase Frederick Jackson Turner, "America's culture of technology is fundamentally the outcome of the experiences of the American people in dealing with the West." As may be surmised from the preceding passages, one might rightfully add that it was through the offering of technical instruction in the American system of higher education that technology became a defining feature of the American public culture. Together with the impression left by America's westward expansion, the inclusion of technical training in the country's academic curricula would come to shape America's culture of technology. As it were, America's culture may now be viewed in terms of a people who were distinctly socialized to exhibit a pattern of orientation toward the use of machine technology to meet life's everyday challenges. In other words, because of their unique experience as a nation—one whose very existence once hinged upon the substitution of man with machines—Americans became encultured to invoke technological solutions to social questions of practically every sort. There would be no exception for America's view of and approach to the institution of war.

Winds of Change: Revolutions in Transportation and Communication

Transportation and communication are two areas in which change in the art and science of warfare was most readily apparent in the

timeframe encompassing the American Civil War.[60] In terms of mobility, this was the period in which railroads and steamships first rose to prominence, both in the commercial sector and in the realm of military affairs. Indeed, the invention of the screw propeller helped catapult steam-powered ships to a position of greatness within the span of only a few decades from the steamship's introduction. Robert Fulton first initiated commercial steamboat operations in 1807 with the christening of the *Clermont*. By the early 1840s, hundreds of steamboats were in operation on the inland waters of America, and a half-dozen steam-powered warships had been constructed to defend America's territorial and shipping interests. To be sure, there were some drawbacks to replacing sailing ships with steam vessels fueled by coal.[61] Nevertheless, as Allan Millett and Peter Maslowski have noted, the adoption of steam by the US Navy should be understood as having completely altered maritime strategy and tactics. Ships could travel in direct lines rather than in sweeping deviations necessitated by prevailing winds and currents. Steam increased travel speed, allowed for a precise calculation of how long a voyage would take, and made in-shore maneuvering easier.[62]

Coupled with the introduction of iron into shipbuilding, which led to the construction of the world's first armored warships, a new era in maritime warfare commenced in this period—one that effectively ended the tradition of wood and sail that, throughout recorded history, had reigned over the seas. Equally significant during this timeframe were advances in land transportation brought on by the advent of railroads. Unlike its steamboat contemporary, rail transportation offered the advantage of being halted neither by ice nor drought. Nor were railways limited in their societal reach, as were river-bound steamers. Although significant railroad construction in America did not commence until after the Civil War—only about 35,000 miles of track had been laid before 1865—this mode of transport had an important role to play before that conflict in the shipping of cargo between and among major population centers in the South, North, and West. Despite their absence across most of North America, railroads found their military calling during the Civil War as both sides came to rely heavily upon rail for military logistical support and operations. Indeed, it was during the American Civil War that armored trains and railway artillery first came into use. In a testament to America's machine dependency even then, the strategic importance of railroads, as such, became so widely recognized by the political

and military leadership that even President Lincoln remarked once in 1862: "To take and hold the railroad at or east of Cleveland [near Chattanooga], in East Tennessee, I think fully as important as the taking and holding of Richmond [Virginia]."[63] In the final analysis, railroads and steamships had the effect of reducing by orders of magnitude the temporal, spatial, and, ultimately, monetary restrictions imposed on commercial ventures—economies that would not be lost on the US military.

On the subject of communication, it is important to consider the contribution of the electromagnetic telegraph both to civil society and to the art of war. The telegraph stands as a shining example of how American ingenuity came to influence the grammar of war in general, and the American way of war in particular. Were it not for the early efforts of Americans—not to mention Russians, Frenchmen, and Englishmen—to communicate remotely by way of transmitting electric signals across long stretches of tin wire, none of the telecommunications marvels Western society has come to enjoy would ever have been made possible. As told by one author, "It is not by chance that communication and community come from the same Latin root. Any system that enhances or denies our ability to learn from and talk to one another necessarily affects our social fabric."[64] The invention of the electric telegraph did indeed have such an impact upon American society, despite the technology's initial limitations.[65] In the same vein, as Martin van Creveld has intimated, the telegraph's invention—coupled with that of railroads and steamboats—elevated the practice of warfare to "an entirely new level."[66] While Samuel Morse's initial transmission of the words, "What hath God wrought?," in May 1844 signaled an impending shift in the infrastructure and conduct of commerce,[67] so, too, did it foreshadow a shift of equal magnitude in the infrastructure and conduct of warfare through and across all levels of military conflict. Slow and cumbersome as it was to establish as an electronic communications network, to say nothing of its operation as a viable system, the telegraph, once in place, had the immediate effect of compressing time and space between linked centers of population. In the context of warfare, the military implications at the level of strategy promised to be sudden and dramatic. "Where this fact was understood," as van Creveld contends, "the telegraph was capable of making a decisive contribution towards victory."[68]

Moreover, at the operational level of war, telegraphic communications allowed for theater-level command of armies numbering into

the hundreds of thousands, and the massive supply trains required to support them, from distances of hundreds or even thousands of miles away. The device's utility at the tactical level, however, remained very limited, in part because of transmission procedures and partly because of the threat of having communications intercepted or faked. With control tending to end where the machine's wires did—generally at the location of army headquarters—tactical commanders "were condemned to fight largely on their own, sometimes successfully and sometimes not."[69] This was generally the case during the American Civil War, as was exemplified by such well-known military engagements as the Battle of Bull Run in July 1861. That mold, however, would be shattered at Fredericksburg, Virginia, in December 1862 during an infamous battle pitting the Army of the Potomac (United States) against the Army of Northern Virginia (Confederate). While, understandably, the Battle of Fredericksburg is best known for the heroic defeat suffered by US forces at the hands of the Confederacy, it is noteworthy here for the fact that "the telegraph first saw extensive battlefield use, linking headquarters with forward batteries during the action—a forerunner of twentieth century battlefield communications."[70] The trend toward devolving military command and control via electronic communications continued progressively in the years that followed the Battle of Fredericksburg—a practice that was only to be adopted more widely with the introduction of the telephone to the field of battle around 1900.[71] In the process, the whole concept of military command entered a new era, continuing along its evolutionary path from the proto-heroism of primitive warfare in the direction of post-heroic command in the nuclear age.[72]

The Past as Prologue

In essence, the American Civil War served as both the physical and intellectual embodiment of the concept known as "total war" and helped promote the institutionalization of technology in US strategic culture. As such, one may find in the epic war between Americans the genesis of what came to be known as the modern-day military-industrial complex, for it was in the American Civil War that industry and machinery first rose in strategic prominence. As Dupuy and Dupuy noted, "The railroad, the steamship, the rolling mill and the factory combined [during the Civil War] to produce and deliver."[73] As

the authors continued, "Increased production brought about by new inventions sought ready markets, necessitating, in turn, improvements in transportation. And every step in this economic advance was potentially affecting the soldier, since each new technological development affected mobility and firepower, the basic elements of warfare on land and sea."[74] The impetus for transferring American ingenuity and inventiveness to the military domain was fueled initially by recurring fears of war with Great Britain, France, and Spain. Ironically, fears of war were sparked by the speed at which new military technology was being introduced during the first half of the nineteenth century. As one author noted, the "revolution in military technology" that transpired in the years after 1815 through and until the end of the American Civil War caused American strategists much anxiety "as they pondered a bewildering range of developments."[75]

Irrespective of such war scares—and discounting Mexico's rout in the Mexican-American War—the results of matching military operational requirements with American socio-technical dynamism were not to be placed on display until after hostilities commenced in 1861 at Charleston, South Carolina. In the course of America's greatest domestic political dispute, as told by Alan Millett and Peter Maslowski, "The outlines of modern total warfare emerged during a four-year ordeal."[76] So, too, did the outlines of America's modern-day strategic culture emerge, for it was in that conflict that the diffusion of technology and ideas to the military domain gained traction. In many respects, the transfer of civilian technology to the US military had begun with the strategic failures in the Anglo-American War of 1812, after which America's first long-range defense procurement effort commenced.[77] The precarious situation in which both sides of the American Civil War found themselves served only to hasten that process of diffusion as both the United States and the Confederacy—true to their dominant public cultures—sought to cure their strategic ills through the application of technology. Despite her strategic advantage of being on the defensive,[78] it was the South's failure to compensate sufficiently for her industrial and, hence, technological weakness by finding strength in other dimensions of strategy—yet another unfortunate characteristic of the American strategic culture—that contributed largely to its demise.[79]

The experience of victory and defeat by the respective sides of the Civil War served to fuel the belief of Americans writ large that wars—as with savage lands—are won and lost by technology. This tendency

would be reinforced by America's strategic experience in the decades that followed, which saw Americans fall increasingly subordinate to machines in all matters of peace and war. Dodson Stamps, Vincent Esposito, and their associates said as much in their review of military history during World War One:

> Modern industry provided such an array of technical equipment that the bravest and most skillful fighting man, if improperly armed, might find himself completely helpless in combat. This was a radical change from previous wars, in which weapons were comparatively simple. This growing importance of armament meant that the industries of a nation could, and did, exert a decisive influence on the course of operations. Logistics was transformed from a relatively simple business to a vast field of military endeavor equal in difficulty and importance to the control of operations. The proportion of noncombatant soldiers required to run the great logistical machines would have astounded Frederick or Napoleon, though it did not even approximate the proportion that was to be required in World War II.[80]

To be sure, it was in the Great War that America's new generation of strategic technologists—inspired, as they were, by the American system of higher education—first put to test their ideas on mastering the art of war using science and technology. As with other participants in the "war to end all wars," the United States was intent on making sure the experience of that episode would be integrated into her war machine. With this in mind, the US military embarked upon a period of intensive study and scrupulous analysis of the conflict with a view to deriving a series of "lessons" to be learned. Those "lessons"—which tended to emphasize the primacy of technical excellence—were disseminated throughout the military service schools before finding their way into official US military doctrine. This tendency toward viewing technology as a panacea of sorts continued through, and was reinforced by, America's strategic experience in the many decades ahead.

As Michael Evans has studiously observed: "In the West's public consciousness, modern war is based on high technology and the conventional force-on-force warfare of the kind associated with the two world wars, Korea, and the Gulf."[81] In this sense, World War Two is understood as having been won only through the use of airpower in the Atlantic theater and nuclear technology in the Pacific. Part of the

official US Government response to the Soviet Union's launching of the *Sputnik I* satellite in October 1957 was to pour millions of US dollars into secondary school math and science programs with a view toward drastically expanding the existing cadre of professionals who later confronted the technical challenges to which American military strategists had reduced the conditions of war. In the same vein, America is widely believed to have won the Cold War through successful competition in defense technology alone, most notably through research, development, testing, and evaluation activities related to America's Strategic Defense Initiative. And in the minds of most Americans, citizens and strategists alike, the military success of an American-led coalition against Iraq in only one hundred hours of combat during the 1991 Persian Gulf War is a clear testimonial to the sovereignty of technology in war. Clearly, the trend toward technological vice strategic excellence continues.

Without question, America's proficiency at waging war on the regular battlefield has grown ever stronger with the application of new technologies and manufacturing practices, insomuch as those advantages in the technological dimension have seldom been offset by adversary excellence in other areas. Indeed, the advent of computers and computer networks has served only to bring this trend toward military proficiency to its zenith, at least at the operational and tactical levels of war. Efforts continue to extend the advantages of net-centricity to the strategic level, and to leverage advanced ICT in the context of irregular warfare. But as in the case of man having become utterly dependent upon the home front with the advent of total war,[82] so have American soldiers and strategists become dependent upon machine technology. High technology is so dominant a feature of US military strategy that it seems to all but eclipse the meaning of strategy in its classical sense, with examples of such revealing themselves in practically every military confrontation—large and small, regular and irregular—to which the United States has been party since her own Civil War.[83]

In a very real sense, technological capability has come to be interpreted as strategic achievability. As this chapter has sought to trace, this is a strategic culture rooted in America's own culture. A culture born of the extreme hardships associated with America's westward expansion, and of great shortages of people and skilled labor, which drove society to search for and find remedies in scientific inquiry and technology innovation. Resulting from those experiences—distinct

as they were from those of European nations—was a pragmatic, engineering, problem-solving approach to life in general. America during that period became an "Enormous Laboratory," from which an enduring faith in science and technology would soon emerge.

In general terms, faith in science and technology would come to be enshrined in America's dominant culture through the country's system of higher education, after the "Morrill Act" placed vocational training on the same academic plane as the literary arts. Technology and ideas were later transferred from the academic community to the private sector via channels such as experiment stations. Over time, society's social dependence upon machine technology was transferred to the public policy domain via the nation's civil service and electoral processes.

The blending of technical training and military instruction at A&M schools had a similar effect on the culture of the US military, which led American military practitioners to share in the promise of technology. These factors, together with America's history in war and warfare, are suggestive of a strategic culture that is governed by scientific perspectives and technological dependencies. That is to say that high technology is not simply a characteristic of the American strategic approach; it is the American strategic approach. Likewise, the role of technology in US military strategy is the by-product of technology's influence on the American cultural envelope as it relates to the threat and use of organized violence for political purposes.

Notes

1. Charles C. Fennell Jr., "The Civil War: The First Modern War," in *The American Military Tradition: From Colonial Times to the Present,* eds. John M. Carroll and Colin F. Baxter (Wilmington, DE: Scholarly Resources, 1993), 61–94.

2. Bruce Catton, *Reflections on the Civil War,* ed. John Leekley (Garden City, NY: Doubleday, 1981), chap. 4.

3. Arthur K. Cebrowski and John H. Garstka, "Network-Centric Warfare—Its Origins and Future," *Proceedings 124,* no. 1 (January 1998).

4. For a summary of the Cooperative Engagement Capability program history, see "The Cooperative Engagement Capability," *Johns Hopkins APL Technical Digest* 16, no. 4 (October–December 1995): 377–96; and for an ostensibly objective view of this program, and others that are part and parcel of the U.S. Navy's approach to NCW, see Ronald O'Rourke*, Navy Network-Centric Warfare Concept: Key Programs and Issues for Congress* (Washington, DC: Congressional Research Service, 31 May 2005).

5. Arthur K. Cebrowski, *The Implementation of Network-Centric Warfare* (Washington, DC: Department of Defense, 10 January 2005), 16, fn. 15.

6. Cebrowski and Garstka, "Network-Centric Warfare."

7. James F. Moore, *The Death of Competition: Leadership & Strategy in the Age of Business Ecosystems* (New York: HarperCollins, 1996). Ecosystem in this sense is used as an "ecological metaphor," which (on p. 26) Moore defines partly as, "An economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world." See chap. 2 of Moore's book for his explication of a "business ecosystem."

8. Patrick McDermott, *Zen and the Art of Systems Analysis: Meditations on Computer Systems Development* (Lincoln: Writers Club Press, 2002), 87. Here McDermott wrote, "It is somewhat uncertain whether Bob Metcalfe . . . ever actually said it [Metcalfe's Law]." Indeed, after an extensive literature review, the author was unable to locate a single publication—to include those by Metcalfe himself—in which a direct quote on this subject was attributed to Metcalfe. The author did surmise, however, that the phrase "Metcalfe's Law" was first used as the title appearing on a 35mm slide used in an Ethernet sales presentation Metcalfe delivered in 1980. After this usage, those in the field of computer science commonly invoked neither the term "Metcalfe's Law" nor the logic implied by its usage. Indeed, "Metcalfe's Law" as a term and as a concept did not achieve public currency until its usage by George F. Gilder in his 1996 book, *Telecosm* (New York: American Heritage Custom Publishing, 1996), 48. Information based in part upon a private e-mail correspondence between the author and Metcalfe dated 27 December 2005.

9. George Gilder, *Telecosm: How Infinite Bandwidth Will Revolutionize Our World* (New York: The Free Press, 2000), 73. Put another way, "Metcalfe's Law" holds: "[T]he total value of a network is proportional to the square of the number of subscribers, while the value to a subscriber is proportional to the number of subscribers." For this quote, see Gordon Bell and James N. Gray, "The Revolution Yet to Happen," in *Beyond Calculation: The Next Fifty Years of Computing,* eds. Peter J. Denning and Robert Metcalfe (New York: Copernicus, 1998), 17.

10. David S. Alberts, John J. Garstka, and Frederick P. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority,* 2d ed. (Washington, DC: Department of Defense, August 1999), 254.

11. Colin S. Gray, "The American Way of War: Critique and Implications," in *Rethinking the Principles of War: The Future of Warfare,* ed. Anthony McIvor (Annapolis: Naval Institute Press, 2005), manuscript, 23.

12. Gray, 23.

13. Colin S. Gray, "Strategy in the Nuclear Age: The United States, 1945–1991," in *The Making of Strategy,* eds., Williamson Murray, MacGregor Knox, and Alvin Bernstein (Cambridge: Cambridge University Press, 1994), 590–91.

14. Gray, 590.

15. Max Lerner, *America as a Civilization* (New York: Simon and Schuster, 1957), 227.

16. Quoted in Robert Kelley, *The Shaping of the American Past,* 5th ed. consolidated (Englewood Cliffs: Prentice-Hall, 1990), 780.

17. Robert H. Scales, "Clausewitz and World War IV," *Armed Forces Journal,* July 2006.

18. Hans J. Morgenthau and Kenneth W. Thompson, *Politics Among Nations: The Struggle for Power and Peace,* 6th ed. (New York: Alfred A. Knopf, 1985), 410.

19. Alvin Toffler and Heidi Toffler, *War and Anti-War* (Boston: Little, Brown, 1993), 33.

20. Frederick Jackson Turner, "The Significance of the Frontier in American History," in *The Turner Thesis Concerning the Role of the Frontier in American History,* ed. and intro. George Rogers Taylor (Lexington, MA: Heath, 1971), 5.

21. Turner, 3.

22. Turner, 3.

23. Ray Allen Billington and Martin Ridge, *Westward Expansion: A History of the American Frontier,* 6th ed. (Albuquerque: University of New Mexico Press, 2001), 3.

24. For a short discussion on the theory of American exceptionalism and some problems with it, see Lerner, *America as a Civilization,* 28–29, 64–66.

25. Frederick Jackson Turner, "Contributions of the West to American Democracy," in *The Turner Thesis,* ed. and intro. Taylor, 45.

26. Turner, 47. As William Williams has remarked, another scholar by the name of Brooks Adams around the same time concluded through a not too dissimilar methodology—a likely reflection of his having read Turner's work—that "America's unique and true democracy could be preserved only by a foreign policy of expansion." Such a policy, Williams added, was "designed to make Asia an economic colony of the United States." For this account of Adams's work, which is at once compared and contrasted with that of Turner, see William Appleman Williams, "The Frontier Thesis and American Foreign Policy," *Pacific Historical Review* 24, no. 4 (November 1955): 379–95; and See Brooks Adams*, The Law of Civilization and Decay: An Essay on History* (New York: Macmillan, 1896), for Adams's own explication of his theory.

27. Gray, "U.S. Strategic Culture," 35.

28. Kelley, *The Shaping of the American Past, 470.*

29. Kelley, 470.

30. D. W. Brogan, *The American Character* (New York: Vintage Books, 1954), 183–84.

31. Brogan, 184.

32. Thomas D. Clark, *Frontier America: The Story of the Westward Movement* (New York: Charles Scribner's Sons, 1959), 7.

33. America's foreign policy heritage is captured in succinct, albeit revealing fashion in Charles O. Lerche, *Foreign Policy of the American People* (Englewood Cliffs, NJ: Prentice-Hall, 1967), chap. 3.

34. Billington and Ridge, *Westward Expansion,* 8.

35. Clark, *Frontier America,* 19–20.

36. Billington and Ridge, *Westward Expansion,* 3–8.

37. Billington and Ridge, 3.

38. Gray, "Strategy in the Nuclear Age," 590. Gray also advances this view in his book, *Nuclear Strategy and National Style* (Lanham, MD: University Press of America, 1986), 44. Stanley Hoffman offered a similar account of the American national style in *Gulliver's Troubles, Or the Setting of American Foreign Policy* (New York: McGraw-Hill, 1968), part II.

39. Clark, *Frontier America,* 203.

40. Lerner, *America as a Civilization,* chap. 4. It is worth mentioning that Lerner entitled this chapter, "The Culture of Science and the Machine."

41. Gray, "Strategy in the Nuclear Age," 590.

42. Gray, "U.S. Strategic Culture," 35.

43. Gray, *Irregular Enemies and the Essence of Statecraft: Can the American Way of War Adapt?* (Carlisle, PA: Strategic Studies Institute, US Army War College, March 2006), 35–36.

44. Frederick Merk, *History of the Westward Movement* (New York: Alfred A. Knopf, 1978), 433.

45. Merk, 433–38. The commercial practice of futures trading was invented in the 1860s in the American Midwest.

46. Lerner, *America as a Civilization,* 216.

47. Merk, *History of the Westward Movement,* 433.

48. US Public Law 37-64, 20 May 1862, https://www.ourdocuments.gov/.

49. Examples of this growth are given in Paul Westmeyer, *An Analytical History of American Higher Education*, 2d ed. (Springfield, IL: Thomas Books, 1997), 86. Westmeyer notes that, between 1865 and 1890, the track mileage of railroads in America increased from 35,000 miles to 167,000 miles. Iron and steel production is said to have increased from 1.9 million tons in 1870 to 15.4 million tons in 1900.

50. US Public Law 37-108, 2 July 1862, http://www.ourdocuments.gov/.

51. US Public Law 37-108, sec. 4.

52. Laurence R. Veysey, *The Emergence of the American University* (Chicago: University of Chicago Press, 1965), 59–60.

53. Clyde E. Blocker, Robert H. Plummer, and Richard C. Richardson Jr., *The Two-Year College: A Social Synthesis* (Englewood Cliffs, NJ: Prentice-Hall, 1965), 17.

54. Coy F. Cross II, *Justin Smith Morrill: Father of the Land-Grant Colleges* (East Lansing, MI: Michigan State University Press, 1999), 78. Kelley notes in *The Shaping of the American Past* (471) that "[a]s late as the 1890s, a candidate for the South Carolina governor's office would declare that his first step, if elected, would be to close down the state university." Such statements reflect the general feeling of hostility harbored mostly in the agrarian South and West toward the idea of higher education, as young men were made to believe "that by becoming 'bookish' they would lose their practical common sense, and probably their masculinity, and their morals and religion as well."

55. Kelley, *The Shaping of the American Past,* 472.

56. Westmeyer, *An Analytical History of American Higher Education,* 65.

57. Veysey, *The Emergence of the American University,* 12.

58. Veysey, 60.

59. It is interesting to note that tensions between these two camps manifest contemporaneously in athletic competition particularly in the context of American football. Take, for example, the rivalries between Mississippi State University and the University of Mississippi; Auburn University and the University of Alabama; and Michigan State University and the University of Michigan.

60. Firepower was another area in which change in the grammar of war was obvious. There were many other areas as well.

61. The U.S. Navy is said to have been slow to adopt steam over sail for various reasons, some of which were highly practical in nature; others were simply aesthetic.

62. Allan R. Millett and Peter Maslowski, *For the Common Defense: A Military History of the United States of America* (New York: Freedom Press, 1984), 126.

63. Quoted in William A. Stofft, et al., *American Military History* (Washington, DC: US Army enter for Military History, 1988), 254. Richmond, Virginia, was by then the capital of the Confederate States of America.

64. The Benton Foundation, "Telecommunications and Democracy," in *Information Age Anthology: Government and the Military,* eds. David S. Alberts and Daniel S. Papp (Washington, DC: National Defense University, 1997), vol. 1, pt. 3, 429.

65. In what was arguably a rare instance of accurate strategic forecasting, the US Government so recognized the impending prominence of wire communications that, in 1898, it imposed an excise tax on all telephone calls made in America to help fund U.S. military operations during the Spanish-American War. In May 2006—a full 108 years after its initial enactment—the U.S. Department of the Treasury repealed all but the "local phone service" portion of that tax. See Ken Belson, "Phone Tax Laid to Rest at 108," *The New York Times*, 26 May 2006, https://www.nytimes.com.

66. Martin van Creveld, *Technology and War: From 2000 BC to the Present* (New York: Free Press, 1991), 168.

67. Quoted in Allan R. Millett and Peter Maslowski, *For the Common Defense: A Military History of the United States of America* (New York: Free Press, 1984), 122.

68. Creveld, *Technology and War,* 170.

69. Creveld, 170.

70. Stofft, et al., *American Military History,* 232.

71. Stofft, et al., 295, report that the US Army began experimental usage of the telephone in the late 1870s, and that the device came into general Army usage in the early 1890s.

72. For comprehensive treatment of the evolution of military command from the time of Alexander the Great through and until the rise of nuclear authority, see John Keegan, *The Mask of Command* (New York: Viking Press, 1987).

73. R. Ernest Dupuy and Trevor N. Dupuy, *Military Heritage of America* (New York: McGraw-Hill, 1956), 199.

74. Dupuy and Dupuy, 199.

75. Peter Maslowski, "To the Edge of Greatness: The United States, 1783–1865," in *The Making of Strategy: Rulers, States, and War,* eds. Williamson Murray, MacGregor Knox, and Alvin Bernstein (Cambridge: Cambridge University Press, 1994), 233–34.

76. Millett and Maslowski, *For the Common Defense,* 153–54. The concept of total war would come fully into fruition fifty years later during the Great War.

77. The focus of this effort was placed upon naval construction, given the absence of a major continental threat. From 1812 onward, the Native American population was perceived more as a nuisance than a strategic threat. France had sold its majority interests to the United States under the terms of the Louisiana Purchase of 1803, thus all but removing from America's strategic calculus the threat of a land war with France. And Spain had been all but ejected from North America following the Adams-Onis Treaty of 1819. With the Mexican-American War of 1846–1848 resulting in US victory, the fate of "Manifest Destiny" was all but assured.

78. This advantage is noted in Stofft, et al., *American Military History,* 193.

79. Throughout the war, the strategic condition of the North was much more stable than that of the South. The North's economy was much more diversified than the South's; the Confederacy's access to human and liquid capital was much less readily available than was that of the United States; and the North's industrial base was vastly superior to that of the South.

80. Dodson T. Stamps and Vincent J. Esposito, eds., *A Short Military History of World War I, with Atlas* (West Point, NY: US Military Academy, 1954), 338–39. Rightfully so, Stamps and Esposito qualified their judgments by noting that it was the human factor, not the technological one, which, as in all wars, proved decisive in World War One.

81. Michael Evans, "From Kadesh to Kandahar: Military Theory and the Future of War," *Naval War College Review* 56, no. 3 (Summer 2003): 135.

82. For this point, see George A. Lincoln, *Economics of National Security: Managing America's Resources for Defense,* 2nd ed. (Englewood Cliffs, NJ: Prentice-Hall, 1954), 10. Lincoln's book offers compelling treatment of political, military, and economic interdependency in the realm of national security.

83. This point was recognized in Toffler and Toffler, *War and Anti-War,* 11.

Chapter 5

The "Know Thyself" Conundrum

Extracting Strategic Utility from a Study of
American Strategic Culture

Jeannie L. Johnson

Introduction

Colin S. Gray made clear that a studied understanding of one's strategic culture did for provide a commensurate power to change it. He argued firmly across four decades of scholarship that strategic cultures, rooted as they are in historical and geographic ground, do not give way easily. Most attributes worthy of inclusion under the "strategic culture" label are of semi-permanent quality. Further, and of particular concern for this chapter, these attributes cannot be significantly altered by an act of will.

Strong preferences toward particular modes of warfare and the mentalities which determine right and effective behavior in conflict may become, over time, something close to national default settings. These can be overridden under duress and after the prolonged failure of preferred methods, but this temporary adaptation does not necessarily inspire an intentional learning and internalization process that refines or shapes the fundamentals of national strategic culture.[1] Rather, militaries, national leaders, and their publics are perfectly capable of ignoring what they wish to ignore, including temporary adaptations that have proved useful on the battlefield but run counter to the core preferences wired into national strategic culture. These become lessons learned in an episode of adaptation but are lost across time.

Gray noted early and often in his scholarship that use of the term "strategic culture" to reference a monolithic, shared, and commonly agreed upon set of cultural preferences for any polity is an oversimplification that can, nonetheless, deliver utility. He pointed out that strategic culture is a corporate concept that houses a number of cultural subsets. These include the culture of its dominant military institution, individual service branches, and the internal cultures of other key institutions within its security community. Strategic culture draws from the wider national culture of the domestic public and

shares ground with conceptual cousins like political culture and national ways of war. Gray used various definitions of strategic culture throughout his career, including the original penned by Jack Snyder, and supported its varied applications as long as the concept maintained "a powder trail to kinetic things."[2] If expanded to explain too much, he warned, it would lose its original utility. Of American strategic culture specifically, he provided the following definition: "That culture referring to modes of thought and action with respect to force, derived from perception of the national historical experience, aspiration for self-characterization . . . and from all of the many distinctively American experiences (of geography, political philosophy, of civic culture, and 'way of life') that characterize an American citizen."[3] Scholarship within the strategic culture field has addressed a number of the subsets within the strategic culture corporate concept, examining case studies in which the particular impact of an organizational culture is significant in explaining the outcomes of an historic event, but as Gray noted in *Perspectives on Strategy,* study of the interplay between competing strategic subcultures as well as engagement with the wider national culture in which they are forged remains underdeveloped within the field.[4] Gray himself did not address that gap, rather he dedicated the bulk of his scholarship to examining the general trends which surfaced in American strategic culture across time and how these were likely to influence strategic performance in different modes of warfare. Several of his significant pieces on American strategic culture occurred during the first decade of counterinsurgency (COIN) efforts in Iraq and Afghanistan for the United States, thus the advice and analysis requested from Gray was focused on this mode of warfare. The insights delivered, captured with utter clarity in *Irregular Enemies* and the *Essence of Strategy: Can the American Way of War Adapt?,* were stunningly relevant and accurately prescient concerning the US performance in COIN—a gold mine for any who took the time to read them.[5] Very few of these insights, however, seemed to have translated into altered US practice.

The United States has, instead, performed exactly as Gray predicted. At the end of two decades of irregular, population-centric war across two different theaters, it is largely ignoring most of the lessons available to be learned from these painful conflicts and is returning to strategic culture default settings. US military organizations and their civilian political leaders are turning attention to future-fight scenarios

for which US strengths are better suited: regular warfare against regular enemies.

Preparing for regular war against another great power is sensible and is in line with Gray's admonition to pursue a strategic course with the fewest big regrets.[6] He advised, "The US military unquestionably is, and should long remain, the world leader in the conduct of a regular style of warfare."[7] Gray's parallel claim was that wily adversaries—or even just those with an intellect slightly above average—are unlikely to strike at the United States in its areas of strength.[8] Nearly 20 years on, the US security landscape is proving him exactly right. Those nation-states with the means and will to seriously degrade US interests and call into question its position of leadership on the world stage are choosing to do so not through engaging the US in regular warfare but rather through indirect means below the threshold of war and in physical, digital, and cultural spaces where the United States has yet to organize an effective response.

Competition is not the same as conflict, but it informs the Phase Zero preparation of the battlefield that will prove strategically significant to the outcome of "real" conflict should current tensions escalate into clashes between the US and a near peer power. While regular warfare against a regular foe remains possible—as Gray continued to insist even across his scholarship on irregular enemies—great power competition is far more likely to play out in ways that leverage areas of investment made by US enemies to exploit vulnerabilities they have observed within US strategic culture. By that formula, the United States can reasonably expect to engage in indirect, mixed-form conflict, shaped by robust information operations, fought by, with, and through mercenary and proxy forces, and across the land mass of some unfortunate third party. In this sort of scenario, it is US performance in irregular warfare—on display for the world across the last two decades—that will inform adversaries of US weak spots to be exploited when competing for influence in third party spaces. Competition via influence has far more in common with population-centric warfare than it does the technology-centric, regular warfare the United States would prefer to pursue. Thus, the lessons which might be learned and internalized concerning the performance of US strategic culture in irregular environments is of paramount importance to engage effectively in great power competition in its present form. The stunningly relevant and prescient insights on US

performance that Gray delivered across two decades of US counter-insurgent conflict remain critical to US success now.

A Few Probing Questions on the Utility of Knowing Thyself

The United States seemed unable to capitalize on the insights Gray delivered about its strategic culture and irregular warfare despite having these in hand during its counterinsurgent fighting. Gray's argument—the core conundrum for this chapter—*that even if strategic culture scholars are able to inspire US policymakers to get serious about the introspective study of their own strategic culture, this knowledge will not empower them to alter that strategic culture in significant ways,* must beg the question: then why bother? Gray posed this question himself in "Out of the Wilderness: Prime Time for Strategic Culture":

> There is probably some merit in Americans, Britons, Russians, and so forth, being more culturally self-aware. But, we have to pose the classic strategist's question, "so what?" Americans, Britons, and Russians are what they are. While they are not locked into strategic cultures that are static and eternal in all respects, they are to an important degree captives of the cultures with which local interpretations of their distinctive histories have armed them. Even if you recognize some significant dysfunctionality in your strategic and military cultures, you may not be able to take effective corrective action. . . . Success is possible, but unlikely.[9]

If knowing thyself—studying one's own strategic culture—does not then enable a strategist to identify strategic vulnerabilities and ameliorate them, what is the point? The United States has never taken the notion of true introspection on the strategic culture front terribly seriously, but what would be the advantages if it did? Why did Sun Tzu advocate "know thyself" so powerfully? Strategic scholars, including Gray, have repeated his words often and with fervor, but do we really understand the advantages he meant to convey?

Gray himself had to grapple with this conundrum even as he was writing on US strategic culture and passing advice to policymakers who continued to stare at limited gains in Iraq and Afghanistan. He did not fully resolve it. As regards irregular warfare—a type of conflict

for which American strategic culture is particularly ill suited—Gray offered that strategic self-knowledge held out some hope of reducing the difficulty of adaptation.[10] He warned, however, that tactical adaptations based on better COIN practice and clearer self-knowledge may still result in strategic failure. "Most likely, Americans can remake their strategic performance only if they first remake their society, and that is a task beyond the ability of even the most optimistic agents of transformation."[11]

Since Gray did not choose to resolve the "know thyself" puzzle—insisting both that self-knowledge is vital and that it cannot be used to willfully change one's own strategic culture—it is left to future strategic culture scholars to raise a set of useful questions and pursue the matter further:

- What can be learned about one's own strategic culture? And who is willing to learn it? What will they do with the knowledge they have?

- What does it mean that a strategic culture cannot be altered radically? How does accepting this premise affect strategic thinking and choices about which conflicts are entered into and which are not?

- Is there hope of making some strategic culture adjustments around the edges? Or at least at being faster through the learning curve?

- Does being aware of key strategic culture attributes make civilian and military leadership any less prone to deploy into situations that tend to exploit weaknesses or in which there is little hope for political and therefore strategic victory?

- To what extent can a strategist devise operations that play to strategic culture strengths if the current conflict is characterized by conditions which largely play to vulnerabilities?

Ideally, a state well informed of its own strategic culture would know where and how to play to strengths. It would be far more immune to hubris—a not insignificant advantage—and choose more carefully the conflicts in which it engages. It would take a usefully modest view of itself and would recruit, appreciate, and listen to allies with complementary strengths. In the American case, knowledge of self and of history would provide a more tempered and accurate sense of what one foreign power can do on behalf of another. In short, study of

American strategic culture and its limits may help redefine the national conception of strategic success.

Americans Fated to Strategic Culture Blind Spots

The very notion that something cannot be changed by an act of will is un-American. But truly, thinking about culture very deeply is rather un-American as well. Gray's warning to Americans that "a deficiency of cultural self-awareness is close to a guarantee of political and strategic failure"[12] seems now less like a warning and more like a prediction when intertwined with his not-so-subtle hints that, despite the consequences, Americans were unlikely to ever pursue strategic self-knowledge in any serious way, and even if some enterprising souls within strategic circles did pursue such knowledge, they would be prevented by American strategic culture itself from benefiting much. The very character of American strategic culture, as described by Gray, prevents the learning mechanisms necessary to derive benefits from its study, especially as regards proficiency in irregular warfare. Americans are practiced at willful amnesia:

> As usual, Sun Tzu was right. It is important to know ourselves. Unfortunately, it is extraordinarily difficult to know oneself in terms of strategic culture. In principle, we should perform far better, be more consistently successful, if we were able to look in the strategic mirror and see ourselves without significant distortion. In practice, of course, we tend to see ourselves as we would like to be. So deep is a security community's vested interest in its version of its own master strategic historical narrative, that one should not expect objective self-assessment. Perhaps in the aftermath of strategic trauma, a measure of objectivity may creep in. The Germans achieved this under the inspired leadership of Chief of Staff Hans von Seeckt after World War I, with their fifty-seven study committees. After Vietnam, the Americans assuredly did not. The official US response to the protracted disaster of the Vietnam project, was to ignore it for more than a generation.[13]

Ignoring unpleasant episodes in history allows hubris to thrive. Americans perceive their own ongoing success as the natural course of things. As a public, US citizens continue to espouse a set of ideas

that Gray labeled "the myth of benign transformation."[14] This perceptual lens assumes that progress is natural and that humankind is "journeying toward perfection, at least in the quality of arrangements it makes for global peace and security."[15] Progress, for a near universal share of Americans, means that "other cultures either share, or will come to share, American values and strategic ideas," resulting in increased cooperation, economic health, and general welfare within and between nations.[16] War is perceived as "an aberration in the natural order."[17] Therefore, a hostile response to offers of cooperation is difficult for Americans to understand, predict, or assess accurately. Acts of violence which reverse any state's progress toward sufficiency in liberal governance and economic prosperity—as in the Russian invasion of Crimea and then Ukraine—are seen as atavistic and on the "wrong side of history."[18] In defense of this somewhat naïve view of world history and the geopolitical future, it may not be the worst outcome for the world community that its hegemon cannot be dissuaded from a "founding ideology of faith in, hope for, and commitment to, human betterment."[19]

America's "forward-looking, fundamentally optimistic culture" is diagnosed by Gray as the product of a new nation whose beginnings included "seizing and exploiting a whole continent."[20] Therefore "it is quintessentially American to be optimistic and to believe that all problems can be solved, if not today, then tomorrow, and most probably by technology."[21] American optimism is intertwined with a nearly unsinkable, can-do spirit. Americans believe they can "achieve anything that they set their hands to in earnest"[22] and "are prepared to undertake the most daunting tasks relatively undismayed by prospective difficulties, to the limited degree to which they are anticipated at all."[23] American optimism has fueled much of its domestic success and is one of the intangibles that likely draws so many to its shores. It also, as Gray notes, "has the potential to encourage American policymakers and soldiers to overreach in the goals that they set for themselves."[24]

As an American scholar, I am not immune to the optimism, can-do spirit, and belief in forward-thinking change that characterizes my own strategic culture. Within that vein, I am compelled to seek some degree of applied utility in the study of US strategic culture—areas in which the application of self-knowledge might be operationally and strategically effective. Taking Gray's insistence on pragmatic realism to heart, this chapter will explore the utility that might be

derived from one of the few benefits he allows: the ability to move through a difficult adaptation process more quickly and successfully than in previous iterations.

My investment in optimism on this front is not entirely unfounded. As has been well documented elsewhere, the US Marine Corps (USMC) adopted more effective COIN practices in the Al Qaim area of Iraq in part on the basis of their study of lessons previously discovered and learned during the USMC Combined Action Platoon program in Vietnam.[25] Although Marines in Iraq did not come to these lessons quickly—the initial years in Iraq were characterized by US preferred modes of war making including large sweep operations and an absurd diffusion of ordnance and firepower—they came to them quickly enough to achieve COIN operational success. In Al Qaim, Ramadi, and elsewhere, Marines as well as the US Army cultivated productive relationships with local forces and shifted to (i.e., rediscovered) counter-insurgency tactics which delivered real damage to the enemy before US units were pulled out in 2011. As predicted by Gray, these operational successes did not fully translate into the strategic achievement of desired political outcomes. The knowledge carried by veterans of those operations, however, that progress toward strategic goals was possible only "by, with, and through" local partners, seems to have registered some degree of staying power—at least enough for the "by, with, and through" phrase to have entered the US strategic lexicon. If, therefore, a study of American strategic culture and the continuing pile-up of scholarship analyzing its application to the variety of warfare scenarios on our security horizon helps a handful of future commanders and political leaders implement adaptations that override American strategic culture instincts in important ways and model effective alternatives in a timely enough manner to make a strategic difference, then all this thinking and ink spilled might yet yield a critical benefit. Perhaps it is long odds, but as an American, my pervasive optimism forces me to play them.[26]

America the Astrategic

Most consequential among the deficits called out by Gray in US strategic culture is its failure to act strategically. He claimed that "[u]nfortunately, [the] American understanding of strategy, and sound practice of it, is almost desperately rare."[27] Gray acknowledged

strong and sound American proficiency in fighting; his complaint was with the longstanding American tradition of failing to cash military efforts "in the coin of political advantage"[28] and thereby transmute "the lead of armed conflict into the gold of a peace that can last."[29]

Blanket claims of the US failure to act strategically—"fighting in such a way that they secure the strategic and, hence, political rewards they seek"[30]—are a bit difficult to square with America's outsized global leadership status and widely acknowledged success story as the leading economic, military, and cultural power on the world stage. Global hegemony is hard to chalk up entirely to luck or favorable circumstances. Gray credited material largesse: "It is a useful exaggeration to argue that the modern United States, once mobilized for war, was so powerful that it had scant need of strategy. In other words, only infrequently did it really need to make hard choices among competing means, methods, and objectives."[31] Gray allowed that the United States has, from time to time, benefited from "an organizing vision" and cited containment doctrine as the primary example.[32] While not sufficient to merit the title "grand strategy," it "proved entirely adequate for forty years" and delivered obedience to the strategic rule of "getting the big things right" with respect to policy.[33] This era was followed by what Gray characterized as the "strategic pause," beginning in the 1990s.[34]

If the United States were to act strategically in the twenty-first century, what would such a strategy look like? One could do worse than referencing the 2018 *National Defense Strategy* (NDS) by way of answer—a document constructed by a US Secretary of Defense intimately familiar with Gray's work and written with the express purpose of putting an end to the strategic atrophy that had beset American foreign and defense policy for 30 years. The NDS lays out key features of the strategic playing field and devises an intentional grand strategy for achieving American success within it. This document leads with the same overarching political objective which inspired Gray's work in *The Sheriff*: "[S]ustain American influence and ensure favorable balances of power that safeguard the free and open international order." It follows with a description of what failure looks like: "[D]ecreasing US global influence, eroding cohesion among allies and partners, and reduced access to markets that . . . contribute to a decline in [US] prosperity and standard of living." The global context in which US strategic objectives are to be achieved is described as complex and "characterized by overt challenges to the free and open

international order and the re-emergence of long-term strategic competition between nations." The central threat to US interests is identified as long-term, strategic competition by revisionist powers, specifically China and Russia, who seek to "shape a world consistent with their authoritarian model—gaining veto authority over other nations' economic, diplomatic, and security decisions." The NDS argues that a successful US strategic approach in the face of this threat will require the "seamless integration of multiple elements of national power—diplomacy, information, economics, finance, intelligence, law enforcement, and military" as well as US investments in "a more lethal force, strong alliances and partnerships, American technological innovation, and a culture of performance [rather than an emphasis on process and minimizing risk]."[35]

Where might US strategic culture get in the way of its own attempt at strategy? Using Gray's insightful diagnosis of American strategic culture, the remaining sections of this chapter will analyze the ways in which American strategic culture is compatible with or anathema to key ambitions, objectives, and global conditions as described within the 2018 NDS. As Gray often pointed out, the purpose of studying strategic culture is not to categorize its features as good or bad. They are what they are. "The real issue is how appropriate US ideas are as sources of policy guidance for a conflict process with a particular adversary."[36] Our discussion regarding the great power competition "conflict process" between the United States and its adversaries will be organized around three core features of American strategic culture: 1) a binary mindset dividing peace and war; 2) hubris regarding the attractiveness of the liberal democratic governance model; and 3) chronically insufficient investment in understanding global, regional, and local contexts. These three features and their related subcomponents do not represent an exhaustive list of the aspects of American strategic culture Gray analyzed across his scholarship but do provide treatment of some of the more consequential elements for twenty-first century competition.

Strategic Competition: Not Peace, Not War

Long-term strategic competition waged by patient adversaries and conducted in a way that does not quite tip into full war with the US poses some significant challenges to the binary conceptions of peace

and war that typify the American mentality regarding conflict. The problem is exacerbated by the short-term nature of the American attention span, and the strong desire to tackle challenges as isolated, solvable problems rather than complex and intertwined conditions. Before treating each of these in turn, it is worth providing a recap of American strategic culture strengths and preferences as elucidated by Gray.

Gray incorporated the work of a number of other scholars in his summary characterization of American strategic culture, which he described as favoring "firepower, mobility, and an aggressive hunt for the main body of the foe."[37] He, like Samuel Huntington and others, noted that the United States is unsurpassed in logistical excellence,[38] and prefers to wage war "on a large scale in pursuit of decisive victory."[39] Americans tend to believe that "technology provides the combat edge" and are most in their element when the mass application of resources is decisive.[40] Material plenty, Gray acknowledged, is a strategic blessing but, in the American case, can come with distinctive problems. "Quantity of military power can triumph over the quality of its application. A certainty of material superiority can breed overconfidence and minimize incentives to outthink the enemy."[41]

> In short: The bigger the task, the better fitted is American society to tackle and complete it. For the conduct of a regional or global conventional war, or even a large-scale nuclear one, the United States has no peer. America has an enviable history of excellence in the planning and execution of military operations on the greatest of scales. But, when the job to be done is small and requires discretion, restraint, and the minimum use of force, American strategic and military cultures are in alien terrain.[42]

Strategic action within the "gray zone"—the consequential arena of great power competition below the threshold of war—requires the discrete, restrained, and culturally informed action that comes less naturally to US forces. Revisionist powers intend to displace or disable US power in critical areas of global leadership through long-term strategies of incremental action and to assert their authoritarian models of governance as more attractive, reliable, and stable to secure themselves from both internal and external challenges to power. To secure the NDS political objective of "sustain American influence and ensure favorable balances of power," the American binary mindset which insists that the times be defined as either war or peace must

mature in sophistication. Great power competition is neither war nor peace—but *is* consequential—and requires a flexible, holistic, and strategically patient approach. To achieve the "seamless integration of multiple elements of national power," the United States will need to adopt a strategic perspective which understands peace, competition, and conflict as parts of a complex and integrated security policy landscape navigated with the full range of US foreign and security policy tools. Gray was not particularly bullish about American prospects in making this shift: "[T]he US defense community has several impressive strengths, but sophisticated and holistic approaches to war and strategy are not prominent among them."[43] Americans will appreciate his summary thought, however: "Nonetheless, one can but do one's duty and try."[44]

Cultivating a strategic mindset that understands great power competition as a multifeatured arena of diplomatic engagement, cyber skill, humanitarian response, assertiveness in space, military punitive action, and nuclear readiness (to name a few), all thoughtfully coordinated to achieve a strategic end, poses a sharp contrast to the American style that "encompasses oscillations between extremes" and is not designed for subtlety.[45] Gray noted that when engaged in conflict—which is perceived as "war" and not as politics by other means—Americans shift into an intensely aggressive warrior-like mindset: "[W]hen an American Army is sent across an ocean its society expects it to do something important."[46] Gray pointed to "The Soldiers' Creed" which not only identifies American servicemembers as "warriors," but also pledges them to "stand ready to deploy, engage, and destroy the enemies of the United States in close combat." Gray found the American use of the word "destroy" particularly telling.[47] It is indicative of the American preference to be "all-in" and to deliver swift and conclusive results in kinetic engagements. It does not, therefore, lend itself well to the deft management of limited engagements, which may have a strategic purpose that is better served by co-opting belligerents rather than destroying them.

Gray noted that Americans are sooner to reach for their guns than Europeans and attributes this, in part, to "the absence of a Somme or Verdun in their strategic history."[48] The American love of firepower (captured in military artifacts such as the USMC bumper sticker "Happiness is a belt-fed weapon") can have consequential antistrategic effects. Gray pointed out that "[i]n irregular conflicts in particular, heavy and sometimes seemingly indiscriminate, certainly dispropor-

tionate, resort to firepower solutions, readily becomes self-defeating."[49] It produces in the American warrior mind the attitude that "what we do in war is service targets." Instead of understanding adversaries in their political, social, and security contexts and recognizing the ways in which local behavior might be manipulated by great powers with alternate agendas, "the enemy is reduced to the dehumanized status of the object of US firepower."[50] Responding to future flares of gray-zone kinetic activity with a firepower-intensive approach threatens to alienate host populations who may be the targets of competing influence campaigns. Working with local partners requires restraint, patience, and an eye trained on strategic rather than tactical wins.

Gray argued that the United States has long cultivated the fantasy that accumulated tactical wins will combine to produce strategic success. Gray sympathized with the fact that strategic progress is notoriously difficult to measure but pointed out the fallacy in using tactical hash marks as a surrogate:

> [A]lthough the concept of strategic effect is crystal clear as an abstraction, how, exactly, is it to be measured? Just what is the exchange rate between military success and desired political consequence? Especially in the conduct of warfare against irregulars, what is the legal currency for the measurement of strategic effect? It is easily understandable, albeit unfortunate, why the mystery of strategic effect is apt to be solved by soldiers and officials who seize upon whatever can be counted as they take the default choice of favoring attrition. Bodies, pacified villages, reopened roads, declining incident rate, pick your preferences. Again, one must cite the strategist's question, "So what?" The strategist must know what military behavior means for the political purpose of the enterprise. Body counts need to be interpreted for their strategic value. They cannot simply be declared triumphantly as tactical achievements with self-evident meaning.[51]

Americans are not the only ones in possession of a strategic culture which defaults to tactical, countable wins in an attempt to claim progress, but continuing this practice will keep the United States strategically stunted. Assessment mechanisms that force US decision makers to account for strategic rather than operational performance are necessary architecture in the strategy bridge connecting military action to political goals. Gray emphasized that any engagement—large or small—"should be for the purpose of the larger political

story."[52] Gray cautioned that the American obsession with bringing "an elusive irregular enemy to battle" as an end in and of itself "more often than not proves to be a snare and a delusion."[53] It is also an approach easily defeated by an enemy willing to run out the clock.

Gray noted that insurgents typically possess the temporal advantage in a conflict with the United States since "the mindset needed to combat an enemy who is playing a long game is not one that comes naturally to the American soldier or, for that matter, to the American public."[54] The same advantage is possessed by authoritarian adversaries who do not suffer the upheaval of democratic election cycles and have had the opportunity to study and exploit American strategic culture patterns across time.

Prioritizing the right avenues of competition is made more difficult by American cognitive frames built to problem-solve by dicing the security environment into what are perceived as isolated, manageable problems rather than treating it as a complex whole. Gray cautioned against the dangers in American linear thinking: "The problem-solving faith, the penchant for the engineering fix, has the inevitable consequence of leading US policy, including its use of armed force, to attempt the impossible."[55] In specific terms, Americans were likely to misread global conditions as "problems" that could be solved rather than terrain to be navigated. Attempts to reduce the strategic landscape to bite-sized problems masks the complexity recognized in the NDS and fails to account for second and third order effects of action. It also means that "[t]he immediate, even the apparently urgent, is all too easily confused with the important."[56]

The American cognitive style—a linear problem-solving approach characterized by the "engineering fix"—will not be easily overridden. Providing "an organizing vision" for US energies, one which encompasses much of what is worrisome about twenty-first century great power conflict, may be an imperfect, but useful, workaround. One such vision is elucidated in the NDS: Counteracting attempts by Russia and China to proliferate their authoritarian model of governance in order to safeguard the US-led, liberal-democratic order.

Overcoming Hubris in the World's Leading Democracy

The NDS calls out China and Russia as revisionist powers seeking to shape a world supportive of their authoritarian model of gover-

nance. Russia's highly orchestrated and carefully researched influence campaigns include hostile social manipulation of the infosphere, cyber intrusions and attacks, unattributed use of the military and mercenary forces, and the strategic leveraging of key economic resources, and, most recently, a land invasion of its neighbor. China has become proficient at coercing compliance with its national narrative—a positive image for the Chinese Communist Party (CCP) and support for its official positions on Taiwan, Hong Kong, Tibet, and the South China Sea. Foreign corporations and high-profile individuals who are critical of Chinese policy may be reprimanded with economic exchange freezes or travel bans until they retract their statements. It is unclear whether these measures are having the intended effect of burnishing China's image abroad, but China's long-term strategy includes far subtler, and likely far more effective mechanisms toward that end.

The CCP has made no secret of its intention to become the global leader in artificial intelligence (AI) and to dominate both the tech market and the global norms that govern its use. China's domestic application of AI technology includes an extensive and highly integrated dataveillance system used to surveil and micromanage citizen behavior in the regions where it is being trialed. Called "the social credit system" internally and "digital dictatorship" by watchers viewing it from abroad, this pilot program has proven highly effective at incentivizing citizen compliance with CCP policies and Chinese law. Facial recognition surveillance cameras, geolocators on personal devices, and careful tracking of all digital life enable the system to immediately register increases and decreases to social credit scores based on citizen behavior which are then translated into social rewards and punishments.

The United States risks underestimating the attractiveness of this governance model by failing to examine critically its own assumptions about the attractiveness and inevitable spread of liberal democracy. China intends to expand global comfort with the norms and technologies which underpin its AI-enabled, authoritarian governance and has adopted a pragmatic and patient scheme for doing so. It is already active in AI communities around the globe, investing in research, critical infrastructure, and in the talents of mathematicians and scientists.[57] Its long-term vision is to set a global stage which will welcome the efficacy of authoritarian governance, thereby insulating

the CCP from uprisings at home and criticism and punitive action from abroad.

An unexamined and improperly calibrated belief in the magnetism of the liberal democratic model will result in an insufficient effort campaign to shore up its fortunes and safeguard it from a well-designed strategy to undermine its core features. In this, the world may benefit from an American predisposition which, Gray noted wryly, means that the United States "is not content, indeed culturally it cannot be content, simply to discipline wrongdoers. Instead, the United States must seek to remake in some variant of its own image those parts of the world where its soldiers' boots crush the dust."[58] Although Gray meant this as a criticism at the time—a voice of exasperation that the United States insisted on the impossible tasks of nation-building in Iraq and Afghanistan—it may be the case that the spirit of this work has a place in twenty-first century great power competition. Because a democratic society of citizens enamored with their own individualism cannot easily be corralled into coordinated effort, it is culture that must come to the rescue. Only because "the messianic commitment to democracy and globalized free-market capitalism"[59] is so widely shared at the cultural level does the United States have any hope of achieving the NDS objective of unified effort across political, diplomatic, military, corporate, academic, and scientific leaders in stymieing the efforts of China and Russia to "shape a world consistent with their authoritarian model."[60] In this, the same feature of American strategic culture that has been most problematic in inspiring its overreach is also the feature that may matter most in safeguarding liberal–democratic principles across the next two decades.

Channeling American attention, resources, and enthusiasm for improving the world into effective grand strategy, or even into support for an organizing vision, will require some adjustments to American assumptions regarding the natural attractions of its own democratic model. Decision makers will benefit from a clearer-eyed recognition of the difficulties involved in maintaining the open, pluralistic, and often problematic protections of individual liberties that characterize democratic life. Americans tend to misperceive experiments in democracy as resilient and self-maintaining once in place or the readiest destination for a polity once dictator-like obstacles are removed. US hubris in this domain is evidenced in the wildness of its ambitions on the nation-building front. One need only reference the

US Army Stability Operations Field Manual prepared for US forces in Iraq and Afghanistan to appreciate the magnitude of what the United States attempted to achieve there. The manual delivers advice on building a nation in much the same form as a cookbook delivering instructions on a recipe. Gray reserved little patience for the "arrogant and absurd" notion that Western politicians, soldiers, and administrators could "build nations" and was unsparing in his criticism of starry-eyed American ambition to do so.[61]

American investments in nation-building are best explained not solely in terms of an overdeveloped belief in its national abilities, but also in a commensurate and perhaps more powerful belief in the magnetism of liberal democracy for the human spirit. American forces in Iraq and Afghanistan did not perceive themselves as building nations, but rather as clearing the democratic path of obstacles and providing a nudge in the right direction. The notion that self-directed governance is the natural destination of humankind is part of the "dominant stream in American culture," which sees history as "arrow-like rather than cyclical," and identifies the United States as a nation of exceptional quality and ability in hastening the spread of democracy.[62] This well-intended but somewhat naïve worldview is only reinforced by the American proclivity toward legalism. Gray isolated legalism as the root of Americans' "undue faith in institutions and agreements as the basis for security,"[63] which can lead American agents to confuse institution building with the establishment of democracy.

An antidote to this variety of hubris can be found in the historical record. Unfortunately, this poses an additional problem for a trait within American strategic culture which Gray appropriately labeled "ahistoric." D. W. Brogan, a British observer to American life in the mid-twentieth century, pointed out that the frontier culture involved in the making of America had little use for referencing the history of the Old World. Only forward-leaning problem-solvers survived. Thus, pride in problem-solvers who could deliver clever and novel solutions and accelerate progress in the form of change became something of a national brand.[64] So completely did Americans shed their interest in history that one scholar termed the American condition "historical virginity."[65]

Without history as a guide, Americans are unlikely to fully appreciate the lure of relative safety and stability promised by largely transparent authoritarian systems, nor how often populations have accepted or

reintroduced undemocratic regimes. AI-enabled authoritarianism reduces crime and local corruption and provides predictable and manageable pathways toward social privilege—provided one is not a disenfranchised minority. If introduced incrementally, even well-established democracies among US friends and partners may be unable to resist the attraction of bringing more order to their houses through dictatorship-lite technological systems.

Intervening early in this process to delineate democratic data and privacy standards and to set the agenda for a discussion of global norms is a necessary act of US leadership and will also advance the NDS ambition to protect US markets and support its technological advancements. US technical advances must align with the infrastructure of its customers. China means to disrupt this connection by early engagement at the ground floor, supplying global partners with the foundational infrastructure to support the next wave of emergent technologies. Countering this scheme with a whole-of-government approach is not only smart strategy, but it also plays to several US strategic culture strengths.

Investing in the tech market of developing countries and current US partners would be a welcome application of US material abundance, tech-mindedness, and logistical reach. Not entirely intended as a compliment, Gray observed, "Since Americans first scented power in the 1890s, they tended to have faith in American technology, pragmatic 'know how,' and a range of managerial skills, to overwhelm any evil cause."[66] While wildly misapplied in the earthy conditions of insurgent warfare in Iraq and Afghanistan, this three-part approach may have found its match in high-tech great power competition with China.

Gray characterized the US Defense Department as a "community long habituated to seek security through technology."[67] Technological dominance will matter in contests with both Russia and China and will matter in shaping US trade and military relationships with global partners and allies. US strengths are well positioned for this engagement. For these relationships to thrive, however, the United States must address a debilitating weakness within its strategic culture— failure to account for local perspectives and contexts.

Strategy in Context: Understanding Locals on Their Own Terms

As a self-proclaimed realist-positivist, Gray made a surprising amount of room in his arguments for the importance of culture and context—dimensions other realists tended to leave underdeveloped. He argued that it was not only national capability but also national style that mattered greatly, "because clumsy behavior that is indifferent to or ignorant of the interests and sensitivities of others, must heighten the risks of policy failure."[68] The United States is currently demonstrating room to grow on this front. Regarding the organizing vision in question—countering revisionist attempts to supplant the liberal democratic order with an authoritarian one—the United States can come across as unduly focused on its great power competitors at the expense of partners and allies. One Central American diplomat recently characterized Chinese influence operations in the region versus the US response this way: "While the Chinese talk development, all the US talks about is China. They sound like a jealous ex-boyfriend."[69]

The same logic that Gray applied to strengthening US deterrence policy could serve in countering Russian and Chinese influence operations: "It is helpful to have some understanding of the minds that we seek to influence, and of the cultures that create the mindsets with which we must deal."[70] US outreach campaigns designed to focus on local priorities—informed by history and culture—and delivered in a tone of dignity and respect will have every advantage in outcompeting even well-orchestrated information campaigns from repressive regimes. The problem will be getting the United States on board. In one of his more brilliant uses of British understatement, Gray observed that getting the United States to take culture seriously was likely to be an area of struggle, "Historically, American interest in understanding their enemies has not been a marked national characteristic."[71] True for its enemies, and true for its allies as well.

To shore up the "strong alliances and partnerships" the NDS deems critical to strategic success, the United States simply must get better at understanding local contexts, priorities, and perspectives. Writing in 2018, when the tide of US interest had already turned from counterinsurgency, Gray foreshadowed, "If warfare in the future is quite commonly conducted 'among the people,' as has commonly been the

case in the Middle East in recent years, the preferences, habits, and beliefs of people there inevitably come to assume high importance."[72] In nudging the United States toward a studied understanding of local preferences, habits, and beliefs, neither history nor strategic culture are on the side of success. Writing to the US special operations community Gray remarked, "It has been a distressing fact . . . that the United States had a poor relationship with its local allies in Vietnam, and an even poorer one with its leading local supporters in Iraq and Afghanistan. Unsurprisingly, the root of the American problem in all these cases was failure to understand the local context well enough."[73]

Gray explained that Americans are "acultural" in the sense that their own success has made them profoundly ethnocentric: "American public ideology, with its emphasis on political and moral uniqueness, manifest destiny, divine mission even, married to the multidimensional sense of national greatness . . . has not inclined Americans to be especially respectful of the beliefs, habits, and behavior of other cultures."[74] The same American exceptionalism that means Americans cannot fight wars for any purpose short of improving the world,[75] also carries with it the ego of having been "blessed by the Almighty" to serve as a "city on a hill,"[76] an egoism that can lead to the severe undervaluing of local friends and allies as critical partners in strategic plans. Americans, Gray observed, have a history of downplaying the contributions of others in moments of strategic import. Even in the obvious alliance frameworks of World War I and World War II, Americans tend to see only their own contributions in focus.[77]

A chronic undervaluing of local partners provides little incentive to override the US strategic culture predisposition to undervalue cultural competence. The United States is shaken from this default setting from time to time—typically when caught in bloody cycles of irregular warfare which seem to offer no way forward—and rediscovers a temporary enthusiasm for cultural investments. In the last cycle, Gray found himself in the curious position of tempering US enthusiasm for the very cultural competency he had long endorsed. He worried that in typical US silver-bullet fashion, military leadership would grip onto the "culture matters" revelation as a single solution concept and regard it as a universal panacea for counterinsurgency ills.[78]

Gray need not have worried overmuch about the US Army or Defense Department taking culture too seriously. Its useful investments during the Iraq and Afghanistan conflicts were never what one might consider overboard and most often fell on rocky soil—not "permissive

conditions" for genuine internalization. As Gray might have predicted, nearly all programs instituted to train service members on cross-cultural analysis were cut in nearly direct proportion to the drawdown of forces in those irregular fights. Although cultural awareness continues to get some play in policy speeches or reflections regarding the last 20 years of conflict, very little investment is being made to keep it as a US competence in the return to great power conflict.

Conclusion

Despite all the downsides that it delivers, Gray argued for American national pride as vital to the country's ability to continue in and defend its hegemonic role as "sheriff" of the world order, the baton taken up in the 2018 NDS:

> [C]ritics, domestic and foreign, need to step up to the reality that the sheriff role is frequently going to be unpopular, is always going to be more or less costly, and is occasionally going to be painfully unsuccessful. Given these grim certainties, the American people will require the largest possible stake in the role. It is well for Americans to derive some pleasure, some pride, in being Number One. It is also essential for them to appreciate that in serving world order, they are serving their own best interests. Without these domestic sources of psychological and political support for its global role, it is unlikely that the United States will be able to weather the bad times that most certainly lie ahead, interspersed with the good.[79]

American strategic culture assets of material abundance, technological superiority, and an irrepressible desire to offer the benefits of democracy to the full community of global citizens, if invested in ways that do not entirely succumb to ego and are conscious of the priorities and contexts of its network of allies and partners, have the potential to present a mighty counterforce to the ambitions of authoritarian growth states like Russia and China. That potential rests on making some adjustments to strategic culture that may have registered as "highly unlikely" in Gray's book: adopting a holistic view of strategy rather than responding piecemeal; inviting history as a mentor to educate US notions regarding the inevitability and resilience of liberal democracy; and becoming students of local context and culture

in order to invest in US relationships as much as US capabilities. Viewed from the porch of our "know thyself" conundrum—that knowledge of these failings may not help in their remedy—this list appears discouraging. The United States, however, will not be engaged in defense of the liberal order alone. Its supporters—many of whom are positioned to supply the perspective the United States lacks—have long tolerated US shortcomings because, in Gray's view, the United States most often gets the Big Idea right: "[I]t is able to function as sheriff . . . precisely because it usually behaves in a manner that serves the general good as well as its own interests."[80] As long as the United States continues to look beyond its own national borders in defining strategic success, it is likely to receive help from multiple quarters. A chapter in Gray's honor should conclude with his own projection regarding the prospect of ongoing American hegemony: "Victory is not only possible; it is probable. The United States has an impressive national history of rising to monumental challenges and of finding ways to succeed in meeting them."[81] It is worth keeping in mind that Gray's genius in presciently pointing out the consequences of American strategic culture shortfalls is the same genius exercised in forecasting its strengths. That alone inspires confidence.

Notes

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16. Gray, "National Style," 38, 43. Gray cited this notion as belonging to American defense officials. I argue that it is shared far more widely than that.

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31. Gray, *The Sheriff,* 105.

32. Gray, 39–41.

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41. Gray, "British and American," 40–41.

42. Gray, 47.

43. Gray, *The Sheriff,* 150.

44. Gray, 150.

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47. Gray, "British and American," 46.

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Chapter 6

Concepts and Minds

Cyber Power in Russia and the United States

Scott Jasper

Colin Gray wrote that five perspectives on strategy should not individually provide the master narrative.[1] Each perspective—concepts, ethics, culture, geography, and technology—serves as a reciprocal source of influence. The first, on strategic theory and its derivative concepts, is necessary but not sufficient in the mix of strategy execution, for the mind behind ideas may require muscle and material to affect human behavior. Yet often superior strategic intellect falls far behind emerging technical realities of material. Gray stated that the latest example of this conceptual lag exists in the case of cyber power and the need for its strategic comprehension. Gray believed that if there is a master narrative to strategic history, it is found in the incessant quest for power by human beings. He noted that power is sought for its value and worth in obtaining interests. Bertrand Russell defined power very clearly as "the production of intended effects."[2] Cyberspace provides a medium for a new form of power projection that can be employed to affect the minds of national leaders and their populations.

As a political instrument that generates strategic effects, Gray once noted that "strategy is adversarial" and it continually "seeks a measure of control over enemies."[3] He claimed the structure of the strategy function consists of "political ends, chosen ways, and enabling means, especially, but not exclusively, military." Gray stated the strategist must always attend to balancing the three components of this trinitarian formula. In principle, the elegant simplicity of the formula provides an organizing framework to manage the complexity, confusion and chaos of interdependent behaviors and events. In practicality, strategic theory guides the development of concepts (ways) that describe how operations (means) are conducted to achieve objectives (ends). The practice of strategy through concepts is bound by the particular time, place, and circumstances. States draft security strategies that delineate political objectives and articulate concepts for how to achieve them through combinations of means. The cyber domain

can be used to obtain the ends of strategy. The exertion of cyber power involves elements of coercion, which include compellent as well as deterrent intentions. Compellent measures are intended to make another do something, whereas deterrent measures are intended to keep others from starting something.[4]

Russia and the United States have refined their approaches to obtaining cyber power through competing iterations of information-related concepts in actual operations. They have found that technological change has shifted the innovative use of security assets to achieve policy as delineated by politics although the minds behind their concepts have not changed their strategic calculus on the intent of their means. This chapter will explain how information-related concepts for influence, expressed today by Russia and the United States, are tested against each other and decided in practice by their situational relevance. For instance, Russia has conducted information warfare to influence voting preferences in the United States. In return, the United States has employed persistent engagement to change perceptions in Moscow on the utility of their actions. This chapter will examine the application and effectiveness of both information-related concepts in recent US election cycles. It will examine whether US attempts at compellence and deterrence have failed and if a new approach is warranted to achieve cyber power.

Theory of Cyber Power

Lawrence Freedman succintly defined strategy as "the art of creating power."[5] Accordingly, an array of notable scholars has offered their views on the purpose and role of cyber power in strategy. Their work satisfies the remark by Colin Gray that the theory of cyber power is "ungoverned intellectual space, though early steps are being made to fill the vacuum."[6] John Sheldon stated that cyber power is "the process of converting information into strategic effect."[7] Typically this strategic effect manifests itself in cognitive processes in the minds of target audiences. While cyber power is used against willful adversaries, they in return will probably also attempt to use cyber power for their own ends. Sheldon concludes that cyber power is "the ability in peace, crisis, and war to exert prompt and sustained influence in and from cyberspace." Cyber power has proven to be useful as a strategic instrument that can be wielded globally with a certain degree of anonymity to fulfill the ends of strategy.

From a similar behavioral perspective, Joseph Nye defines cyber power as "the ability to obtain preferred outcomes through the use of electronically interconnected information resources of the cyber domain."[8] These resources create, control, and communicate information. Accordingly, information resources encompass the essential elements of cyberspace, such as information technology infrastructure and the Internet of networked computers, including the Internet of Things, and the Industrial Internet of Things. Daniel Kuehl suggests a broader definition that reflects upon the synergistic effect of cyber power on other forms of power. He opines that cyber power is "the ability to use cyberspace to create advantages and influence events in other operational environments and across the instruments of power."[9] Thus, cyber power produces preferred outcomes within cyberspace or in other domains outside cyberspace. His interpretation is consistent with the definition of cyberspace operations as "the employment of cyberspace capabilities where the primary purpose is to achieve objectives in or through cyberspace."[10] Kuehl emphasizes that technology, the generator of cyberspace capabilities, is constantly changing and that users may be able to use new technology to dramatic advantage.

David Betz and Tim Stevens seem to agree in their stated position that cyber power shapes "the experience of those who act in and through cyberspace."[11] They claim cyber power is simply "the manifestation of power in cyberspace," which supports the obtainment of larger objectives. Betz and Stevens explain that "within politics and strategy, the predominant conception of power is one of direct coercion." Coercion includes compellent as well as deterrent intentions.[12] Therefore Betz and Stevens argue a distinct form of cyber power is "the use of direct coercion by one cyberspace actor in an attempt to modify the behaviour and conditions of existence of another."[13] This form is considered compulsory in the sense it compels others to do the will of the initiating actor. It also deters others by threatening consequences, often by military actions, for undesired actions. Joseph Nye refers to this type of power in the cyber domain as "the ability of an actor to make others do something contrary to their initial preferences or strategies."[14] With unfettered access to cyberspace and the requisite skills and tools, an actor can exert compulsory cyber power against another, especially since national dependency on cyberspace has produced strategic vulnerabilities that an actor can exploit on a large scale.[15]

Russian Information Warfare

The most recent Russian Federation's National Security Strategy was approved by President Vladimir Putin in 2015. The strategic planning document defines national interests and strategic priorities and objectives in the sphere of domestic and foreign policy. A prominent objective, or end, in the section on long-term national strategic interests is "consolidating the Russian Federation's status as a leading world power" through actions that are "aimed at maintaining strategic stability and mutually beneficial partnerships."[16] Although the document recognizes that "implementation of an independent foreign policy and domestic policy is giving rise to opposition from the United States and its allies," this opposition is seen as a policy of containment through "exertion of political, economic, military, and informational pressure." The document calls out, in particular, the "imposition of restrictive economic measures," or sanctions, against the Russian Federation, which affect the quality of life of Russian citizens. Hence the strategy depicts a dangerous United States, which is leading its allies to dominate world affairs, and a Russia at risk because of opposition to their policies.[17] The strategy also shows that Moscow is unhappy with the existing Western-centric order.[18] In a zero-sum game, for Russia to win, the United States must lose.[19]

Russia is confident that the United States is the problem in establishing its rightful place in the world and looks for ways to counter its actions. Russia has employed an indirect approach via cyber activity and other forms of coercion against the United States in hopes of imposing costs over time.[20] Russian tactics are most effective when the target is deeply polarized, which limits the ability to respond to Russian aggression. Strategic thought in Russia on coercion contends that "deterrence and compellence are two sides of the same coin."[21] The indirect approach to enact both is synonymous with the term asymmetric. The Military Doctrine of the Russian Federation calls for "the use of indirect and asymmetric methods of operations."[22] A primary method, or way, for both approaches to influence opponents is called information warfare. The Russian Ministry of Defense has defined information warfare as "the confrontation between two or more states in the information space with the purpose of inflicting damage to information systems, processes and resources, critical and other structures, undermining the political, economic and social systems, a massive psychological manipulation of the population to

destabilize the state and society, as well as coercing the state to take decisions for the benefit of the opposing force."[23]

This clear definition of the term infers a technical and a psychological component. The technical element resides in information infrastructure, which consists of tools and systems that form, create, transform, transmit, use, and store information. Whereas the psychological element involves "cognitively influencing the population and decision-makers of the opposing state to erode their will to fight and their decision-making structures and processes."[24] Russia aims to control information in whatever form it takes. Russia will extract, exfiltrate, manipulate, distort, or insert information, or isolate alternatives to information to influence the target. The channels, or means, for control are as diverse as fake or real news, troll campaigns, and speeches, statements, videos, and messages.[25] The Western view of cyber is just a technical representation of information. Russia sees "cyber activity as a subset, and sometimes facilitator, of the much broader domain of information warfare."[26] Russian information warfare is primed to exploit, in the words of scholar Leon Aron, Western societies' "weakened moral immunity to propaganda" and "weakness of confidence in sources of knowledge."[27] The events that happened during the 2016 US presidential election depict an application of the Russian information warfare doctrine.

2016 US Presidential Election

The US intelligence community assessed with high confidence that Russian President Putin "ordered an influence campaign in 2016 aimed at the US presidential election."[28] The campaign sought to "sow discord in American society and undermine faith in the democratic process."[29] It blended covert operations, such as cyber activity, with overt efforts by paid social media trolls, state-funded media, and third-party intermediaries. Cyber-enabled influence operations served to attempt to manipulate a large portion of the US population during a pivotal election. They exploited technical vulnerabilities in digital infrastructure and amplified divisive rhetoric in public discourse. Damaging hacked material was disseminated through third-party actors in conjunction with derisive messages deceptively posted on US social media and openly promulgated by Russian state media to domestic and international audiences. The Russian-generated narrative

across multiple platforms was consistent and pervasive throughout the entire election cycle.

Russians used cyber hacks and website leaks to influence and disrupt the election. Two separate Russian intelligence-affiliated groups breached the Democratic National Committee (DNC) network and stole opposition research and internal communications.[30] The first actor, known as APT29, or Cozy Bear, entered in summer 2015 and the second, known as APT28, or Fancy Bear, in spring 2016. Both actors sent targeted spearfishing emails that tricked recipients. APT29 was able to deliver malware after an individual activated links to operational infrastructure, whereas APT28 gained access after individuals changed their passwords through a fake email domain.[31] Starting in June 2016, the website DCLeaks released part of the emails and documents stolen from the DNC. Then, in late July 2016, the website WikiLeaks released nearly 20,000 emails from prominent DNC officials, which revealed they had floated ideas on how to undermine Bernie Sanders's candidacy.[32] The massive dump happened days before the beginning of the Democratic National Convention in Philadelphia. Sanders supporters were furious about the content of the emails. Some interrupted and booed the DNC Chairwoman Debbie Wasserman Schultz as she tried to yell over the heckling at a Florida delegation breakfast meeting.[33] Schultz decided to not open the convention and resigned as leader of the committee. Protests continued in the streets outside the convention hall throughout the week, disrupting harmony and cohesion in the political party.

The Russians also capitalized on social media channels to spread disinformation that was designed to interfere in the election. A new department in the Saint Petersburg-based Internet Research Agency (IRA), referred to as the "translator project," focused solely on the US population. By the summer of 2016, the American department had over 80 employees that "were posting more than 1,000 pieces of content per week, reaching between 20 and 30 million people in the month of September alone."[34] They were directed to create "political intensity through supporting radical groups, users dissatisfied with [the] social and economic situation and oppositional social movements."[35] The project sought to polarize Americans based on societal, ideological, and racial differences. For example, they stoked emotions on divisive issues, such as immigration and gun rights, to pit Americans against one another. Political content displayed bias in election-related hashtags, such as "#Hillary4Prison," "#IWontProtectHillary," "Trump2016,"

and "#MAGA," while denigrating Hillary Clinton and promoting Donald Trump. The activity spiked on 6 October 2016 at a rate of a dozen tweets per minute. The spike occurred just before the leak of harmful emails from Clinton's campaign chairman, John Podesta, and was meant to implicate Clinton in stealing the Democratic primary and to keep Sanders supporters away from the polls.[36]

The Russian state-run channels RT and Sputnik also spread disinformation to subvert reality with alternatives to truth. They presented then-candidate Trump as the object of biased reporting by traditional US media channels that they claimed were sympathetic to the views of corrupt politicians. Meanwhile, their coverage of Secretary Clinton highlighted leaked emails and accused her of poor physical and mental health and rampant corruption. Their English-language videos elaborated on these themes, with titles like "Trump Will Not Be Permitted to Win" and "How 100% of the Clintons' 2015 Charity Went to . . . Themselves." These videos were also spread by social media; the latter example on Facebook had over 10 million views.

Collectively, the goals of the Russian influence campaign in 2016 were not just to undermine confidence in the election and sow division among the populace but also to harm the image and electability of Secretary Clinton. President Putin and the Russian government had developed a clear preference for Donald Trump.[37] They aspired to help Trump win the election by discrediting Hillary Clinton and contrasting her in an unfavorable manner at every possible chance. Even when she fell ill at a September 11 memorial service in New York City in September 2016, IRA content included "ClintonCollapse" and #HillarySickAtGroundZero.[38] Whether the ambitious Russian influence campaign worked in psychologically manipulating the American voters resides in their minds. The US intelligence community refrained from making "an assessment of the impact that Russian activities had on the outcome of the 2016 election."[39] Likewise the US House Permanent Select Committee on Intelligence finding was limited to their attempt to "undermine the US electoral process."[40] Yet, the election outcome seems to indicate the public was swayed to vote for Trump, the winner of the electoral college vote count. Although the public was not necessarily coerced to make that choice, since ultimately they had unconstrained options at the ballot box to vote their conscience, their choice was influenced by Russian efforts.

US Persistent Engagement

The 2017 US National Security Strategy defines vital national interests and strategic priorities and pillars in the sphere of domestic and foreign policy. A prominent pillar, or end, is to preserve peace through strength. The document clearly states that Russia is challenging "American power, influence and interests" in an attempt to erode "American security and prosperity."[41] Russia is branded as a revisionist power that wants to shape a world hostile to US values. Therefore, Russia actively competes against the United States across political, economic, and military arenas, using modern technology and information tools to accelerate contests. Those innovations are often combined in subversive tactics that aim to weaken US influence in the world. In contests over influence, Russia has become adept at operations below the threshold of open warfare and at the boundaries of international law. The document recognizes that Russia does not agree with the US perception that states are either at peace or at war; instead, continuous competition exists. Hence the security strategy states the United States must prepare for this type of competition, where Russia will not fight on our terms. As the pillar suggests, a position of strength is necessary to deter and defeat aggression against US interests.

Russia does not have to resort to physical aggression to extend its influence. The latest US Department of Defense (DOD) cyber strategy recognizes that Russia has expanded strategic competition with the United States through "persistent campaigns in and through cyberspace that pose long-term strategic risk."[42] Their continuous operations in these campaigns aim to achieve competitive advantage and impair US interests. In response, US Cyber Command contends that the United States must seize and maintain the initiative in cyberspace by "continuously engaging and contesting adversaries."[43] The doctrine, or way, for this approach is called persistent engagement. It enables insights and stands ready to impose costs when authorized.[44] The proactive posture is a shift from a reactive posture that proved inadequate to manage evolving threats. As defenses improved to protect networks, adversary attacks became more sophisticated and severe.[45] The initial approach that DOD "took toward cyberspace aggression," which focused on resiliency and response, held "forces in reserve past the point of decision."[46] Persistent engagement pursues adversaries across networks and systems to cause uncertainty when they maneuver.

It competes with adversaries at scale, continually making it more difficult for them to advance goals over time. The doctrine also enables partners, by providing indicators and warning to other than military parts of the government.

US Cyber Command realized after years of maintaining a defensive posture that the country could not sit back and wait for cyberattacks. The persistent engagement doctrine implements the concept of Defend Forward, enshrined in the DOD cyber strategy. The concept moves cyber capabilities out of virtual garrisons by operating against adversaries on their virtual territory.[47] Defend Forward in cyberspace, at the origin of adversary activity, extends the reach of US Cyber Command to expose adversary weaknesses, discover their intentions and capabilities, and halt attacks on their terrain.[48] The concept creates operational advantage while denying the same to adversaries. The capabilities, or means, to operate forward are used in defend or hunt forward missions. In the first category, cyberattack effects can disrupt and degrade the infrastructure that adversaries use to conduct operations, whereas in the latter category, cyber detection tools can find malware on partner networks overseas. Disclosure of those "findings enable the US government to defend critical networks more effectively and allow antivirus companies to update their products to better protect their users."[49]

2018 US Midterm Election

In the summer of 2018, General Nakasone, commander of US Cyber Command, created a special task force of personnel drawn from Cyber Command and the National Security Agency to address Russian threats in cyberspace. The Russia Small Group was tasked to combat Russian interference in the midterm elections in November. Nakasone declared, "We have to have some manner upon which we're going to look at being able to contest them in places like cyberspace."[50] The group carried out a covert campaign called Operation Synthetic Theology. The operation electronically signaled to Russian hackers and trolls to try to get them to stop spreading disinformation.[51] The direct messages told them that American operatives have identified them and are watching their work. Then the US military shut down their Internet access, essentially taking the IRA offline.[52] President Trump personally approved the Defend Forward operation that was Cyber

Command's first offensive strike on the Russian Internet.[53] The disruption took place hours before the vote and the day or so afterward as the votes were counted, to prevent a Russian disinformation campaign that would cast doubt on the election results.

US Cyber Command also deployed personnel to Ukraine, Macedonia, and Montenegro on hunt forward missions to uncover information on Russia's newest cyber capabilities. The deployments were meant to degrade Moscow's ability to conduct cyber operations in Europe and interfere in the American election. The Russia Small Group shared threat indicators with the Department of Homeland Security to harden US election infrastructure and with the Federal Bureau of Investigation to counter Russian trolls. US Senators praised the efforts of the combined military and agency task force for helping to secure the midterm election and prevent the Russians from affecting the vote. This praise from both political parties coincided with reports by the Departments of Homeland Security and Justice that there was "no evidence that any foreign government had a material impact on the election or campaign infrastructure."[54] Although officials were reluctant to disclose further detail, Senator Mike Rounds added, "I can just tell you that the types of cyber activity that Russia, through multiple agencies and third parties [was conducting], was most certainly impacted during this process."[55]

The IRA openly disagreed with Senator Rounds' assessment. The troll factory confirmed it was hit by a military cyber operation but insisted the operation was a complete failure. The Russian Federal News Agency reported, on behalf of the IRA, that the attack "disabled two of its four hard drives but did not stop work entirely."[56] Moreover, the agency called the operation by the US military "unprofessional and counterproductive," claiming the real purpose was to block English language coverage of how "fair, democratic and without violations" are US elections. Regardless, the Pentagon cyber strike seemed to have some impact. US security officials and social media firms said they saw only "a limited amount" of deliberate disinformation targeting the midterm election.[57] A network of social media accounts suspected to be of Russian origin were seen pushing far-right content supportive of President Trump, while at the same time promoting far-left messages to inflame US political divides. Close to Election Day, the accounts pushed allegations of voter fraud in Texas, Florida, and Ohio. In addition, Facebook reportedly acted against misleading voting information, such as Republicans and Democrats voting on different

days and immigration agents patrolling polling sites. Although the messaging was consistent, the volume was minimal compared to the previous election cycle. It is tricky to determine the effectiveness of the Cyber Command offensive strike, since the social media volume could have reflected less interest by the Russians to sway the midterm elections compared to 2016.

Day-to-Day Competition

Maj Gen Charles L. Moore, the director of operations for US Cyber Command, summed up Operation Synthetic Theology by saying, "We recognize and understand the importance of being in constant contact with the enemy in this space, especially below the level of armed conflict, so we can defend ourselves and we can impose costs."[58] The latter two elements are central mechanisms for deterrence, specifically by denial and punishment. Jason Healey claims that US Cyber Command and the DOD consider forward defense as "complementary but distinct from cyber deterrence," which are those actions "affecting the calculations of an adversary . . . to convince adversaries not to conduct cyberattacks or costly cyber intrusions."[59] Healey states that policymakers have "not been as careful" as the military in the distinction, citing remarks by former National Security Advisor John Bolton that "we have authorized offensive cyber operations that will be undertaken through the coordination process in the new presidential directive, and that we have determined, the President has determined, it's in our national interest to do that—not because we want more offensive operations in cyberspace, but precisely to create the structures of deterrence that will demonstrate to adversaries that the cost of their engaging in operations against us is higher than they want to bear."[60]

James Miller and Neal Pollard argue that deterrence of unacceptable acts in cyberspace against the United States, such as Russia's cyber-enabled disinformation campaigns, requires all tools of national power. In this regard, they claim there is a "vital role for deterrence strategy in persistent engagement—one that relies on denial of objectives as well as cost imposition to shape adversarial intentions."[61] They "side strongly" with the US Cyber Command vision statement that "through persistent action and competing more effectively below the level of armed conflict, we can influence the calculations of our

adversaries, deter aggression, and clarify the distinction between acceptable and unacceptable behavior in cyberspace."[62] Miller and Pollard contend at the time of their article that the afore described US Cyber Command disruption of the IRA during the 2018 US midterm elections will possibly strengthen deterrence of future cyberattacks, although they recognize that it is "conversely possible that Russia will 'up its game' and make deterrence even more challenging in the future."[63] The events that occurred during the 2020 US presidential election unfortunately indicate the latter possibility.

2020 US Presidential Election

The US intelligence community assessed with high confidence that Russian President Putin authorized influence operations against the 2020 US presidential election. The operations aimed at "denigrating President Biden and the Democratic Party, supporting former President Trump, undermining public confidence in the electoral process, and exacerbating sociopolitical divisions in the United States."[64] Russian leaders felt the election of President Biden would be counter to their interests and pursued a narrative that undermined his candidacy. The National Intelligence Council report on foreign threats to the 2020 election found that a range of Russian state and proxy actors attempted to affect US public perceptions directly and indirectly in this manner. Russian intelligence services and Russian state media, trolls, and online proxies all engaged in targeted activities similar to the 2016 election. The difference in this election cycle was US military and civilian entities in constant contact in cyberspace with the Russian actors were ready and willing to deny their objectives. The US public was also made more aware of the threat to the 2020 election by media releases, press conferences, and video messages.[65]

The National Intelligence Council report also stated that "Russia's cyber units gathered information to inform Kremlin decision-making about the election and Moscow's broader foreign policy interests."[66] Although the intelligence community determined that Russia gathered this information through cyber operations, none of it appeared to be leaked to the American public. The first notable instance of cyber theft was the hack of the Ukrainian energy firm Burisma in the winter 2020 time frame. The hack was linked to Fancy Bear in the Russian Main Intelligence Directorate, which used the same techniques that

infiltrated the DNC.[67] Burisma appeared to be a prime target of another hack and leak operation, where dirt on Hunter Biden, who served on the company board for a large salary, could implicate wrong doings by his father Joe Biden, although no accusations ever surfaced.[68] The second major instance was the breach reported in September 2020, by Microsoft, of 200 organizations associated with the election, including "political campaigns, advocacy groups, parties and political consultants."[69] Once again, the hack was conducted by Fancy Bear, operating from Russia. Yet, unlike 2016, no leaks occurred, supporting the National Intelligence Council assessment that Russia was probably after information related to American policy.

In October 2020, a surprise joint agency press conference revealed that Russia and Iran had both obtained US voter registration information. Furthermore, the Director of National Intelligence, John Ratcliffe, said the countries were taking "specific actions in an attempt to influence public opinion in the coming presidential election."[70] The National Security Agency had been watching the Iranians and were not surprised by their actions, which resulted in public attribution within 24 hours. The public announcement was part of a deliberate process by several government agencies to share more intelligence with the public when necessary.[71] In response to the Iranian actions, US Cyber Command ran an operation against the hackers working for the Islamic Revolutionary Guard Corps.[72] In addition, the US military unit conducted attacks "directed at a Russian state-run group called Energetic Bear or Dragonfly, that has long been inside American electric utilities and has redirected its hacking skills toward state and local governments."[73] General Nakasone remarked in an interview that he was "very confident in actions that have been taken against adversaries over the last several weeks and several months to ensure they are not going to interfere in our elections."[74] In both cases, it appears that persistent engagement in the Iranian and Russian networks enabled prompt US military responses.

Several government agencies also "pledged to share more intelligence with social media companies."[75] These companies were more "primed to combat foreign meddling" than they were four years prior.[76] For instance, Twitter labeled tweets that contained misleading information about the election and made it harder for users to share posts.[77] Their new policies were tested when a New York Post story erupted about Hunter Biden introducing his father, then-Vice President Joe Biden, to a Burisma executive after Hunter joined the company

board for a large salary.[78] Twitter and Facebook, "within hours after the articles were published—determined the content" violated their distribution of hacked materials policy and suppressed social media circulation.[79] While some in the US Congress objected to the media blackout for political reasons,[80] House Intelligence Committee Chairman Adam Schiff argued the "smear campaign against Biden and his ties to Ukraine originated as part of a Russian disinformation plot."[81] Facebook had gone even farther in earlier taking down three disinformation networks believed to be linked to Russian military and intelligence agencies.[82] Facebook and Twitter also shut down the Peace Data website and accounts, run by people formerly associated with the IRA, that hired real-life journalism freelancers to write divisive stories.[83] The Russian influence operation seemed to falter closer to the vote due to the combined effort of the US military and private sector in cyberspace. In the end, Biden won the election, much to the displeasure of leaders in Moscow, who viewed him as "antagonistic to the Russian establishment."[84]

Deterrence Failure

Two months after the US election, the cyber security firm FireEye reported that a global intrusion campaign had leveraged the SolarWinds supply chain to compromise victims.[85] The US government claimed the SVR, in the Russian Foreign Intelligence Service, was responsible for the SolarWinds exploit.[86] Erica Borghard and Jacquelyn Schneider asked in an article the "fairly obvious question: Is US cyber strategy working?"[87] They noted the incident could be viewed as a failure of the new Defend Forward strategy because the DOD "seemingly did not manage to stop this hack before it occurred." Even worse, the US government had not detected the attack before FireEye released the threat indicators. In total, nine US government agencies and up to 100 private companies, mostly in cyber security or information technology fields, experienced post-compromise activity. US security agencies classified the incident as an intelligence gathering operation, rather than a disruptive or destructive cyber attack. Borghard and Schneider pointed out this complicated US strategy, since "espionage is an accepted part of international statecraft." For cyber deterrence to work, the adversary must be convinced that a credible response will follow any unacceptable act, such as a use of

force in response to a destructive cyber attack. Otherwise, in the case of cyber espionage, the US military would have to be in the SVR networks to halt the attack.

Pukhraj Singh contends that the Defend Forward strategy does not assume US Cyber Command will be able to undertake expeditionary maneuvers in every hostile foreign network. The SolarWinds operation was well underway during the run up to the 2020 election, where US Cyber Command was undoubtedly concentrating on finding election interference. Instead, Singh believes the idea behind Defend Forward is to "send a credible deterrence threat by a selective use of force to coerce or compel the adversary."[88] In theory, he says, US Cyber Command would obtain a "tacit bargain" by signaling that any malicious activity would result in the imposition of costs. Benjamin Jensen, Brandon Valeriano, and Mark Montgomery conclude in writing on the strategic implications of SolarWinds that "persistent engagement and hunting forward on Russian networks apparently did not do enough to change the cost-benefit or risk calculations of Russian hackers targeting US networks and did not dissuade Moscow from conducting one of the largest data heists in history."[89] Singh more concisely asserts in his analysis that "Russia was neither deterred nor compelled; it could not be coerced, nor did it opt for an explicit or tacit bargain."[90]

Jensen and his colleagues propose that the United States follow a new approach using a layered cyber deterrence posture. Montgomery and Valeriano helped to write the report of the US Cyberspace Solarium Commission that describes the layers in the approach.[91] The first layer is to shape behavior, through a system of norms for responsible state behavior that are enforced by nonmilitary tools. The second layer is to deny benefits, by promoting national resilience that denies benefits to adversaries conducting cyberattacks. The third layer is to impose costs on adversaries through the employment of all instruments of power. According to Jensen and his coauthors, the coordinated activities in layered deterrence work together to change the cost-benefit calculations for initiating large cyber attacks against the United States. The layered deterrence posture "preserves the capability and capacity" to Defend Forward with operations that signal national resolve.[92] This stance aligns well with the contention of Miller and Pollard that persistent engagement plays a vital role in a deterrence strategy that uses all tools of national power.

Conclusion

In celebrating its eleventh year of existence, US Cyber Command released a statement on securing the cyber advantage. It states that in 2022, US Cyber Command will concentrate on "strategic competition through the operational approach of persistent engagement, implementing the Defend Forward cyber strategy in support of Secretary of Defense Austin's vision for integrated deterrence."[93] This declaration demonstrates an enduring commitment to the ongoing US approach to obtain cyber power, using information-related concepts for influence over adversaries. The approach has been tested against Russia to change its decision calculus for influencing voting preferences in the United States. As the cycle of competitive interactions continues from the 2016, 2018, and 2020 US elections, Russia has learned to exploit technological change. Its tactics and techniques have become cleverer and more sophisticated to avoid detection. For instance, in the 2020 US election, the IRA adapted its methods to evade Facebook disinformation defenses, using impersonations of real domestic organizations and improving operational security. The Peace Data website even used AI-generated editor and communication staff profiles to approach writers and bloggers to contribute stories.[94] In the SolarWinds attack, the SVR malware masqueraded its network traffic to blend in with legitimate activity and disguised their operations with multiple legitimate credentials, temporary file replacements, and temporary task modifications.[95]

General Nakasone testified that today "our adversaries compete below the threshold of armed conflict" where this "short-of-war competition features cyber and information operations employed by nations in ways that bypass America's conventional military strengths."[96] In response Nakasone has led the US military effort to Defend Forward in cyberspace against malicious Russian activity, in particular in influence operations. The challenge for American strategy and opportunity for Russian strategy is that these types of operations do not warrant a response using force. Each of the US Cyber Command strikes against suspected Russian operatives has achieved only temporary and reversible effects. For instance, in the 2020 US election, US Cyber Command took down the command and control servers of the TrickBot Russian-speaking criminal gang, over concerns their access to election official computers could be used to freeze the election with ransomware.[97] The outage lasted for only a

half a day, and while it might have sent a message to the Kremlin, the strike did not deter later operations. The Russian use of information warfare to harm United States interests will continue. The cyber domain provides an effective medium for Russia to achieve political ends through ever evolving means. Emerging technical capabilities have favored the Russians and their minds have not been altered by US concepts in cyberspace.

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Part 3
Strategy, Strategists, and The Future

Chapter 7

Strategy, Time, and the Future

Danny Steed

> *We have lost speed, and therefore time, precious time which
> cannot be recovered once lost.*
>
> Captain Jack Sparrow, *Pirates of the Caribbean*

Time is indeed the least forgiving dimension of strategy, for the
simple—indeed almost banal—reason best articulated by the love-
able Captain Jack Sparrow of the *Pirates of the Caribbean* movies:
once time is lost it is irrecoverable. The place of time, the temporal
dimension itself, is an important yet often overlooked contribution of
the late, great Professor Colin S. Gray's theorizing on strategy.

The reasons this important dimension is overlooked can arguably
be said to lay with *Gray* himself. Newcomers to *Gray's* work might
well wonder what Gray's dominant body of work is by the time of his
passing in 2020. Is it the 17 dimensions of strategy—including time—
as laid out in 1999's *Modern Strategy* and graphically illustrated in
2002's *Strategy for Chaos?*[1] Is it Gray's 40 maxims from 2007's *Fighting
Talk?*[2] Do the 21 Dicta outlined in 2010's *The Strategy Bridge* take
precedence, as Gray was forming his concept of the general theory of
strategy?[3] Or should 2018's *Theory of Strategy*, with its 23 subjects for
that theory take this place?[4]

While the answer for any mature student of strategy, let alone stra-
tegic theorists and practitioners, is to know Gray's body of work, it is
important to highlight the struggle Gray clearly carried in outlining
this theory over the course of his career. Such a brief overview reveals
the struggles Gray tackled in trying to further bridge our understand-
ing of the dynamics and sheer complexity—a heroically difficult chal-
lenge as he himself put it—of the strategic pursuit.[5] Fundamentally, it
reflects perhaps the greatest challenge Gray sought to take on, to
bridge the void between Clausewitz's theory of war—the gold stan-
dard—to establishing a firm theory of strategy itself, which *On War*
failed to offer.[6]

Throughout all variations of Gray's theorizing, however, lies the
temporal element. The impact of time stands alone in carrying that

unique characteristic as outlined by Captain Jack Sparrow but also addressed by Gray: "Performance in all but one of strategy's dimensions . . . can be improved. The sole exception is the dimension of time. Time lost is literally irretrievable."[7] This chapter seeks to explore the dimension of time and its impact on strategy in greater detail. Ultimately, the practice of strategy is future oriented, to shape preferable outcomes to one's own policy ambitions against the adversarial challenge of other actors, the impact of strategies operating within (or through) those dimensions and friction, among which is the ever-ticking clock.

The chapter will first examine what the dimension of time meant in Gray's theory of strategy, exploring the great stream of time, and the need for strategy to be considered within its temporal context. Ultimately, however, the chapter aims to highlight the limits of Gray's theorizing regarding the dimensionality of strategy and how this opens avenues of future research to continue building upon his legacy in strategic studies.

Time in Gray's Theory of Strategy

Not only are Gray's concepts, dimensions, dicta, and maxims of strategy dispersed across his many works, so too is his guiding wisdom on the meaning and impact of time on the strategic pursuit. With that in mind, it is most useful to issue a series of principles accumulated from the various writings of Gray on this dimension.

Principle 1: Strategy Is Future Oriented, but Strategies Take Place in the Great Stream of Time.

Gray warned of a "perilous dualism" afflicting strategy: the need for a holistic understanding of strategy with a capital *S*, but also the need to explore strategies in practice as well as the individual dimensions and components of strategy in theory.[8] This dualism affected Gray's theorizing, most particularly in his effort to ground the concept of the great stream of time—a concept adopted from Richard Neustadt and Ernest May—specifically in history as the basis of experience, rather than in the implicit notion of the great stream of time as a constant phenomenon of never-ending political intercourse.[9]

To Gray, the great stream of time "has the potential to mislead as well as to provide useful historical context."[10] This is because of the

challenge of coping with the dualism of change in continuity and continuity in change; despite that challenge, Gray remained consistent in his adoption of Neustadt and May's overriding logic of harnessing the empirical knowledge store of history to guide future strategic practice. Neustadt and May were clear in their insistence for leaders to think in time streams, "visualizing a desired future in realistic terms and figuring out, step by step, detail by detail, what 'then' requires all the way back to 'now,' or conversely how 'now' might be turned by stages into something approaching 'then.' "[11] Such a practice will be instantly recognized by mature students of strategy as rhyming closely with Admiral J. C. Wylie's notion of cumulative and sequential strategies toward one's desired end state.[12]

Gray saw the predictive value in deep historical mining to help the strategist cope with the oncoming future. As he himself put it: "If historical experience is approached as evidence of thought and behavior that is both continuous and relentless in its temporal downstream consequentiality, then one can identify the past, necessarily presented as typically competing histories, as evidence to employ in our attempts to cope well enough with the future."[13]

Strategic theorists and practitioners alike must therefore anticipate the perilous dualism inherent in coping with the impact of time. Not only must the strategists educate themselves against the vast store of ultimately unconquerable histories, but they must also meticulously plan to achieve their future desired end state, before reacting and adapting to friction and the adversarial challenge once those plans are executed. Perilous dualism indeed.

Principle 2: Time Is Unique Among All of Strategy's Dimensions.

As outlined in this chapter's introduction, time lost "is literally irretrievable."[14] For this reason, it is unique among all the operating dimensions of strategy, for performance across individual dimensions and improving what Gray terms "net strategic effect" across the whole pursuit is possible.[15] However, it is impossible to improve performance within time, after the fact. Once the activity has taken place, it simply becomes woven into the great stream of time to be learned against for a later time.

In theory this point of uniqueness may appear simple to the point of banality, but it is a vital characteristic that must always be considered. Time stands alone among all the operating dimensions of strategy

and must be respected for this reason. As Gray's Maxim 17 sagely warns, "Time is the least forgiving dimension of strategy."[16]

Principle 3: While Unique, Time Is Not the Most Important Dimension.

Time's unique and unforgiving characteristics could mislead in giving the impression that time rules over all other dimensions. This was something Gray warned against, lest budding strategist theorists or practitioners find themselves falling prey to that perilous dualism once more. As Gray says, time "is not a defining feature of strategy," but its universal importance is what warrants its inclusion in the general theory of strategy.[17]

Returning to a holistic view of strategy is necessary, as the point is to establish that not only is time not the dominant dimension or feature of strategy, but also that uncertainty in the relationship between the dimensions is always present "because there are no hard boundaries among them."[18] Not only this, but also "there is no hierarchy among the dimensions of strategy."[19] The great stream of time, the place of context as strategy manifests in actors' particular pursuits, defines the state of flux between the dimensions, not only to one actor internally but also the flux between the dimensions in the adversarial tussle among actors locked in competition. Time may be unforgiving and unique, but it remains one dimension in the kaleidoscope of strategy that is ever shifting according to context, actors, actions, and outcomes.

Principle 4: All Strategic Pursuits Contain a Temporal Element.

There is no escaping the clock; all strategies must take place within time-bound constraints, and the various forms of warfare share differing relationships to their own temporal elements. Air combat operates in much faster streams of time; the press of time is felt very acutely in the air, as it is in cyberspace. Operations at sea and on land, meanwhile, operate in slower time. Gray notes that naval and irregular warfare are particularly blessed by having time as an ally, as neither form of fighting can secure swift victory and both almost inherently play for time as part of their strategic approach.[20]

It is not only the execution of strategy that contains the temporal element but also defense planning in preparing actions to achieve future outcomes in the face of ever-shifting uncertainties. Indeed, Gray

labeled this *Meeting the Challenge of Uncertainty* as the subtitle to his 2014 book.[21] The plans a polity makes in the pursuit of its political objective need to not only pay heed to the interactions of the various dimensions of strategy—both one's own and those expected from any adversary or adversaries—but also to weigh the varying impacts of time on different instruments used in the strategy. Naval forces need far longer to prepare, deploy, and operate. Ground forces are rarely afforded the luxury of short-term deployments on the ground. Air forces must achieve their objectives quickly and leave. The interactions of time differentials to different military units, as well as other elements of national power, must form a part of the strategists' calculations. Modern strategy is an incredibly complex dynamic, the complexity of which "all but commands the theorist to recognize the importance of its temporal dimension."[22]

Principle 5: Time Is Not Neutral. There Is an Element of Relativity at Work.

While time is a unique dimension, this is not to suggest that adversaries can count on its neutrality. Indeed, time will carry vastly different meanings across those locked in war with each other trying to attain strategic advantage and "some measure of control over the enemy."[23] Gray took care to insist as much, noting that although "historical experience reveals that it is equally usable by all belligerents, its meaning will tend to differ for each."[24] This is specifically meant in terms of the endurance and staying power of one belligerent over the other(s).

While there is some risk to issuing historical generalizations in this regard, two case study examples do illustrate how the temporal dimension can serve to nullify what appear to be almost decisive advantages in the prowess of an adversary. In the first instance, the genius of Napoleon Bonaparte defined the type of force and command structure of the industrial eras that carry through to modern militaries. His brilliance in winning battles across Europe remains unparalleled and led to Clausewitz's own declaration of the man as "the God of War."[25] Yet, as Gray sagely points out as a key conundrum that Clausewitz sought to tackle in *On War*, "Clausewitz could hardly help but notice that the great captain, for all his undoubted military and administrative brilliance, ultimately lost."[26]

There are many reasons why Napoleon ultimately failed, but the fact that time was effectively co-opted by his adversaries is ultimately a contributory one. This relates to a basic understanding of the Clausewitzian theory of war, specifically the "political object—the original motive for the war—will thus determine both the military objective to be reached and the amount of effort it requires."[27] In simplest terms, Napoleon's ambitions and those of the wider French Revolution were to rewrite Europe's old regime; it was an absolutist political objective that required a total victory. Conversely, it inspired in those opposed to Napoleon the political objective to halt this aspiration, no matter the cost. In essence, it is not unfair to describe the Napoleonic Wars as having a strongly temporal dimension; the grander the political objective, the more blood the actors are willing to sacrifice and the longer they are willing to endure the suffering to achieve it. Such absolutist political ambition motivated a long-term alliance against Napoleon, centered on naval blockades and gradual attrition where possible, all over the continent and on the seas.

A similar pattern can be identified with Nazi Germany and the Second World War, where another absolutist political ambition to rewrite the established political order inspired such immoveable political opposition that all sides found themselves locked in total war, willing to endure the struggle no matter how long it lasted. As Gray said, "Nazi ideology could not be tamed by any peaceful process of political or cultural engagement."[28] Nowhere is the dynamic created by such absolutist political aspiration so well captured as in Churchill's famous " blood, toils, tears and sweat" address to the House of Commons on 13 May 1940. In that address, he said, "What is our aim? I can answer in one word: Victory—victory at all costs, victory in spite of all terror; victory however long and hard the road may be; for without victory, there is no survival."[29]

Despite the military genius of Napoleon and the unmatched ferocity of the Nazi *Wehrmacht*, their undoubted military excellence could not compensate for the intolerance of their adversaries to their political ambitions. Military excellence failed by itself to deliver victory against those who were willing to suffer numerous losses for survival itself. Paul Kennedy and Richard Overy both capture excellently the key dynamics that helped shape victory against Napoleon and Nazi Germany respectively. On the Second World War, Overy says: "This primal drive for victory at all costs nourished Allied fighting power

and assuaged the thirst for vengeance."[30] Biding time enabled the Allies to develop collective advantages to counteract those of the Nazis.

Likewise with Napoleon, Kennedy is worth quoting at length, for the advantages he credits to Britain can fairly be mapped to America, not only through the Second World War but also throughout the Cold War too:

> Her insular position, complemented by her naval mastery, provided that basic security from a Napoleonic invasion which no other European country possessed; her stable yet relatively flexible political and social system enabled her people to endure the strains of war, without serious domestic upheaval; her rapidly-expanding industrialization and sophisticated financial system offered insurance to the merchant shipper, capital for industry, and loans to the State; this economic and credit strength in turn supported a colossal navy and quite a considerable army; that navy, by smashing all enemy attempts to dispute command of the sea, not only reduced further the chances of an invasion of England, but it permitted the capture of hostile colonies, the elimination of the foes' overseas trade, the protection of British commerce, and the sustenance of allies on the continent; that army, benefiting from the command of the sea, could be dispatched to seize hostile colonies and naval bases or operate on the peripheries of Europe, in conjunction with allies and to the embarrassment of the enemy.[31]

Kennedy captures in full detail what Gray summarizes with brevity in strategic theory when he said the "longer the war the more likely that the impact of all the dimensions of strategy will be apparent."[32] In strategy, time is clearly a vital dimension in enabling one to nullify, then counteract, near decisive advantages through the application of one's own prowess in other dimensions.

The quest to co-opt time as a strategic advantage goes far beyond the modern military obsession with the simplistic maxim of "speed kills." Time cannot be counted on as a neutral element in strategy and war. The strategist is obliged to find ways to manipulate time in one's favor, actively probing weaknesses in the adversaries' strategic dimensions that make them prone to temporal exploit. Exploiting time is about more than fast speed. Indeed, Gray criticized the US military in 2003 for confusing combat with war, which is where an obsession with speed can result.[33] Time's importance is about both speed and

seeking advantage in prolonging affairs. The strategist must take care as part of their planning to map the relativities of time in its relation to oneself and one's adversary.

Time and the Limit of Gray's Theory of Strategy

As much as his body of work has helped to shine a light down the dark path strategists must navigate, Gray's career quest for the general theory of strategy is not without limits. Both theorists and practitioners should be aware of the limitations of Gray's theory regarding time so that they may understand how to drive strategic understanding and practice forward and build on Gray's foundation. There are two key limits to Gray's theory affecting our understanding of time in the strategic pursuit: it does not fully deal with the great stream of time, and Gray failed to expand on the exact relationship of strategy's individual dimensions.

The Great Stream of Time

Regarding the great stream of time, Gray can almost be criticized for his near blind adoption of Neustadt and May's concept as a purely past-driven analytic tool. *Thinking In Time* makes itself quite plain in its aim to have policymakers study history as a great stream of time, stating that "the future has no place to come from but the past, hence the past has predictive value."[34] A purely past-driven focus of the great stream of time, however, fails to address the only thing a strategist truly cares about, the future.

By turning analytic focus toward the future, rather than merely the study of the past to better inform the future, strategic theory stands better placed to address two problematic issues: strategic theory's relationship to victory and politics. If Gray's advice is to be taken, and we approach "time with the understanding that the subject is, has been, and always will be, a continuously moving stream of phenomena,"[35] then better engagement with the nonmilitary-centric elements of strategy is necessary. After all, those who subscribe to a Clausewitzian view of war necessarily accept the political nature of war itself.

Victory. To Western nations, the concept of victory, particularly decisive victory, has been conditioned by the total wars period (including the Napoleonic Wars) to represent one thing: unconditional

surrender. Victory, in this sense, is so complete the total capitulation of an enemy's political order resulted with a new one being built in its place. The *Pax Britannica* resulted after 1815, the ill-fated Treaty of Versailles in 1919, and the success that still (broadly) holds global peace from the many measures led by the United States in the years after 1945. Even the teaching of our societies' histories focuses on binary views that treat these episodes as definitive open-and-shut cases, invariably failing to recognize their historical rarity for achieving such decision. Far more frequently, victory is opaque, nebulous, and elusive, resulting not in the total capitulation of adversaries but in messy compromises that weave themselves into the ever-evolving tapestry of the great stream of time. Before we attempt to broaden our understanding of time in the political sphere, strategic theory needs a more mature grasp of the concept that bridges strategy to politics: victory itself.

Gray's own relationship to the concept of victory can fairly be described as subscribing to the pursuit of the decisive. His 1980 article (co-published with Keith B. Payne), *Victory is Possible,* called for a political desire to win any nuclear exchange, declaring then that US nuclear strategy was immoral for not being willing to win any exchange with the Soviet Union.[36] Even the title of a 2002 monograph penned for the US Army War College is instructive of Gray's focus. *Defining and Achieving Decisive Victory* noted decisive victory as possible and important.[37] Decisive victory, however, carries with it the risk of " bookending" segments of history, disrupting the great stream of time in ways that bias our study of that past and thus affect our ability to robustly use that past for the predictive value the strategist so craves. There are two contrarian views to help draw this problem to light, those of B. H. Liddell Hart and Everett Dolman.

Liddell Hart is commonly said to be opposed to the Clausewitzian theory of war. This could not be further from the truth, however, and is a shallow misreading of what he actually said. Liddell Hart, in the end, carries a strong subscription to Clausewitz, noting that the guilty were—particularly in the First World War—Clausewitz's disciples who "carried his teaching to an extreme which their master had not intended."[38] While Liddell Hart had many genuine criticisms of Clausewitz, his true critique was always aimed at those who misunderstood, selectively quoted, and dogmatically followed choice passages of his work. But it is Liddell Hart's thoughts on victory to achieve peace that are of most value here.

Liddell Hart's main argument, and central subscription to Clausewitz, lies in his view of victory: "The object of war is to attain a better peace—even if only from your own point of view."[39] He further warns against the type of efforts seen especially in the First World War, for the effects they will have on any peace that follows. "If you concentrate exclusively on victory, with no thought for the after-effect, you may be too exhausted to profit by the peace, while it is almost certain that the peace will be a bad one, containing the germs of another war."[40] The relation here to the great stream of time is simple, for it fits exactly with one of Clausewitz's great warnings: "In war the result is never final."[41]

In this vein, the notion of decisive victory should be accepted as a historical rarity, with the impact of the total wars period coloring modern views of victory to the detriment of strategists' understanding. Instead, we must return to Clausewitz, who himself carries a subscription to the great stream of time in his warning that the result is never final. This is because "the defeated state often considers the outcome merely as a transitory evil, for which a remedy may still be found in political conditions at some later date."[42] Every decision in war, whether decisive or part of William Martell's "complex scale of outcomes" that are far more common, is ultimately weaved into the tapestry of the great stream of time, not conveniently bookended with no further relevance to a polity's political passions.[43] And as Clausewitz warns, even when some measure of decision is reached in one armed exchange, it may simply be tolerated for a time, with a view to correcting the result in one's favor another day, whether through politics or arms.

Everett Dolman's *Pure Strategy*—in this author's view a criminally under-recognized work in strategic studies—offers a similar contrarian view. Dolman boldly calls for an end to victory in the minds of the strategist, "for strategy is not about winning. The pure strategist understands that war is but one aspect of social and political competition, an ongoing interaction that has no finality."[44] Dolman comes closest in recognizing this essential unity of the strategic experience to constant political engagement, echoing another often-overlooked aspect of Clausewitz, that politics is itself at risk: "It is apt to be assumed that war suspends that intercourse and replaces it by a wholly different condition, ruled by no law but its own."[45]

Politics. The purest view of victory, one that always veers toward decisive victory, risks taking the pursuit of war to its more extreme,

absolutist vision as Clausewitz suggested. But as is repeatedly established throughout *On War,* war "cannot follow its own laws, but has to be treated as a part of some other whole; the name of which is policy."[46] Victory has plagued the understanding of strategists of the relationship between war and politics, veering toward levels of segregation in practice (and sometimes theory) that simply do not accord with the reality and history of strategic execution.

The great stream of time in Gray's application lends itself overwhelmingly to the study of the use of force. This is completely understandable, of course, as the application of violence is the only unique characteristic distinguishing war from other branches of political engagement. As Clausewitz says, "What remains peculiar to war is simply the peculiar nature of its means."[47] Gray's body of work can broadly be said to have focused in large measure on the grammar of war, rather than its political logic. Significant focus was given to war's evolving grammar and its strategic implications in *Modern Strategy* and *Another Bloody Century* especially. However, Gray sought to address this in *The Strategy Bridge*. In *The Strategy Bridge*, Gray tackled the challenge posed by ever-expanding demands on theory, a form of mission creep that he warned risks diluting the very explanatory power that theory seeks to develop in the first place. As Gray bluntly said, "Theories of everything are theories of nothing."[48] Arguing for the necessary boundaries of theories that deal with war, peace, and strategy, Gray concedes that his focus is on strategy purely, but should "the discussion here shed some light in dark places of war and peace, that would be a welcome bonus."[49]

Gray's struggle is instructive in illuminating the challenge posed; the difficulties in boundaries between theories of war, peace, and strategy invite conceptual confusion, even exaggeration, to lean on one key concept. Victory is simpler to conceive of than complexity, naturally, and is more appealing to policymakers seeking swift outcomes. Gray sought to construct a general theory of strategy that has been through several iterations across his career. That theory attempts to build on the general theory of war by Clausewitz, which was, of course, incomplete. And there is no obvious contender to be labeled a general theory of peace or politics. Gray's multi-dimensional construct cannot be faulted in its limitations, therefore, where the explanatory power of the dimension of time to the future of the great stream of time itself has not been explored. Gray stated that one should not criticize Clausewitz for what he did not attempt in his

work.[50] This author will pay Gray the same respect. Instead, Gray's general theory of strategy serves as an essential launch point from which to base further explorations of the dimension of time.

The Dimensions of Strategy

With clarity established about the self-recognized ambitions to Gray's general theory of strategy, that of strategy itself, not war, peace, or politics in general, it is now important to recognize the second key limitation to the general theory of strategy. This limitation lies in one of Gray's core constructs itself, the accumulated 17 dimensions of strategy.[51]

The interplay of the dimensions, graphically displayed in *Strategy for Chaos* as almost representing a tug of war type of interchange, is an excellent analytic model for considering strategy holistically. Gray was always insistent on there never being a hierarchy to the dimensions, or that there should even be any fixed relationship between them, for strategy always has an enduring nature, with a changing character.[52] The concept of the dimensions should be viewed, instead, as a form of kaleidoscope in practice, which manifests the dynamics of the dimensions according to the context and actors at any given moment in time. Some manifestations may appear like other historical episodes, but ultimately every single occurrence is unique within its own context.

Despite the huge value of the 17 dimensions, its limitation lies in Gray's own attempt not to fix any relationship between them, opting instead to always argue for holism. This creates the limit that Gray never truly explored in great depth in each of the dimensions at play, save for their very brief explanation in *Modern Strategy*. The result is a gap in research that is ripe to be explored; indeed, this author's own PhD thesis under Gray's supervision explored the relationship between strategy and the intelligence/information dimension.[53] There remain 16 other dimensions in need of comprehensive research for their relationship to strategy in theory and to practitioners in execution.

Time warrants a special call for attention as the least forgiving dimension of strategy, for it stands alone in the challenge it poses to both theorists and practitioners of strategy. Gray pointed the way in absorbing Neustadt and May's great stream of time as a start point for consideration, but it is inherently limited in being considered from a purely historical perspective so far. Better tools and concepts to tackle

what Gray termed "an unknown and unknowable future" are necessary, even beyond his excellent Maxim 38 in *Fighting Talk* that insists any strategist confronting that unforeseeable future must honor two virtues above all others, prudence and adaptability.[54] While acknowledging the incontestable fact that the future remains a mystery until it becomes the present, there is ample scope for ambitious scholars of strategy to examine the full relationship of time to strategy in greater depth. This logic likewise holds for all of Gray's dimensions; while strategy's enduring nature lies in a holistic, inseparable linkage between the dimensions, that should not excuse professional strategic theorists and, where possible, even practitioners from engaging the subject in greater depth to pry apart what can be gleaned from closer examination of strategy's operating dimensions.

Moving Strategy and Time Forward

With an understanding of the limits of Gray's general theory of strategy to time established, it is necessary to point the way forward for how strategic theory can build on the foundations of Gray's legacy. Of course, Gray's body of work will provide ample avenues of research for doctoral candidates for decades to come, yet this author has chosen to focus on time given its declared uniqueness as a dimension. Strategic theory has the duty to help guide and educate the strategic practitioner, particularly as practitioners are, above all, driven by immediacy. The best pathway forward, therefore, is for strategic theory to examine a series of principles with which to arm practitioners for guidance.

1. Time and Strategy Share a Uniqueness: They Can Both Only Flow Forward.

I'm not afraid of death, Murph. I'm an old physicist—I'm afraid of time.

Professor Brand, *Interstellar*

To risk the reader's patience with a second quotation from a fictional movie character, Professor Brand in Christopher Nolan's boldly ambitious *Interstellar* pithily captures the essence of perhaps the shared interest between physicists and strategists. Like a physicist, the

strategist should fear time above all things, even the adversary. Adversaries can be overcome, none are invincible, all have their weaknesses, and they can even be recovered against in the face of daunting reversals as history has shown many times. Time, however, is unforgiving, it is daunting, it cannot be recovered once lost, and performance against it can never be improved after the fact, only improved by survivors for next time.

To move from a fictional theorist to an eminently real one, the late Professor Stephen Hawking's *A Brief History of Time* argues that "the arrow of time," regardless of the thermodynamic, psychological, or cosmological elements that combined represent the arrow of time, "all three arrows point in the same direction," forward.[55] The same is true for strategy; the strategist cannot change the past, only the future. The transitory evils that Clausewitz says lie at the heart of the result never being final in war can only be fixed in the future, if one so desires. Whether the strategist aims to "compel our enemy to do our will" or achieve Liddell Hart's better state of peace, Wylie's measure of control, or even Churchill's victory no matter the cost, no matter the variation in terms or scale of ambition, all strategy is future oriented.[56] The strategist must be aware of treating the past as dogma, with history representing a straitjacket that shackles and inhibits ambitions and actions, for, to adjust very much one of Sun Tzu's aphorisms, the possibility of success can lie only in the future.[57]

2. The Theory of Relativity Applies to Strategy as Well.

There is an element of relativity to time in the strategic pursuit. Unlike in physics, however, relativity is based not on gravitational forces but rather the dynamics between adversaries. As Gray said, time "is rarely neutral" and means different things to different opponents.[58] Not only this, but elements of relativity also exist on one's own side, for the dynamics of time mean different things to air forces over navies, to land forces, cyber forces and now space forces. Each geographic dimension of war carries different operating laws that affect how time influences operational abilities.

The strategist must deftly understand how time impacts the various capabilities on one's own side before considering those of an adversary to measure where time may be co-opted and how time may suit an opponent over oneself. And this is before considering the impact of time at the political level, which is always a particularly acute fac-

tor among liberal democracies, whose governments are very sensitive to quite fixed timelines. One need only name drop the wars in Iraq and Afghanistan to see how time was quite drastically against American and allied forces. A fruitful pathway for strategic theory lies in establishing a greater understanding—not necessarily modeling—of time's impact beyond the military level and into the truly strategic.

That process of currency conversion that Gray insists on as the primary exchange on the strategy bridge represents the form of alchemy that Dolman argues strategy truly is.[59] That very delicate process is a window of time where it is hoped military success can be exploited politically. It is not only military operations that are time sensitive, but so also the political moment to consolidate success into enduring political advantage, the better state of peace Liddell Hart calls for. Strategic theory is preciously light on how to best aid the conversion of military success into political capital; appreciating and understanding better the element of time may well help bridge this glaring omission on the strategy bridge.

3. Increased Multidisciplinarity Is Needed.

Strategic studies continue to suffer from almost 40 years of "disciplinary consolidation within political science" that has progressively robbed the subject of what was once one of its most vibrant characteristics, multidisciplinarity.[60] Milevski sagely directs readers to Hew Strachan, who captured excellently a dynamic that strategists need to return to once more. "Thirty years ago, strategic studies were a hybrid, a disciplinary mix off history, politics, law, some economics and even a little mathematics. Today the subject has been increasingly appropriated by departments of political science, its identity often subsumed under the amorphous title of 'security studies.' "[61]

Political science is ill-equipped to cater to the dynamics animating strategic theory, especially time. There is a need for strategic theory to return to its multidisciplinary roots once more to examine concepts and methods for understanding time. While not exhaustively prescriptive, engagement with physics and philosophy would be excellent start points for a greater examination of time as a dimension of strategy. Indeed, Hawking called for greater engagement of philosophy in building on our knowledge of the *why* in time rather than the *how* which physics has made great strides in understanding. Hawking lamented the gradual distance between science and philosophy that

has emerged, or, as he said, "What a comedown from the great tradition of philosophy from Aristotle to Kant!"[62] Strategic theory has nowhere left to grow within the straitjacket of political science; it needs fresh blood from other disciplinary perspectives to help address the challenges it faces.

Conclusion

This brief foray into time as a dimension of strategy argues that Professor Gray has built a mighty foundation of general strategic theory on which to build. Gray's life's work boldly sought to fill the gap left by Clausewitz, whose general theory of war was ultimately, and of course, not a general theory of strategy. Gray's body of work reflects numerous challenges and iterations of his thoughts in the search for this general theory, yet whether that search yielded dimensions, maxims, dicta, or principles across his works, many core features are present throughout. Among these is time as the most unforgiving dimension of strategy. Its unique characteristics, conditioned by the laws of physics to move only forward, lie at the heart of the strategist's pursuit being centered purely on the future.

All strategy is geared toward future achievement, to cope with uncertainty, using finite and imperfect resources against a knowing, reacting adversary, with the clock ticking in ways that carry different meaning to the opponents locked in struggle. For the next generation of strategic theorists and practitioners to build on Professor Gray's general theory of strategy, we must recognize what is perhaps his greatest achievement, not his general theory, but rather the sheer range of concepts and dimensions of strategy left for us to explore. Colin Gray not only helped us see the wood from the trees, but he also shone bright guiding lights down every pathway left to explore in strategic theory; it is time for us to take his torch forward together.

Notes

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15. Gray, *The Strategy Bridge,* 167–68.

16. Gray, *Fighting Talk,* 70.

17. Gray, *The Strategy Bridge,* 74.

18. Gray, *Modern Strategy,* 43.

19. Gray, *Strategy for Chaos,* 123.

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21. Gray, *Strategy and Defense Planning.*

22. Gray, *Modern Strategy,* 43.

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25. Clausewitz, *On War,* 583.

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33. Colin S. Gray, *Another Bloody Century: Future Warfare* (London: Phoenix, 2006), 189.

34. Neustadt and May, *Thinking in Time,* 503.

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36. Colin S. Gray and Keith B. Payne, "Victory is Possible," *Foreign Policy,* no. 39 (Summer 1980): 14–27.

37. Gray, *Defining and Achieving,* 33.

38. B.H. Liddell Hart, *Strategy,* 2nd ed. (New York: Meridian, 1991), 339.

39. Hart, 353.

40. Hart.

41. Clausewitz, *On War,* 80.

42. Clausewitz.

43. William C. Martell, *Victory in War: Foundations of Modern Military Policy* (Cambridge: Cambridge University Press, 2007), 300.

44. Everett C. Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (London: Frank Cass, 2005), 5.

45. Clausewitz, *On War,* 605.

46. Clausewitz, 606.

47. Clausewitz, 87.

48. Gray, *The Strategy Bridge, 99.*

49. Gray, 111.

50. Gray, 98.

51. Gray, *Strategy for Chaos,* 126. The full list of dimensions: People; Society; Culture; Politics; Ethics; Economics; Organization; Military administration; Information; Theory and doctrine; Technology; Military operations; Command; Geography; Friction and chance; Adversary; and Time.

52. Gray, *The Strategy Bridge,* 15.

53. Danny Steed, *British Strategy and Intelligence in the Suez Crisis* (London: Palgrave Macmillan, 2016).

54. Gray, *Fighting Talk,* 155,157.

55. Stephen Hawking, *A Brief History of Time* (New York: Bantam Books, 1998, ePub version, Apple iBooks), chap. 9, 206.

56. Clausewitz, *On War,* 75.

57. Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (Oxford: Oxford University Press, 1971), 85. Sun Tzu states in chapter four that "Invincibility lies in the defense; the possibility of victory in the attack." The author takes liberty to adapt and paraphrase this in text.

58. Gray, *Fighting Talk,* 71.

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60. Lukas Milevski, *The Evolution of Modern Grand Strategic Thought* (Oxford: Oxford University Press, 2016), 146.

61. Hew Strachan, *The Direction of War: Contemporary Strategy in Historical Perspective* (Cambridge: Cambridge University Press, 2013), 253. This quote was found in full in Milevski, 146.

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Chapter 8

What to Expect of the Strategist
Can Strategy Be Mastered?

Lukas Milevski

A legacy of the Western strategic experience of the past two decades has been rising doubt about the ability, viewed generically, of the strategist to perform his task. Many of the West's wars over this period achieved initial success before deteriorating into continuous warfare. Most immediate goals were easily met in both Afghanistan—although the Bush administration failed to destroy al-Qaeda—and Iraq. Yet Afghanistan has long since overtaken Vietnam as America's longest war, with little apparent success and for little appreciable gain, despite the dramatic demise of Osama bin Laden hiding in Pakistan. Iraq spiraled into insurgency and civil war, was only partially salvaged, and was then partially abandoned. Libya followed the same pattern: a success of sorts with Muammar Gaddafi's regime deposed and the man himself killed, but since then it has deteriorated into civil war, which has not only not yet ended but also has drawn in major regional actors busily arming their preferred proxies in the country. The West tried to manage the Syrian Civil War, failed, was surprised by the sudden rise of the Islamic State and its military successes across two countries, and supported local allies to push the Islamists back—before suddenly abandoning at least some of them and ceding the political high ground to Russia. The West has also been taken by surprise by Russia's resurgence and revanchism, starting in Ukraine in 2014, by the return of great power conflict, and, with reference to China, even by peer competition. Over the past two decades Western strategists have not covered themselves with glory.

By comparison, the experiences of strategic competitors Russia and China have differed substantially over the past two decades. Russia's two decades began admittedly poorly with wars in Chechnya, the first a disaster and the second only a poor success. The war against Georgia in 2008 was also a poor success, albeit (unlike Chechnya) sufficiently shocking to spur the Russian armed forces to reform. The resulting tactical and strategic performances in Crimea, Donbas, and Syria have been sufficient to achieve success and are certainly out-

standing compared to earlier years. By contrast, China's involvement in substantial hostilities has been limited first to reasonably effective pressure on countries around the South China Sea, which has enabled them to build highly militarized artificial islands, and second, a Himalayan spat with India in the summer of 2020, about which accounts are mixed but may indicate that China did not perform particularly well. Yet this relative failure is minor, and China's armed forces are only increasing in capability, with the specific intention to challenge the United States. Unlike their Western counterparts, currently, Russian and Chinese strategists are doing well.

The disparity in experience between the West and its current geopolitical opponents brings into question the West's expectations of its strategists and whether they are realistic. To explore this issue, one must first understand the strategist and the expectations attached to the role, followed by the opposite side of the coin: doubts about the practicability of strategy; the distinctions between strategy in theory and in practice; and a deeper examination of practicing strategy. The chapter concludes with what one should expect of strategists today, and why.

The Strategist and Expectations of the Role

In Western discourse, strategists and their role have perhaps become reified, with attendant expectations of both the vocation and its practitioners reaching new heights. These expectations may be explicit or implicit and may be identified from two sources: (1) academic portrayals of the strategist's character; and (2) definitions of strategy and the content of strategic theory.

A number of academic strategists have reflected on the characteristics that a strategist should have, imbuing the vocation at times with a sense of romantic, sometimes even superhuman, exclusiveness. Thus, Harry Yarger described "the pursuit of national security and strategy" as "the proper domain of the strong intellect, the life-long student, the dedicated professional, and the impervious ego—one which is well prepared and willing to wait for history to render judgment in regard to success."[1] Fred Charles Iklé wrote even more strikingly about the strategist's characteristics:

> The demands on intellectual integrity are so exacting because in
> the development of security strategy the contradictions out-

weigh the harmonies, the uncertainties overwhelm the established facts, the proofs remain utterly incomplete, and yet the stakes exceed all earthly objectives. The strategist has to incorporate into his work the rich and precise facts of physics, engineering, geography, and logistics; he has to allow for the swirling currents and blurred edges of psychology, political science, and history; and he needs to fit all this into the dynamic of international conflict among nations—a dynamic of opposing objectives and clashing forces that is driven as much by human stubbornness as by human error.[2]

Yet Iklé, knowing that he was perhaps overstepping the line from demanding merely the nearly impossible to the almost wholly improbable, was also sufficiently aware ultimately to adopt a wry tone in discussing the strategist's qualities:

> To do good work on national strategy almost demands a rotund intellect, a well-rounded personality. He whose vocation it is to work on these issues of war and peace cannot suffer from intellectual poverty. His soul must be in harmony with this world of ours. He must not only appreciate different cultures and good art, but also find nourishment in things that are beautiful and be endowed with a sense of humor. He might have, perhaps, an eye for architecture or painting, an ear for the best music; he must have a broad understanding of philosophy, literature and, of course, history. And–why not?—let me have men about me that are sophisticated epicures.[3]

Colin Gray also weighed in on the strategist's qualities; he recognized that because strategy must be practiced as tactics, it must ultimately rely on individual command performance in war. Thus, character matters. Yet his approach differed; rather than focus on the strategist as a character, he emphasized strategy as a function. "There are grounds for doubt as to whether or not most strategists are heroes. However, the impediments to even adequate, let alone superior, strategic accomplishment are so numerous and so potentially damaging that there is little room for skepticism over the proposition that the strategist's profession is a heroic one."[4] The overall track record for strategists must be below 50%—broadly put, for every one who wins, there must be one who loses, and although some lose well, there are probably more who win through pyrrhic victories. Rather than

strategic virtuosity, Gray's preferred standard of success is, therefore, the merely good enough, which in itself is difficult. Strategic sense is about knowing "what ought to work well enough for the politically determined desired result for policy."[5]

Expectations also derive from theory, both from key definitions and from the content of theory itself. There is an implicit but not unjust assumption that what is written in strategic theory can and should be relevant to practice: "[w]hat could strategic theory possibly be for if it were not meant to be transferable to the world of action?"[6] Thus, expectations of the strategist's professional capabilities are inherent even in basic definitions of strategy. Paul Kennedy's version of grand strategy reasonably represents a particular kind of academic understanding of strategy, its grand inclination notwithstanding: "To begin with, a true grand strategy was now concerned with peace as much as (perhaps even more than) with war. It was about the evolution and integration of policies that should operate for decades, or even centuries. It did not cease at a war's end, nor commence at its beginning."[7] The professional expectations inherent in such a definition are in some ways even greater than the exalted descriptions of character from Yarger and Iklé and demand, perhaps, generational foresight.

By contrast, Colin Gray defined strategy very practically: "The use that is made of force and the threat of force for the ends of policy"— but contextualized this within 17 identified dimensions of strategy.[8] These 17 dimensions are grouped into three categories: people and politics, which comprise people, society, culture, politics, and ethics; preparation for war, which includes economics and logistics, organization, military administration, information and intelligence, strategic theory and doctrine, and technology; and war proper, which contains military operations, command, geography, friction, the adversary, and time. "My argument is that strategy has many dimensions, each of which is always in play to a greater or lesser extent. Strategy, by analogy, is like a racing car that has, *inter alia,* an engine, gears, brakes, tyres, and a driver; strategic performance is secured against the will and capabilities of other racers."[9] Although Gray never argued that the strategist can or even should pretend to control all these dimensions, both supporters and critics drew this erroneous conclusion from his dimensional conceptualization of strategy.[10] Such misinterpretations of Gray's 17 dimensions placed expectations and burdens on the strategist that were not warranted by his race car analogy.

The Viability of Strategy

Against the explicit and implicit exaltation of the strategist is a contrary trend in Western strategic culture—doubting strategy's practicability. Questioning the viability of strategy, in its various forms, has been a broad trend in the West since the disillusionment with war and with the utility of the force it engenders as experienced during World War I, if not earlier. A deep-seated resistance against using force emerged, especially strongly in Western societies of the interwar period, due to its apparent futility and its presumed injustice. However, there is a significant difference between then and now: a century ago, strategists still believed in the essential practicability of their task.

Yet throughout the past 70 years, since the founding of academic strategic studies, concern has occasionally been expressed among strategists about the practicability of their vocation and has led to some existential concern about the field. Bernard Brodie stated outright in 1955 that strategy had hit a dead end, and in 1979 Lawrence Freedman reiterated that statement as a question. In 2000 Richard Betts wondered whether strategy was an illusion, and in 2013 Lawrence Freedman returned to the topic by exploring and denigrating the notion of the master strategist.[11] Although all these commentaries discuss strategy, they not only differ in their interpretation of strategy as such but also focus on various aspects. Which of these are commentaries on the practicability of strategy *as such,* versus on the usefulness of the *intellectual tools available* to strategists, versus on the viability of particular *interpretations* of strategy as a concept?

Brodie's and Freedman's articles both pertain specifically to nuclear strategy and thereby occupy a special position because of their subject matter. It is hard to imagine practicing nuclear strategy at the best of times. In the context of superpower conflict and mutually assured destruction, it was nearly impossible. Hence Brodie doubted the usefulness of strategy as such, lamenting that "there is a stark simplicity about an unrestricted nuclear war that almost enables it to be summed up in one short statement: be quick on the draw and the trigger squeeze, and aim for the heart. One then has to add: but even if you shoot first, you will probably die too!"[12] Yet his work was notable also for casting doubt upon the ideas with which the United States had to grapple concerning nuclear strategy. "The old concepts of strategy, including those of Douhet and of World War II, have come

to a dead end. What we now must initiate is the comprehensive pursuit of new ideas and procedures necessary to carry us through the next two or three dangerous decades."[13] Freedman's analysis 24 years later essentially reiterated Brodie's basic concerns regarding the practicability of nuclear strategy as a form of strategy and the conceptual tools available to practicing strategists: "The main thrust of my argument thus far is that the relationship of mutual assured destruction, in which each superpower has confidence in his ability to inflict unacceptable damage on the other even after absorbing a surprise first strike, has encouraged the tendency to look at individual weapons systems, and indeed whole force structures, more in terms of their political functions than in terms of likely performance in battle."[14] The end of the Cold War has relegated nuclear weapons to the back of most people's minds, including those of most strategists. Instead, the heady days of the early 1990s demise of the Soviet Union led numerous observers to suggest conceptual amendments which could only make strategy more difficult to practice. In this vein, John Chipman of the International Institute for Strategic Studies suggested that the future of strategic studies lay "beyond even grand strategy."[15] Yet grand strategy itself had already taken on conceptual interpretations, which probably made the concept entirely impracticable.

The first serious consideration of the practicability of strategy as a whole emerged at the end of the 1990s, after the wars resulting both during and from the break-up of Yugoslavia. Betts powerfully outlined the arguments put forward by skeptics of the practicability of strategy, which hinge on a handful of certainly real core concerns: strategy's complexity and the difficulty of achieving desired political goals using the blunt instrument of violence; the difficulty of predicting the effect of a chosen instrument and action; and the lack of criteria by which to judge strategy in advance of its practice. These concerns touch both the practicability of strategy and the usefulness of intellectual tools that strategists use in conceiving and performing strategies in practice.

Today, strategic studies still faces substantially these same challenges. The two decades of Western strategic practice after Betts's summary only attest to the skeptics' accuracy regarding individual cases of strategic practice. Strategic theory can only address Betts's challenges with difficulty as so much of what was highlighted depends heavily upon the unique context of each individual strategy. It may be unrealistic or even impossible to answer the charges at the

level of general theory to the degree of precision which Betts's skeptics seem to be asking. A call for such precision pays little attention to either the basic uncertainties of adversarial relationships or to the malleability of policy independent of, yet always influencing, strategy.

In reaction to the works of strategists such as Yarger and Iklé, with reference to their exaltation of the strategist's character, as well as to Gray's 17 dimensions, Freedman's second foray into the practicability of strategy suggests that the master strategist is a myth. Freedman particularly takes aim at Gray, suggesting that Gray evinced "an exalted view of the strategist as someone who could view the system as a whole and take account of the multiple interdependencies and numerous factors at play to identify where effort could be most profitably applied." Freedman asked, "Could there be such a master strategist with this unique grasp of affairs?" After all, "a holistic view implied an ability to look at a complete system from without, whereas the practical strategist's perspective was bound to be more myopic, focusing on what was close and evidently consequential rather than on distant features that might never need to be engaged."[16] Furthermore, Freedman asserted that a military-strategic perspective was simply not enough:

> Master strategists, as described by Gray and Yarger, were therefore a myth. Operating solely in the military sphere, their view could only be partial. Operating in the political sphere they needed an impossible omniscience in grasping the totality of complex and dynamic situations as well as an ability to establish a credible and sustainable path toward distant goals that did not depend on good luck and a foolish enemy. The only people who could be master strategists were political leaders, because they were the ones who had to cope with the immediate and often competing demands of disparate actors, diplomats as well as generals, ministers along with technical experts, close allies and possible supporters.[17]

The question of practicability, its roots in academic strategic studies and new nuclear challenges, stems from a community which thinks and writes about strategy, usually without ever facing the potential responsibility directly to practice it in real life. Second, this concern is also born out of a much-expanded meaning of strategy. Strategy experienced a conceptual expansion from the late 1940s to the 1970s that pushed it well beyond the bounds of war and into peacetime deterrence and, ultimately, toward becoming a facsimile of inter-

national relations. This unfortunate trend was mostly arrested by the end of the 1970s, and, with the end of the Cold War, classical strategic studies and security studies divorced and went their separate ways.[18]

Freedman seems to acknowledge that a master strategist may be possible in the Clausewitzian interpretation of war. He noted, however, that war was a limited phenomenon. "Clausewitz did present war as a dynamic system but it was also remarkably self-contained. He was a theorist of war and not of international politics. He looked backward to the political source of war but that was not where he started."[19] Most mainstream definitions of strategy have stretched the bounds of the term far beyond its classical emphasis on the utility of military force. The upshot of such expansion is that the dynamic system that must perhaps be mastered grows exponentially larger and therefore exponentially more difficult to master. Strategy has thus arguably been reconceived into a practically unmanageable form by the same community of theorists who also worry about whether the resulting conceptual mess is practicable. This is counterproductive both to strategic theory—which has not caught up to those expanded definitions—and to the practice of strategy—which perhaps cannot, and need not, catch up.

Strategy: Theory versus Practice

The field of strategic studies seems to have reached a culminating point where the explicit and implicit exaltation of the strategist through character descriptions and strategic theory has led to unmanageable expectations of the profession, spawning a countertrend which doubts altogether the practicability of strategy. This results from natural tensions between theory and practice, fields which differ substantially, but is also partly simply a consequence of bad theory. One basic contradiction between theory and practice is that theory tends to be comprehensive, whereas practitioners tend to be reductionist. This section reflects first on strategic theory, both its comprehensiveness and its frequent expansiveness, before focusing on the reductionism of concepts generated by practitioners.

Strategic theory has been an ecological endeavor at least since Clausewitz's *On War*. An ecological discipline, according to John Lewis Gaddis, is one which "values the specification of simple components, [but] it does not stop with that: it considers how components

interact to become systems whose nature can't be defined merely by calculating the sum of their parts. It allows for fundamental particles, but it seeks to place them within an equally fundamental universe."[20]

Strategic theory has four primary tasks: defining the field, breaking it into its constituent parts, connecting strategic studies (and the practice of strategy) to other fields and disciplines, and anticipating the future.[21] The prime purposes of these tasks are education and communication so that prospective strategists may understand their field and their task and be able to communicate effectively about both. Ecological comprehensiveness generally benefits these tasks and purposes more than practical reductionism does, as the latter may tempt strategists to lose sight of certain constituent subdivisions or connections. Clausewitz was one who emphasized the importance and desirability of comprehensiveness and noted that "theory will have fulfilled its main task when it is used to analyze the constituent elements of war, to distinguish precisely what at first sight seems fused, to explain in full the properties of the means employed and to show their probable effects, to define clearly the nature of the ends in view, and to illuminate all phases of warfare in a thorough critical inquiry."[22] A comprehensive theory of strategy and war should contribute to command talent, thereby indirectly improving military and strategic performance. Therefore, a comprehensive view of strategy or war, such as that of Clausewitz or that inherent in Gray's 17 dimensions, does not logically mandate that a strategist need master every element.

Yet this is not true of another trend, that of the expansion of key concepts, most notably of "strategy" itself, partly within but mostly without strategic studies.[23] This conceptual trend began before the Second World War in the United States, where analysts or scholars such as Edward Mead Earle adopted broader definitions of strategy. "Strategy is not merely a concept of war time but an inseparable element in statecraft at all times; as such it is a legitimate and, indeed, an unavoidable concern of the social scientist. Only a narrowly restricted terminology would define strategy as the science and art of military command."[24]

The momentum of this trend to expand strategy only became overwhelming after the establishment of academic-strategic studies in response to the dawn of the nuclear age. As Brodie advised in 1946, "Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose."[25] Thomas Schelling similarly

wrote that strategy "is not essentially a theory of aggression or of resistance or of war. *Threats* of war, yes, or threats of anything else; but it is the employment of threats, or of threats and promises, or more generally of the conditioning of one's own behavior on the behavior of others, that the theory is about."[26] This momentum has been carried through to the present day by scholars such as Paul Kennedy, through his definition of grand strategy, and others in the fields of security studies and international relations—although the post-Cold War divorce of strategic studies and security studies diverted much (but not all) of this momentum away from strategic studies itself.

Yet this trend, only thinly justified at the outset—although strongly contextualized in the late 1940s and early 1950s by the nuclear weapons problem—has evolved into a self-evidently desirable development. By the time he was writing about grand strategy, Kennedy could explicitly broaden the concept of grand strategy without justifying why he did so; it was merely assumed that it was appropriate. More recently defending strategic studies, Pascal Vennesson saw no issue with hailing the expansionary effects of the Cold War on the concept of strategy: "The Cold War *released* strategy from the confines of war"(emphasis added).[27] Although a reasonably fair depiction of the evolution of the concept of strategy, the language alone conveys the attitude: the Cold War released the concept as if from a prison in which it was unjustly confined.

Yet even if one accepts this notion that strategy was liberated, the development simultaneously throws strateg*ists* into a different prison, built from greater expectations derived from a broader concept. At the same time, owing to the conceptual expansion of strategy, the strategist simultaneously loses key conceptual tools in wartime, most notably the wisdom of classical strategy itself: "One of the most obvious uses of strategy is to provide us with the tools to understand better the nature of war."[28] Performing grander concepts of strategy more likely requires a master strategist, of the sort Freedman found unrealistic— and not just in wartime, but in peacetime as well, and potentially over extended timescales. The system a strategist must master grows exponentially larger with broader concepts of strategy, even as the strategist's intellectual toolbox shrinks.

In contrast to the comprehensiveness for which much of strategic theory strives because of the nature of theory and the concept-expanding impulse of many scholars, practitioners tend to value simplicity. As Michael Howard once noted, "The complex problem of

running an army at all is liable to occupy his [the commander's] mind and skill so completely that it is very easy to forget what it is being run *for*" (emphasis in original).[29] Conceptual simplicity helps focus and direct that organizational complexity toward the desired goals. Various concepts which practitioners have developed to aid them in their task reflect this, ranging from Clausewitz's *coup d'oeil*, to centers of gravity, and principles of war. These are concepts that attempt to simplify the strategist's task and reduce it to its basics or otherwise suggest that the greatest generals can simplify situations to their fundamental considerations.

Clausewitz's *coup d'oeil* is of the latter type. "*Coup d'oeil* therefore refers not alone to the physical but, more commonly, to the inward eye. The expression, like the quality itself, has certainly always been more applicable to tactics, but it must also have a place in strategy. . . . Stripped of metaphor and of the restrictions imposed on it by the phrase, the concept merely refers to the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection." Clausewitz later suggested that "the commander's *coup d'oeil*, his ability to see things simply, to identify the whole business of war completely with himself, is the essence of good generalship."[30]

Despite recognizing that theory must be comprehensive, Clausewitz valued the ability to simplify a strategic situation in practice to its most important points and then act upon them. It was something Clausewitz believed could be at least partially taught. "Clausewitz believes that it is possible to formulate a theory of war that will promote the operation of genius through the replication of the effects of experience. Theory of this kind addresses the improvement of intuitive as well as deliberate thought—that is, the education of the unconscious as well as of the conscious mind."[31] Doing so requires comprehensive theory—such as Clausewitz's own *On War*—so that the practicing strategist can discern which elements are or are not important in any given situation, for few generals arrive at their station with the necessary innate qualities.

The idea of centers of gravity may be traced back to Clausewitz, but it has taken on a life of its own through vigorous debate, particularly in the past 40 or so years. The US Marine Corps originally argued that centers of gravity are the enemy's main vulnerabilities, the US Army that they are the core of the adversary's strength. Antulio Echevarria has reminded readers that the concept was borrowed originally from *physics*. "In general, a center of gravity represents the

point where the forces of gravity can be said to converge within an object, the spot at which the object's weight is balanced in all directions. Striking at or otherwise upsetting the center of gravity can cause the object to lose its balance, or equilibrium, and fall to the ground." A return to the original concept as Clausewitz argued it "shows that the identity and location of a center of gravity can be perceived only by considering the enemy holistically—that is, by drawing connections between or among an adversary's (or adversaries') various parts and then determining what 'thing' holds them all together."[32] Perhaps meant to work hand-in-hand with the notion of *coup d'oeil*, centers of gravity are an analytical tool by which strategists analyze the enemy from a comprehensive perspective before cutting to the core and reducing the adversarial challenge to only a few crucial elements—and preferably to only one.

The principles of war, as developed by successive strategists over the generations, similarly act to maintain simplicity of perspective against the complexity of practicing strategy. Their popularizer John Frederick Charles Fuller argued that "the value of principles lies in their power to eliminate self when judgments have to be formed, and so assist us to maintain that mental equilibrium which is only possible when the mind is attuned to the law of economy of force."[33] Mental equilibrium may be upset by the seeming need to consider too many factors before acting. Principles of war were conceived in response, to focus the thinking of tacticians and strategists:

> But, if he has trained his mind to think in principles, in place of thinking by order of conditions, directly he thinks of one principle he will think of the influences of the remaining eight. As conditions change, he applies them, and the quicker he can do so the higher will be his initiative, and by initiative I do not mean doing something, but doing the right thing—the common-sense thing. Thus is economy of force observed, and each small economy effected adds to the ultimate victory, or minimizes the ultimate defeat.[34]

The principles of war simplify the task of determining courses of action by identifying, rightly or wrongly, the fundamental concerns that a tactician or strategist must consider.

However, not all reductionist theories of strategic effect are created equal. The US Air Force's concept of Effects-Based Operations (EBO) is a case in point. "Effects-based operations are operations conceived

and planned in a systems framework that considers the full range of direct, indirect, and cascading effects, which may—with different degrees of probability—be achieved by the application of military, diplomatic, psychological, and economic instruments."[35] Theories of strategic effect that do not respect the human and the adversarial aspects of strategy's nature fall afoul of questions of causation: "Yet the military situation cannot be viewed, much less properly analyzed, as some kind of system. Humans are not machines. The enemy has his own will and may not behave as one wishes. He is bound to respond to one's actions. He is not devoid of emotions. He can react unpredictably and irrationally. Thus, in fact, EBO proponents are trying to take the art out of warfare and substitute it with science."[36]

Hew Strachan has indicted the thinking behind EBO: "EBO sought to plan by beginning with the desired outcome, with the implicit assumption that it might be gained by means very different from those suggested by capability-based plans. . . . It reverse-engineered from a desired future without making sufficient allowance for what might happen en route, or indeed for unintended consequences."[37]

The essential issue with these concepts is the leap from the need for some degree of simplification and reductionism in specific practice to enduring concepts whose purpose is to simplify or reduce, often with little respect for context. Theory emphasizes continuity, whereas practice is the realm of specificity and change.[38] Colin Gray explicitly set strategic theory against principles of war, as he argues, "A primary virtue of strategy's general theory lies in its ability to discourage capture of the entire process of creation and execution by a few principles."[39]

It comes as no surprise that some observers believe the strategist's task to be impossible. The historical track record is admittedly not good. Much of strategic theory is comprehensive and misunderstood as requiring the strategist to master every facet personally, whereas other concepts and theories are expansive and actually *do* mandate such a master strategist. At the same time, some of the most recent reductionist theories of strategic effect have tended to anticipate the effect before considering the means and ways to achieve it, thereby turning causation on its head. Moreover, the very notion of enduring, reductive concepts of how to perform strategically and wage war effectively may be suspect.

Practicing Strategy

Strategy must be practiced, but the steps and missteps of both theory and practice indicate the level of challenge. Practicing strategy is difficult, practicing it well enough to succeed even more so. This is true for any interpretation of strategy. However, much of modern strategy exacerbates the challenge by tending to define strategy broadly, encompassing all instruments of political power or by casting its effect far into the future—or both. Each definitional change increases the difficulty of practicing strategy.

Broadening strategy increases the number of variables the strategist must control to achieve effect, while potentially obscuring important differences of nature among these various instruments. Military force is unlike any of the other available political instruments, such as economic coercion or inducement, diplomacy, propaganda, etc. For this reason, Michael Howard has argued, "For after all allowances have been made for historical differences, wars still resemble each other more than they resemble any other human activity."[40] War is a continuation of political intercourse but is distinguished from that intercourse by the primacy of military force as the engine for political consequence and change. The threat of, or actual, violence conducted by military force constitutes a unique consideration among all other instruments, different as they may be. Classical strategy was defined narrowly on the utility of force specifically so that its unique focus could be properly understood and effectively employed.

For strategic practice, casting strategy far into the future is similarly troublesome. First, although one may be strategizing for a distant future, one must survive the present in order to reach that point. "It is a persisting, unavoidable truth about national security and defence planning that security in the future is always incalculably hostage to decisions made today for today and the near-term."[41] In this sense, strategy for the long-term may well be impossible simply because it may be set awry five or ten or more years before its anticipated culmination, causing strategists to mortgage their polity's more distant future to secure short-term survival. Second, as time passes, the assumptions that underpinned any policy or strategy are inevitably shown by the course of events to have been flawed.

All strategists must adapt their chosen strategies to the realities of any given situation, but if strategy becomes entirely about the process of adapting a polity's policies over time, then it is functionally no

different from actual politics. Politics never ceases, being merely the distribution and employment of power, but it is thereby also without inherent content. It must ever be made and remade by the politicians who practice it. Concepts of grand strategy such as that put forward by Kennedy are consequently effectively indistinguishable from politics. Classical strategy largely avoided these pitfalls because, due to its emphasis on military force, it limited attempts to peer into, and change, the future purely to the conduct of war and questions of war—although admittedly some wars may last thirty or eighty or one hundred years, whose long decades are usually littered with failures necessitating change of strategy, even if not substantive alteration of objectives. As Hew Strachan has noted, "Once strategy moves beyond the near term, it struggles to define what exactly it intends to do."[42]

Even classically understood, strategy was always the most difficult of all social interactions between people and groups of people. It is, after all, a deliberately adversarial activity in which each party is attempting to impose its will upon the other. Moreover, violence and political consequence—particularly in the guise of political decision-making—are two mutually alien phenomena. Strategy must attempt to achieve a currency conversion from one to the other—violence to political consequence—while simultaneously preventing the enemy from similarly gainfully converting the former to the latter. Concurrently, every military action does have political consequences, frequently uncontrollable. "War is inherently a subset of politics, and every military act has political consequences, whether or not these are intended or immediately obvious. In the grip of battle, it is hard to remember that every building destroyed, every prisoner taken, every combatant killed, every civilian assaulted, every road used, every unintentional violation of the customs of an ally ultimately has political import."[43] These political consequences may be ironic, they may be counterproductive to the purpose of strategy or policy, or they may not meaningfully influence strategy and policy at all during the war or even in the longer term. The strategist's task is to balance the advantageous and disadvantageous political consequences of military action so that ultimately peace may be made on terms that are beneficial for the strategist's polity.

Arguably, in some ways making that currency conversion has become more difficult since the days of classical strategy. War was made not by apolitical generals but rather by actual leading political figures—whether heads of state or government, or generals trusted by their

governments to act politically, and not just strategically. "Kings and emperors, along with some trusted advisers, still customarily went to war and directed its conduct in pursuit of an acceptable outcome. Strategy directed tactics with great immediacy and intimacy. The decision as to whether to fight or not, where to fight, how to fight, and how long to fight, as well as what risks were acceptable and what costs bearable, were made 'on the spot' by the head of state."[44] One may similarly note that politics directed strategy with great immediacy and intimacy. Events on the battlefield directly impinged upon the minds of the primary political decision-makers of a polity. From the French Revolution to the present day, Western armies have grown, Western battlefields have grown, and Western policymakers have stepped increasingly further away from the battlefield, physically and mentally, perhaps making it more difficult to alter a foe's political decision making because of this increased physical and mental distance.

Second, accelerated in part by the revolution in communications, many enemies faced by the West over the past two decades have been groups of like-minded combatants, each individually deciding when their fight is over, particularly if their organization has not been defeated or destroyed, but sometimes even if it has. Clausewitz cogently posited that in war, the result is never final. As M. L. R. Smith noted, if each and every individual active in a war must decide whether or not to continue fighting—let alone those who only witness the events of war and then decide to join rather than abstain in resistance—then the strategist's task may well become exponentially more difficult regardless of how one defines it.[45] This tendency may only have been increased by the West's desire to wage bloodless wars against the leadership while avoiding involving the people as far as possible. Although the lesson is surely more generalizable, in 1926 in *The War in the Air*, H. G. Wells had already prophesied that the outcome of targeting leadership would not be victory but chaos. "The Germans had struck at the head, and the head was conquered and stunned—only to release the body from its rule. New York had become a headless monster, no longer capable of collective submission."[46] Western strategic practice may be counterproductively conceptualized and designed to atomize the enemy into M. L. R. Smith's quantum world of literally mass individual choice.

Humanity's history of strategic practice stretches back approximately 4,500 years. This history attests that strategy is difficult and that many, probably most, strategists failed at their task, not performing

well enough to win the war in question. However, for every unsuccessful strategist there is likely to be a successful one, someone who *did* perform well enough to prevail in each conflict. Failure is not generic to strategy, but it is endemic, owing to the adversarial nature of strategy relating two mutually foreign considerations one to the other. Today, whatever the West's recent failures have been, they have yet to be ruinously catastrophic for itself. A three trillion-dollar war such as Iraq that mostly failed to improve—and perhaps worsened—the regional geopolitical situation is by all standards a disaster, principally for the territory where it played out. Because of strategic disaster, many polities have entirely vanished from history, and only occasionally does one return after true catastrophe in war. The Western bloc, led by the United States, remains the most powerful collection of strategic actors on the planet, whose failures and disasters of the past two decades have not yet toppled it from this position. Instead, these missteps have narrowed the lead and allowed rivals to challenge it, generating anxiety over whether the United States is now capable of winning a great power war.[47]

Conflicted military and strategic thinking veers from comprehensiveness for education to reductionism for guiding practice. Both represent continuity, as opposed to the incessant change inherent in actual practice. Yet it is likely that comprehensiveness or reductionism—continuity or change—alone is insufficient. Pure focus on continuity results in over-many strategic surprises, shocks, and failures in practice, while wholesale emphasis on change produces poorly thought-out, unsystematic concepts and practices for every new challenge that appears. Strategy in practice requires both. First, comprehensive theory both creates a foundation for the strategist to focus on what is important in a particular situation and enables the strategist to be ready to shift focus from dimension to dimension as circumstances demand. Second, the reductive impulse enables the strategist to focus on what he or she believes to be truly important in their unique context. The product of such a mixture would be what Wayne Hughes, in discussing the command capacities of US Admiral Raymond A. Spruance, called "the mental equivalent of peripheral vision."[48] This is an awareness of the whole dynamic system of war that is at least sufficient to enable the strategist to identify what is truly salient for the circumstances at hand.

What to Expect from Strategists Today

Strategy, albeit difficult, *can* be successfully practiced. Before considering what should be expected of today's strategists, how does one define "strategist"? The distance created in modern times between the battlefield and political decision makers has been partially filled by a defense-related bureaucracy, which expands the set of persons who may arguably be considered strategists, even classically understood, while possibly also impelling the previous few decades' expansion in meaning of "strategy" and "strategist" while threatening to bifurcate strategy into separate concepts and processes, which may not necessarily interconnect effectively.[49]

Strategy is relational, instrumental, and adversarial, dealing with the political utility of armed force and violence between enemies. The simplest definition of strategist would therefore conclude that a strategist is someone who is positioned to consider that relational task or has actual responsibility for important segments of that task. Those who determine the political aims for force practice one aspect of strategy, while those who command the armed forces required to fulfill those political ends practice on the other side of Gray's strategy bridge. The time when one person or a small set of persons of similar background is responsible for the full expanse of the strategy bridge is well past. The core of practicing strategy is now the conduct of civil-military relations to ensure that one's own strategy is being effectively made and executed, while simultaneously preventing the enemy from sending it awry.

Strategists must understand armed force. They must appreciate its utility its limitations, and what it means to employ force. Depending on its character as land power, sea power, air power, space power, cyber power, and others, force may deny, take, or exercise control of the operational pattern of the war. It may change a regime, but it will not itself cause a change of political culture although it may enable circumstances allowing a gradual cultural shift. The use of armed force immediately indicates political will and goals, which must be understood. Moreover, possible interactive relationships between force and nonmilitary political instruments must be, but frequently are not, recognized and appreciated. As Lawrence Freedman rightly argues, "The view that strategy is bound up with the role of force in international life must be qualified, because if force is but one form of power then strategy must address the relationship between this form

and others."[50] Misreading these relationships results in mistaken policy, strategy, and statecraft, as occurred over Crimea in 2014.[51]

Strategists must also understand the adversarial interactivity inherent in the practice of strategy. Force is employed because there is a political competitor whose policies and actions will not change unless one imposes his own will upon that actor, who will inevitably resist and retaliate. The practice of strategy, that is the use of force, may cause escalation in war as each side seeks to out do the other. The enemy, an independent actor in war, forces strategists to adapt to an ever-evolving strategic situation, thereby also setting the bar for strategic competence. Colin Gray's good enough strategy is one that defeats the enemy. Strategies better than good enough merely defeat the enemy more efficiently. Tactical results of combat are an important indicator of how well one's strategy is working, but, because war is also relational, there will be cases where one's first defeat may be one's last, if political capitulation precedes military or strategic adaptation.

Strategists must understand a final aspect of strategy: relating military force to political consequences is an uncertain, nonlinear process of currency conversion whose conversion rate the strategist generally does not know. Wherever they personally may be on the strategy bridge, strategists must be prepared to engage with considerations on the other side of that bridge, as Eliot Cohen has stridently argued:

> Political leaders must immerse themselves in the conduct of their wars no less than in their great projects of domestic legislation; . . . they must master their military briefs as thoroughly as they do their civilian ones; . . . they must demand and expect from their military subordinates a candor as bruising as it is necessary; . . . both groups must expect a running conversation in which, although civilian opinion will not usually dictate, it must dominate; and . . . that conversation will cover not only ends and policies, but ways and means.[52]

Their counterparts, the generals, must similarly escape the apolitical shell of operational art to engage with the political aspects of the war. Tommy Franks' dichotomy of day *of* and day *after* has been shown not to hold in practice, nor can it.[53]

Any strategist with an understanding of these three key elements of strategy—force, adversarial interaction, and currency conversion—will be prepared to approach seriously the practice of strategy. Many

more influences, considerations, and variables remain—any strategist has an ethical code or religious or cultural inclinations; they will be limited by the realities of logistics and military administration; the tactics must be sufficient for the strategy to succeed, and so on. But many of these are relatively ancillary to the core nature of strategy, many will have their own professional experts, and many will simply be uncontrollable by any human agency.

Conclusion

Can strategy be mastered? Arguably yes, according to classical, relatively narrow, definitions. Classical strategy is practicable. It is a concept based upon actual experience of war, unlike the many academic definitions that sprang forth from the atomic mushroom. Strategy is and remains highly multi-dimensional, as codified by Colin Gray. If strategists understand the basic natures of war and strategy and the galaxy of dimensions that may influence strategy, they will have a firm foundation for thinking about strategy and for acting strategically.

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Chapter 9

Tragedy and Strategy

Human Miscalculation and the Work of Colin S. Gray in the 2020s and Beyond

C. Dale Walton

I cannot claim that the future must resemble the past closely, but I do claim that 2,500 years provide solid enough evidence for the correctness of Thucydides' argument that human political behaviour is driven and shaped by a mixture of three master motivations, "fear, honour, and interest." His insight, expressed as quoted, is probably worth more than the whole library of studies produced since 1919 on the "causes of war."

—Colin S. Gray

"Another Bloody Century," *Infinity Journal*

The latter years of Professor Colin S. Gray's life and career coincided with the West's Cold War victory—a historical break that opened new potential paths down which history might develop. Even before the Soviet Union's dissolution, a potent "victory disease" already was spreading through the policymaking establishments of NATO's then-member countries, particularly that of the United States.[1]

With the Soviet collapse, the US policy-making community soon abandoned any lingering belief in the value of strategic restraint. The only lesson worth remembering was the failure of appeasement vis-à-vis Germany in 1938; everything else could be discarded as inapplicable to the building and maintenance of the *Pax Americana*.[2] The neoliberal variant of liberalism had won, and now that victory was to be sealed once and forever. Unfortunately, however, allegedly indispensable superpowers, unhinged by their own success and preaching radical historical theologies, are dangerous to everyone, including themselves.

The decades immediately after the Cold War's endgame might be dubbed the "End of History Era," after Francis Fukuyama's 1989 article, "The End of History?," and subsequent 1992 book, *The End of History and the Last Man*.[3] (The disappearance of the question mark from the

title in the years between 1989 and 1992 nicely symbolizes the confidence of the time.) It would, however, be unjust to make Fukuyama the chief scapegoat for the lack of restraint exercised by US policymakers—indeed, by the early 2000s, he was loudly warning contemporaries that Washington's hubris and excessive reliance on military power could be expected to result in strategic disaster. The End of History thesis, particularly the detailed version enunciated in the 1992 book, was complex and, in certain respects, grim—a vision of a global civilization where struggle and meaning were replaced by prosperous anomie and an overwhelming sense of existential futility.

The core of Fukuyama's thesis is that liberal democracy *eventually* will triumph, the last combatant standing in a millennia-long competition among competing political philosophies and their respective conceptions of governing legitimacy. Whether that supposition will prove accurate remains unknown, of course. There are numerous persuasive arguments that it will not; Gray himself was deeply skeptical, which is unlikely to surprise anyone familiar with his work. In any event, Fukuyama did not conjure a simple fairy tale with a happy ending brought about by precision bombing and the occasional land invasion. Authors, however, ultimately do not control how their work is interpreted.

Gray was invulnerable to post-Cold War delirium, as his analysis of global politics was based on first principles derived from the record of human behavior over preceding centuries. This caused much outrage among fellow academics who willfully ignored facts that might undermine their own preferred variation of a "this time is different" narrative.[4] The rise of multinational organizations, the economic and military power of the United States, the personal connections forged through business and what came to be called social media—*something* had happened that ensured there would never be another great power war. Furthermore, interstate warfare itself would soon exit the stage, though this might take a bit more time and Western military muscle. Humanity did not want war—no doubt true, given that the abstract social institution "war" tends not to have a high public approval rating—so now, as John Lennon and Yoko Ono had promised, it was over, or very nearly so. Gray knew better, working tirelessly to inject "small-r realism" into debates concerning US and UK strategy and defense planning.

The post-Soviet fog of peace now has burned away, compelling all but the most desperate optimists to accept that great power competi-

tion is a twenty-first century reality. Very few of those who dismissed Gray's views as anachronistic and alarmist, however, seem to have learned much from the last 30 years, having traded a crude interpretation of Fukuyama for hysterical alarmism. In 1991, they knew that Russia and China must soon become stable democracies or face disintegration. The two countries declined both options, and by 2017, the smart set knew that Moscow was plotting to bring down democracy globally and that its pliable agent occupied the Oval Office. Today, they know that the United States government was threatened existentially by a mob of oddballs in January 2021. Thus, among other pressing tasks, the military and police ranks must be purged of ideological deviants, allowing Washington to conduct its developing Second Cold War against China and Russia while concurrently crushing the (purportedly massive) rightist terrorist threat at home. This would be light comedy if limited to the left equivalent of a John Birch Society newsletter. The *Washington Post* energetically driving its readers into neo-McCarthyism, however, is a joke with a scorpion's sting.

Gray was far too canny to spout such nonsense. In a 2014 piece, his friend James J. Wirtz accurately described him as "a reluctant theorist," careful to ensure that "every explanatory claim, relationship or premise . . . is honed to a razor's edge so that it is finely balanced and completely qualified. No theoretical statement claims too much or too little, no point is left untested, no relevant context is ignored."[5] (Also, see appendix.) Gray was a strategist in the fullest sense, always seeking to identify potential logical holes in his own arguments. He readily filled them, when possible, but always emphasized that strategy was a practical art, not an engineering exercise. Abstracted perfection, or even something approaching it, was impossible, and pursuing it was folly. Of course, strategy had to be good enough, or national disaster could be expected to result. Whether a strategy was good enough, however, was inseparable from the historical context in which it was constructed and maintained. The US opponent in the Cold War was the Soviet Union, not a Republican Rome or Qin Dynasty with nuclear-tipped missiles. Washington's containment strategy certainly might have failed disastrously against such imagined opponents, but that is immaterial to the assessment of the actual historical record. Grappling with the state founded by Lenin in 1917 in the sociopolitical context of the latter twentieth century, US grand strategy was sufficiently skillful to snare a decisive victory over its Soviet foe.

This record did not prove Washington possessed awe-inspiring strategic acumen—that would be a laughable boast for the super-power that had so comprehensively botched the Vietnam War, among other notable miscalculations.[6] Washington's performance could be validly critiqued on a multitude of points, but containment held well enough to allow an outcome that would have seemed deliriously overoptimistic from the perspective of the mid-1940s. The mere fact that the two superpowers had stockpiled tens of thousands of nuclear warheads but somehow refrained from deploying them in combat against any foe surely would have been an agreeable surprise to many 1940s policymakers. President Harry Truman, after all, was the first, and thus far only, human being to personally authorize using nuclear devices to indiscriminately slay tens of thousands of civilians.[7]

Return of the Bad Times

It is characteristic of Gray that, in his 1994 inaugural professorial lecture at the University of Hull, he bluntly delivered a pointed and unwelcome message: "Bad times return." While noting that such a "bald statement cannot be proved," his warning proved farsighted, as usual:

> Anyone who would argue that security threats of a traditional kind are now passé for the developed world must ask more of the available evidence than it can presently bear. It is not suffi-cient to look out today and proclaim the absence of major threats. The same exercise was conducted throughout the 1920s. One always can say, "This time things are different." What is more, one will be correct. Things always are different. The trouble is that, to date, they have not been different enough. . . . One cannot specify exactly when, precisely for which reasons, or specifically to what degree, bad times will return. All that one can say is that thus far in recorded history times of trouble always have returned, albeit for a rich variety of reasons. Confi-dence in the growth and functioning of conditions that make for a lasting political peace should be restrained.[8]

This was a decidedly unpopular view at the time, particularly as it was accompanied by Gray's insistence that what he called "super threats" might emerge in a nonlinear manner, possibly with apoca-lyptic results.

Gray's warnings were not heeded, unsurprisingly, and Washington spent the 1990s and early 2000s squandering its recent victory. The most tangible return on investment from the trillions of dollars poured down various ratholes has been hundreds of thousands of graves and global ill-will toward democracy. A reasonable critic might argue that Gray's perspective on how best to minimize future danger was flawed—that, for example, the United States should have used its unipolar status to construct a global order in which its own power was deliberately, openly, and progressively diminished. Whatever the merits of such an argument, many disastrous choices already had been made, or were in train, by the time Gray delivered his lecture. He readily could envision a possible future to which less-gifted contemporaries were oblivious.

It very possibly would have been desirable for the United States to respond to the Soviet Union's end by dismantling NATO and, even more counterintuitively, wholeheartedly assisting Russia's efforts to restabilize its great power status. The Americans instead queued up former Warsaw Pact states for NATO membership and indifferently tossed a relatively tiny amount of money, accompanied by pompous, self-congratulatory ethical lectures, at Moscow. US government officials, notably including future Treasury Secretary and Harvard President Larry Summers, further "helped" by encouraging a program of economic shock treatment so indifferent to Russian conditions, and the well-being of that country's population, that it might as well have been designed by scholars orbiting Alpha Centauri. We can only speculate as to how matters might have developed subsequently if the United States had not been so rough and careless. It certainly is conceivable, though, that Russia's leaders today would not be convinced that Washington is waging an untiring effort to strangle their country. American policymakers still repeat clichés about Russian paranoia, studiously refusing to notice that post-Soviet US foreign policy aligns well with Moscow's interpretation of contemporary history.[9]

Most of Gray's professorial and policy making peers believed, circa the mid-1990s, that a breakdown of the liberal order was impossible, or nearly so. Ostensibly cutting-edge political science techniques and fanciful theoretical paradigms had demonstrated that bad times never would return. Leaders would have to permit democratic reform and respect human rights if they wished to survive and thrive. The alternative was North Korean squalor, and, in due course, probably a human rights trial at The Hague. This time *had* to be different;

like frantic gamblers on a lucky streak, academics and policy makers stayed at the table, convinced that their decisive triumph over tragedy soon would be secured.

What is the current condition of the liberal world order of which professors and politicians still speak? It is deceased, beaten to death by the errors of the last three decades and their consequences. Most noticeably, Xi Jinping exercises autocratic command over the world's most populous state and, in purchasing power parity terms, largest economy. That same country even now is openly inflicting mass scale crimes against humanity on its Uyghur population. Policy makers who regularly deliver pious "never again" sermons, decrying the evils of ethnic bigotry and lecturing their populations on their responsibility to help the vulnerable, have left the Uyghurs to that fate.

A quick sketch of political conditions in some other major countries provides additional supporting evidence for the liberal order's passing. The second most populous country on earth is helmed by Narendra Modi, whose dictatorial instincts and eagerness to remake India as an explicitly Hindutva state do not inspire confidence in either his liberal credentials or commitment to human rights. Moving from great to middle powers, Iran's most reactionary elites appear to have successfully browbeaten their more moderate peers, leaving foreign and domestic affairs largely under the control of Revolutionary Guards officers and particularly excitable clerics. Further west, Turkey's Recep Tayyip Erdogan has reshaped his country into a personalist regime, mixing religion, Turkish ethnic pride, mercurial decision making, and a taste for imprisoning political opponents together into a developmental dictatorship with both ultranationalist and Islamist characteristics. That he has now managed to position Ankara as both a NATO member and a de facto enemy of several NATO powers, including the United States, is impressively counterintuitive, though likely unwise. Moving southward, Ethiopia's Abiy Ahmed Ali won the Nobel Peace Prize in 2019 and then proceeded to commit mass war crimes against Ethiopians of Tigrayan ethnicity.

The 1990s-era conviction that variants of Clintonism and Blairism offered useful answers to the great questions of the twenty-first century always was fanciful. "Third Way" politics was merely an improbable ideological and economic bank shot. Nondemocratic countries would be woven into a web of liberal institutions, their ruling classes seduced by the prospect of enhanced national power, personal or familial financial gain, and newfound respectability. The juggernaut's momen-

tum would grow as liberal values trickled down from Davos to the aspiring global middle class. This process was to be accelerated by the spread of information technologies provided by Western, chiefly American, corporations, which purportedly were devoted to free speech and open societies. The tax revenues and productivity gains resulting from the Information Revolution would allow Western governments to maintain and expand their welfare states while still leaving ample resources for US-led peace operations and other foreign endeavors. The process would culminate in universal prosperity and democracy, a New Jerusalem of affluent and empowered global citizens.

This construction soon toppled. Already by the 1990s, most Western governments were concurrently bloated and ineffectual, providing costly, low-quality public services to disaffected citizens. Concerns regarding massive deficit spending were waved away, while global "markets" degenerated into a house of cards requiring constant "repair" by central bankers. This, in turn, utterly distorted those markets, holding off economic disasters in the short term but guaranteeing utterly devastating future ones. The 1990s neoliberal vision was replaced by a nihilist dystopia offering endless wealth for the few, precarious affluence for the upper levels of the middle class, and lifelong debt serfdom for the masses.[10]

Not only has unipolarity ended, but the United States itself is also no longer capable of serving as a reliable guarantor of global order. Its foreign policy is mercurial in the worst sense, not flexible and adaptive, but rather anti-strategic. Gray always emphasized that competent strategy requires that available means be firmly connected to goals—a point central to *The Strategy Bridge,* one of the major works in his oeuvre.[11] For decades, the US defense and foreign policy establishment has proven incapable of doing this consistently.

The Imperial Crack-Up

In 1991, it could be argued plausibly that US mismanagement of the Vietnam War was a policy anomaly caused by bureaucratic structure, dubious strategic notions (graduated escalation in particular), key policymakers desperately lacking in strategic acumen, and similar issues.[12] US performance in the Persian Gulf War appeared to buttress the supposition that the American policy establishment had woven the hard lessons taught in Indochina deeply into its institutional fab-

ric. This soon proved illusory. The 1990s were marred by small-scale fiascos, such as US intervention in Somalia and Washington's farcical effort to bribe North Korea into abandoning its nuclear program. In 2001, Washington shifted to the what became known, for a time, as the Global War on Terror, and it soon launched two disastrous Asian land wars. These catalysts, in turn, sped the collapse of a unipolar order based on US primacy.

The United States entered Afghanistan a mighty colossus; two decades later, its forces bugged out from Bagram Air Base in the middle of the night. In 2001, few in the policy establishment dared imagine that the American troops would spend two decades dying futilely, their leaders refusing to acknowledge the increasingly obvious fact that Washington could not will a strong Afghan national identity and reasonably capable government into existence. In both Democratic and Republican administrations, high-level civilian and military officials lied constantly, as the Afghanistan Papers damningly detail.[13]

The US policy establishment still refuses to tell the truth about its lost Afghanistan War, and now just resorts to gaslighting and hand-waving. In a July 2021 press conference, President Biden announced that the US had achieved its objectives in Afghanistan, asserting that, "We [the United States] did not go to Afghanistan to nation-build." In the same remarks, he responded to a reporter's question by denying any comparison between Vietnam and Afghanistan: "None whatsoever. Zero. What you had is—you had entire brigades breaking through the gates of our embassy—six, if I'm not mistaken. The Taliban is not the south—the North Vietnamese army. They're not—they're not remotely comparable in terms of capability."[14] Perhaps, going forward, any American military endeavor in which the local US embassy is not overrun by enemy troops is to be regarded as a victory.[15]

The Iraq War also was a calamitous failure, born of and maintained through falsehoods, and an even more consequential one strategically. Nationalistic Americans watching the fall of Saigon at least could take comfort that most of the weapons wielded by the North Vietnamese had been provided by communist powers. The footage of desperate South Vietnamese clinging to departing Huey helicopters as their country disintegrated is Shakespearean tragedy, while that of ISIS goons driving Abrams tanks gifted to the Iraqi army is dark, absurdist comedy.

There were many other momentous failures. Humanitarian intervention in the Libyan Civil War helped the country down a road that

led to state failure, grave worsening of the EU refugee crisis, and the emergence of slave markets, among other evils. It is telling that, after a brief flurry of attention in 2017 and early 2018, concern for Libya's slaves quickly dissipated. The US government and major international bodies subsequently have paid little meaningful attention to the issue.[16] These are not the actions of a superpower capable of using its authority and resources to enforce any global order, much less one supposedly grounded in human rights. "Never again," indeed.

During the Cold War, particularly its early years, the United States government made a multitude of errors and was responsible for numerous crimes against humanity, including, in some cases, against its own citizens.[17] In fairness, however, the policy makers of that era at least could plead mitigating circumstance, as they were products of a radically different US political culture and operating in a dissimilar global environment. In the early postwar years, the United States only recently had concluded a vicious but victorious war against politically psychotic totalitarian states, and faced a Soviet Union commanded first by Stalin and, subsequently, his onetime lieutenants. US decision makers of the 1990s had a radically dissimilar frame of reference. They steered a country that had achieved global quasi-hegemony and was in possession of conventional military instruments more potent than those of all its competitors combined. That they proceeded to fail so catastrophically in building and maintaining global order, and caused unthinkable suffering while doing so, is persuasive proof of deep strategic incompetence.

The *Pax Americana* was a failed experiment, but its superstructure remains in place. This includes a NATO that has expanded to places in which the United States has little plausible strategic interest. In March 2020, little North Macedonia, a Balkan country whose economy is dwarfed by that of the Providence, Rhode Island, metropolitan area, became the alliance's thirtieth member. To believe that this enhances the security of Americans requires numerous dubious assumptions. The argument that future admission of Georgia and Ukraine will further improve matters is best paired with powerful hallucinogens.

The US foreign policy establishment has no notion of how to escape its cycle of ever-expanding self-imposed duties, which, in turn, inflict financially and politically unsustainable costs while simultaneously damaging their country's reputation. The American style of strategy, which Gray so insightfully described, has become the victim of its own success.[18] Most policy makers appear oblivious to this reality.

New administrations come to office, slap a coat of paint on failed policies and strategies, and declare success. The usual box of excuses—the ineptitude of the previous administration, the wickedness of the other major political party, and so forth—is always kept handy for subsequent embarrassing failures.

The broad outline of America's strategic future is summarized by the late economist Herbert Stein's eponymous Law: "If something cannot go on forever, it will stop." While framed with reference to economic affairs, Stein's Law is just as useful in describing international relations. Expensive folly sometimes results in short-term catastrophe. However, a country that initially is rich and militarily secure may continue to endure self-inflicted humiliations for a surprisingly long time. In some cases, the march of folly ends with far-seeing leaders decisively repudiating the failures of the past, initiating a cycle of reform and renewal. The strategic game is a merciless one, however, and more often foolishness just results in prolonged failure and, if the polity in question survives, the acceptance of irreversibly diminished standing at the international table. The defunct British and French Empires are illustrative; London and Paris remain global players, but their influence was exponentially greater a century ago.

It is possible to imagine various prudent strategies that British and French leaders might have taken to liquidate their unsustainable empires while still guarding their national power and prestige (and, in the French case, perhaps even permanently retaining portions of Algeria). Even well before the Second World War, some policy makers saw that imperialism in the Victorian style was both unethical and untenable. But strategy is a realm of paradox and irony, a fact notably appreciated by both Gray and his contemporary Edward Luttwak.[19] Despite his formidable reputation, Winston Churchill's dedication to empire likely was enormously damaging to British national power over the long term; if he had been an ardent anti-imperialist and acted accordingly, the long-term results likely would have been far better for London.

Mass-produced rifles and modern communications technologies may have been invaluable in building these empires, but these implements also made them far easier to tear down. The sunk cost fallacy kept the imperial enterprise going for a time, but nationalist energies and unsustainable costs, as well as embarrassment at the hypocrisy of alleged democracies denying self-rule to most of the people under their flag, made it hopeless. Arrangements that might once have been

satisfactory to colonial elites became unthinkable—an unsurprising outcome for those well-versed in the early history of the United States.

The US policy establishment remains unwilling to conceive of an international order in which Washington does not serve as paramount leader. That prospect is treated as unworthy of discussion, save as a parade of horribles: Chinese strategic dominance of Africa, Asia, and Australia; Europe subservient to Moscow; recurrent major terrorist attacks on US soil; the global eclipse of liberalism as a governing philosophy; and so on. Thus, the United States remains on a course that probably will soon lead to irredeemable strategic failure.

Washington's empire is radically different from those of Paris and London in numerous critical respects. Most obviously, though the US government often appears uninvited in other people's countries, it certainly never plans to send bureaucrats in pith helmets to boss around the local populace for a century or two. Most often, it merely delivers firepower from the air, perhaps supplemented by a small number of special operators on the ground. In these cases, it usually prefers not to think too much about local political consequences that might prove appalling and enduring. (The manifest results of Washington's far more ambitious efforts in Iraq and Afghanistan hopefully will dissuade it from any similarly gratuitous debacles.) The United States perceives itself as the CEO of and dominant shareholder in the neoliberal global order. It does not see what it does as imperial maintenance and expansion, but rather as tough management by a no-nonsense executive.

Sagely, Gray often reminded his students that "the future is not knowable in detail."[20] There is, however, a recent case of imperial collapse with disturbing parallels to Washington's present situation: the decay of the Soviet Empire. Like the Americans, the Soviets understood themselves to be the agents of history—as ruthless as circumstances required, but undoubtedly a force for good. As the USSR corroded, its leadership retreated ever deeper into fiscal and geopolitical fantasy; Leninism's vindication always remained around the next corner. The immediate task was to counter Western economic and technological advantages—given sufficient time, the decadently consumerist and hypocritical United States would rot away.[21] History, however, refused to develop in the manner that Soviet policy makers demanded.

The outcome of the Cold War was not decided on battlefields, though military strength likely was a prerequisite for US victory. Leninist economics was akin to a piece of software riddled with subtle, but

cumulatively devastating, bugs in its code. That the software encouraged certain gross brutalities was obvious if one properly understood its architecture. For example, early Soviet industrialization policy required draining the country's rural population of assets ranging from gold coins to handfuls of grain. That this process would result in adverse side effects, including widespread starvation unto death, was predictable. That the software suffered from inherent limitations that made it deeply inferior to that employed by its main competitor, however, was unsayable. The entire Soviet enterprise was predicated on the opposite assumption; by the time Moscow was willing to confront reality, it was far too late to prevent total disaster.

Soviet economic strategy was fundamentally oppositional, attempting to outflank the richer West by crafting a Second World international economy, which would outperform the market-based one dominated by the United States. The Chinese Communist Party learned from Moscow's disappointments, deploying a mixture of ruthlessness and reform to survive in power. It blended free enterprise and authoritarian politics to create a distinct system that attempts to *leverage,* and ultimately control, international markets instead of resisting them. China thus integrated itself into the global economy, initially as an unpretentious producer of cheap goods.

Beijing enjoyed favorable demographic circumstances, especially in the early post-Mao years. Hundreds of millions of young workers were compelled to choose between grinding rural poverty and competing for very low-wage work in urban areas. While, in the early twentieth century, the Soviets undertook measures that further immiserated an already distressed rural population, Beijing instead offered the melancholy life of an internal migrant laborer in exchange for the prospect of a radically better personal and familial future. It also tacitly permitted a Wild West entrepreneurial atmosphere marked by worker exploitation, public corruption, and indifference to inconvenient regulations concerning environmental protection, consumer safety, and similar matters. This fundamental socioeconomic shift jumpstarted a transformation, and China's wages and general economic prosperity have increased dramatically. Production of goods like textiles and plasticware is shifting to other countries, while China's new factories build electric cars, windmills, advanced weapons systems, and other high-value products. Soviet economists only dreamt of such a victory.

A self-satisfied United States, by contrast, allowed its incumbent advantages to disintegrate. Even as late as 2019, then-presidential candidate Joe Biden, in an address peppered with curious assertions, dismissed Beijing as a serious competitor:

> "China is going to eat our lunch? Come on, man," said Biden. . . . He argued that Beijing has its hands full dealing with its own domestic and regional problems, such as tensions in the South China Sea—which Biden called the "China Sea"—and the "mountains . . . in the west." It was not clear to what mountains or issue Biden was referring. . . . "They can't figure out how they're going to deal with the corruption that exists within the system," Biden said of China. "I mean, you know, they're not bad folks, folks. But guess what? They're not competition for us."[22]

In 1957, the United States responded energetically to the successful Soviet launch of the Sputnik satellite. By 2019, its future president publicly waved away the challenge posed by a country that unambiguously had declared its intention to become the global trailblazer in high-tech research and engineering, including areas such as artificial intelligence, quantum computing, biotechnology, and robotics.[23]

Conclusion: Tragedy Knocks

Historians of strategy one day will examine the three decades after the USSR's demise as a case study in grand strategic failure. Moreover, although US strategy proved decisively superior to that of its Soviet counterpart in the circumstances prevailing from the mid-1940s to 1991, the old containment framework would be ill-suited to the 2020s. Regardless of the similarities between their flags, today's China bears little resemblance to the Soviet Union in most of the ways that matter to strategic success.

Any belief that a revival of square jawed Reaganism provides a way forward is delusional—a patriotism epitomized by swaying wheat fields and *Top Gun* heroics appears fanciful to a people who are undergoing a collective sociopolitical nervous breakdown. Moreover, a mildly reconfigured Cold War-era grand strategy also would be deeply ill-suited to the problem at hand. Among other complications, the United States has an explosively rising national debt, while its Chinese peer competitor is central to global trade and technological

innovation. (In the 1980s, most Americans owned no high-tech products designed or produced in the USSR, save perhaps for a copy of the video game *Tetris*.) China does suffer from a long list of internal challenges, which quite plausibly *could* result in an end to Chinese Communist Party (CCP) rule. Such an outcome, however, would be driven chiefly by internal factors traceable to the CCP's own arrogance and cruelty. It would not represent the failure of a global communist vision so much as the backfiring of Ponzi scheme economic policies and internal political repression.

Having squandered its unipolar moment, Washington is a troubled and uncertain actor. Believing itself above disaster, it acted arrogantly, ignoring plentiful evidence of policy failure. Now, having been reminded that even the most impressive assets can be employed self-destructively, it is chronically fearful of innovative foreign and security policy. It mentally resides in a paranoid, nonsensical world in which it is farsighted and indispensable yet simultaneously so weak that minor dirty tricks, such as the purchase of Facebook advertisements by unfriendly foreign intelligence agencies, might destroy its democratic institutions. Unless it regains a measure of sanity and perspective, radically and unambiguously bad times almost surely will return. Indeed, it may already be too late: tragedy keeps its own schedule and arrives at the time of its choosing.

Notes

1. Colin Gray, *Defining and Achieving Decisive Victory* (Carlisle Barracks, PA: Strategic Studies Institute, US Army War College, April 2002), https://press.army-warcollege.edu. Gray addresses victory disease and related maladies.

2. Jeffrey Record, *The Specter of Munich: Reconsidering the Lessons of Appeasing Hitler* (Washington, DC: Potomac Books, 2006). The excessive, and generally regrettable, influence of the Munich analogy on US decision making is addressed. Events since the book's publication have provided further buttressing for many of the author's arguments.

3. Francis Fukuyama, "The End of History?," *National Interest,* no. 26 (Summer 1989): 3–18; and Fukuyama, *The End of History and the Last Man* (New York: Free Press, 1992). For more recent reflections on the End of History theme, see Mathilde Fasting, ed., *After the End of History: Conversations with Francis Fukuyama* (Washington, DC: Georgetown University Press, 2021).

4. Simply by standing firm against fashionable nonsense, Gray exerted a positive influence on his students and the wider scholarly community. There is a telling contrast between Gray's signature style of argument and that of the bulk of his contemporaries in academic international relations. His cheerful provocations and mordant wit enhanced his teaching immeasurably. One of the prominent markers of academia's ongoing degeneration is that emotive, humorless scolding now is regarded as model teaching in both Britain and the United States. Accepted best practice at American and

British universities today is to encase even PhD students in a thick layer of intellectual bubble-wrap, hopefully ensuring they will remain untroubled by any distressingly subversive thought. Gray openly scoffed at moralizing cant, as well as the pseudoscientific misuse of quantitative methods to "prove" claims reeking of baloney. Unfortunately, Gray and similarly open-minded scholars were both outnumbered and grossly disadvantaged by the more general collapse of academic standards. But he fought, and his students were the beneficiaries of his example. In pondering academia's present and future condition, the knowledge that decadent enterprises eventually collapse, thus revealing paths toward renewal, is a source of hope.

5. James J. Wirtz, "The Reluctant Theorist: Colin S. Gray and the Theory of Strategy," *Infinity Journal, The Strategy Bridge,* special edition (March 2014): 13–15.

6. C. Dale Walton, *The Myth of Inevitable Defeat in Vietnam* (London: Frank Cass/Routledge, 1999). My own PhD thesis addressed this subject, and I remain profoundly grateful to Prof. Gray for serving as my supervisor. To say that his brilliant contributions were essential to the final product would be an understatement. Moreover, thanks to his excellent supervision, the thesis subsequently required only modest modification for publication as my first book.

7. Colin Gray, "Harry S. Truman and the Forming of American Grand Strategy in the Cold War, 1943–1953," in *The Shaping of Grand Strategy: Policy, Diplomacy, and War,* eds. Williamson Murray, R. H. Sinnreich, and James Lacey (New York: Cambridge University Press, 2011), 210–53. Gray assesses Truman's record as a strategist.

8. Colin S. Gray, "Villains, Victims and Sheriffs: Strategic Studies for an Inter-War Period," *Comparative Strategy* 13, no. 4 (1994): 360, DOI:10.1080/01495939408402994. Originally published as *Villains, Victims and Sheriffs: Strategic Studies for an Inter-War Period, An Inaugural Lecture at the University of Hull,* 12 January 1994 (Hull, UK: University of Hull Press, 1994).

9. George S. Beebe, *The Russia Trap: How Our Shadow War with Russia Could Spiral into Nuclear Catastrophe* (New York: Thomas Dunne, 2019). A compelling indictment of three decades of US foreign policy failure concerning Russia.

10. On this point, see Joel Kotkin, *The Coming of Neo-Feudalism: A Warning for the Global Middle Class* (San Francisco: Encounter Books, 2020).

11. Colin S. Gray, *The Strategy Bridge: Theory for Practice (*New York: Oxford University Press, 2010).

12. See Leslie H. Gelb with Richard K. Betts, *The Irony of Vietnam: The System Worked* (Washington, DC: Brookings Institution, 1979).

13. Craig Whitlock, Leslie Shapiro, and Armand Emamdjomeh, "The Afghanistan Papers: A Secret History of the War," *Washington Post,* 9 December 2019, https://www.washingtonpost.com.

14. White House, "Remarks by President Biden on the Drawdown of US Forces in Afghanistan," 8 July 2021, https://www.whitehouse.gov.

15. The American press apparently continues to nurse the illusion that it remains fundamentally dedicated to the discovery of truth, shining the lamp of truth, shining its lamp without fear or partisan favor. The limp headlines and text accompanying *New York Times* and *Washington Post* stories on the press conference would seem to fit poorly with this narrative. See Michael D. Shear, David E. Sanger, and Thomas Gibbons-Neff, "In Forceful Defense of Afghan Withdrawal, Biden Says U.S. Achieved Its Objectives," *New York Times,* 8 July 2021 (updated 12 July 2021), https://www.nytimes.com/; and Cleve R. Woodson, Jr., Dan Lamothe, and John Wagner, "Biden Forcefully Defends Afghan Pullout Despite Taliban Gains," *Washington Post*, 9 July 2021, https://www.washingtonpost.com. That the president's forceful defense was an

assemblage of paper-thin "alternative facts" appears, somehow, to have escaped the notice of the six reporters and unknown number of editors who crafted the stories.

16. Nina Elbagir, Raja Razek, Alex Platt and Bryony Jones, "People for Sale: Where Lives are Auctioned for $400," *CNN* website, n.d., accessed 17 July 2021 at: https://edition.cnn.com; and William Lacy Swing, "The Abuse of Migrants in Libya is a Blot on the World's Conscience," *CNN*, 14 November 2017, accessed 17 July 2021 at: https://www.cnn.com/.

17. See, for example, Stephen Kinzer, *Poisoner-in-Chief: Sidney Gottlieb and the CIA Search for Mind Control* (New York: Henry Holt, 2019).

18. See, among other works, Colin S. Gray, *Nuclear Strategy and National Style* (Lanham, MD: Hamilton Press, 1986); and Gray, *The Geopolitics of Superpower* (Lexington, KY: University Press of Kentucky, 1988).

19. Edward N. Luttwak, *Strategy: The Logic of War and Peace,* rev. and enlarged ed. (Cambridge, MA: Belknap Press/Harvard University Press, 2002).

20. That insight is woven throughout Gray's work. He devoted many pages to this puzzle, notably regarding defense planning and nuclear deterrence. See Colin S. Gray, "Deterrence in the New Strategic Environment," *Comparative Strategy* 11, no. 3 (1992): 247–67, DOI: 10.1080/01495939208402875; Gray, "Deterrence in the 21st century," *Comparative Strategy* 19, no. 3 (2000): 255–61, DOI: 10.1080/01495930008403211; Gray, "Coping with Uncertainty: Dilemmas of Defence Planning," *Comparative Strategy* 27, no. 4 (2008): 324–31, DOI: 10.1080/01495930802358414; and Gray, *Strategy and Defence Planning: Meeting the Challenge of Uncertainty* (New York: Oxford University Press, 2014).

21. This view shaped Soviet foreign policy profoundly, as illustrated by the tenor of the documents in Christopher Andrew and Vasily Mitrokhin, *The Sword and the Shield: The Mitrokhin Archive and the Secret History of the KGB* (New York: Basic Books, 1999) and Andrew and Mitrokhin, *The World Was Going Our Way: The KGB and the Battle for the Third World: Newly Revealed Secrets from the Mitrokhin Archive* (New York: Basic Books, 2006).

22. Felicia Sonmez, "Biden Says 'China is Not Competition for Us,' Prompting Pushback from Both Parties," *Washington Post,* 2 May 2019, https://www.washington post.com.

23. Xi Jinping, trans. Ben Murphy et al., "Strive to Become the World's Primary Center for Science and High Ground for Innovation," speech delivered 28 May 2018, https://digichina.stanford.edu/. For a deeply knowledgeable perspective on China's artificial intelligence and related efforts, see Kai-Fu Lee, *A.I. Superpowers: China, Silicon Valley, and the New World Order* (Boston: Mariner Books, 2018).

Afterword

Derek M. C. Yuen

We have lost Colin Gray at a time when the poverty of modern strategic thought reaches a point of crisis, and a new paradigm is urgently needed for the great power competition between the United States and China. This is a grave situation, in particular as Gray's departure has left a void in the Western strategic community during the twilight of democracy and Western dominance.

I met Professor Gray and became his PhD student in 2002 at University of Reading, UK. I might have surprised him by proposing "strategic genius" as my research topic. But since Professor Gray had already progressed through his nuclear, geopolitics, and strategic culture eras and become a general theorist, I soon embarked on the path of general theory of strategy under his guidance and became one of his few students focusing on the subject matter with a Chinese variant.

Apart from Clausewitz, John Boyd, J. C. Wylie, and Ken Booth were the authors that we certainly would come across as Colin Gray's students. Through their works, I had found a way to rediscover Sun Tzu in the modern and general strategic contexts, and soon I started attempting to synthesize Western and Chinese strategic thought. It would still take me some years to realize that Professor Gray had indeed devised a promising way to study practically any foreign strategic entity, and with Gray's established framework, my studentship under his supervision soon effectively turned into a fruitful strategic dialogue between the East and West.

The fact that Gray had devised a way to study and fathom a foreign or non-Western strategic entity is of great importance to our times. Any emergent paradigm or strategic framework formulated for the competition with China cannot be seen as valid without standing the tests of theory, history, geopolitics, and strategic culture—these are the core building blocks of Gray's system of strategy and must be viewed as a whole. One could say that a system of strategy readily operative for competition with a foreign strategic entity is largely useless at a time when American hegemony and its way of war prevail. Alas, such a single-track strategic environment has become a thing of the past, if not forever lost.

In terms of the cognitive reorientation and preparation, this New Cold War with China is not that drastically different from the one

with the Soviet Union—in many ways it is merely a replay of the last one, except that we are in a much better position this time as Gray has prepared the ground for us. We can revert to strategic culture as an opener for cultural understanding and reorientation. Once we bridge the gap between the two worlds and become culturally informed, the West will then be able to transform its modus operandi from Clausewitzian to Sunzian and to play the same game with China (currently, clearly it is not). These are the throes through which the Western way of war has to go when facing its Chinese counterpart that keeps rewriting the grammars of war and waging its *own* war.

Another key to counter China's geopolitical ambitions and geoeconomic schemes is to reinvest in the study of geopolitics. We are still living in a contested world between sea power and land power, though this time it comprises an increasingly dominant geoeconomic dimension. Only through this painstaking process of refocusing and re-examination can the West build a new and lasting grand strategy to reinstate the relevance of strategy altogether. The refusal to walk the path will leave the fate of the Western world to astrategic, pseudo-historical, acultural, and oversimplified narratives, such as the "Thucydides Trap" and "Hundred-year marathon."[1] Sadly, this is the sorry state we are now in. Yet with Gray's enduring paradigm, we have known the path ahead so that the Western strategic community need not spend a whole generation of time to discern China's strategic intentions and its strategies.

In *The Strategy Bridge*, Gray writes "theory moves the course of history. Human behavior is driven by theory"—this explains why Gray "rewrote the same book multiple times" and spent the later stage of his intellectual life in examining the general theory of strategy, crystallizing in *Modern Strategy* and culminating in *The Strategy Bridge*.[2] Now with the change in the international situation and reversal of tides, we finally come to understand Gray's insistence on Clausewitz as well as the pedagogic and cognitive nature of strategic theory as specified by the Prussian. The search for a positive, scientific theory of strategy, regrettably, was in vain and has led us astray. However, Gray recognized that we had failed modern strategic thought, but strategy did not fail us. By maintaining that strategic theory only serves as a guide for strategists to support strategic practice and action, Gray reinstates the strategic logic and the general theory of strategy, safeguarding the final foothold of Clausewitzian and classical strategy upon which we can fall back when the strategic community fails its

task—this is his way of establishing the strategy eternal and keeping the strategic flame alive.

Even the most bitter enemy of Gray would admit that he was the modern Clausewitz—he became a giant in the field of strategy, but, just like Clausewitz and Sun Tzu, a considerable part of his thought had become the norms and fundamentals of the field and been instilled into strategists' minds. Even though this might leave a less discernible trace for Gray's intellectual legacy, I believe this is how Gray wishes to be remembered as the last notable general theorist of strategy and to have his thought being carried forward in "another bloody century."

We have lost Colin Gray, but we are just now entering a Gray era.

Notes

1. For such examples, see Graham Allison, *Destined for War: Can America and China Escape Thucydides's Trap?* (Boston, Houghton Mifflin Harcourt, 2017); and Michael Pillsbury, *The Hundred-Year Marathon: China's Secret Strategy to Replace America as the Global Superpower* (New York: Henry Holt and Company, 2015).

2. Colin S. Gray, *The Strategy Bridge: Theory for Practice* (Oxford: Oxford University Press, 2011), 8.

Appendix

The Reluctant Theorist
Colin Gray and the Theory of Strategy

James J. Wirtz

Colin Gray is a reluctant theorist. He is acutely aware of the achievements of the great strategic thinkers that he admires and that the objectives he sets for *The Strategy Bridge* might in fact turn out to be a bridge too far. Unlike many of his contemporaries, he recognizes that he can only follow in the footsteps of Carl von Clausewitz, which to his mind turns any effort to trump the Prussian philosopher into a fool's errand. Anyone who is familiar with Gray's work also knows that he is adept at identifying the weaknesses in competing efforts to update, enhance, or modify the insights offered by the great theorists he embraces. He is in fact an expert at highlighting how logical flaws, an inattention to historical detail, or a focus on one element of strategy at the expense of other critical considerations stymie such efforts. One cannot escape the impression that Gray senses that the effort to develop a general theory of strategy comes dangerously close to heresy and that heretics can be torched for their efforts. Armed with only his intellect and a mastery of the literature, he has burned a few himself.

Parsimony comes at a price, and Gray is reluctant to pay that price. Every explanatory claim, relationship, or premise he offers is honed to a razor's edge so that it is finely balanced and completely qualified. No theoretical statement claims too much or too little, no point is left untested, no relevant context is ignored. He goes to great pains to define terms and to specify the scope of his inquiry, only in the end to admit that we lack a metric to identify exactly where some concept

sits on the continuum of ideas that constitute strategy. Context and practice make it difficult to find conceptual clarity at the margins. Colin's great gift is thus his cross to bear. He understands and can actually specify how just about everything is related in some way to just about everything else when it comes to making strategy, and that it is often some unrecognized political, economic, social, or military consideration that emerges among myriad factors that dooms the best laid plans to failure. He can see the big picture, but that makes it even harder for him to explain the art of strategy in a way that has immediate practical utility. Gray traffics in nuance and the most exquisite distinctions, is loathe to offer unqualified pronouncements or to leave his students to squabble about the details. Theory does not come easily to a mind like this.

So what chasm has our reluctant theorist actually bridged? What is the essence of this theory of strategy? I will take a stab at providing a few parsimonious observations about *The Strategy Bridge;* Colin Gray has provided the insight.

The First Chasm: The Dialectic of War and Conflict

Strategy, devising a way to use available political, economic, military, social, and cultural resources to alter the range of political options available to an opponent in a favorable way, is an extraordinarily challenging task. Ironically, it is an especially challenging task for politicians, policymakers, and officers. At the heart of the problem is an inability or unwillingness to accept the dialectical nature of political or military conflict and to instead embrace a sort of "linear approach" or "administrative" view of war. War is a duel; the outcome is determined by the interaction of competing wills, politics, policies, and militaries, but military establishments and their political leaders often tend to concentrate on their part in the conflict, ignoring the opponent's motivations or the fact that it is the "interaction" in conflict that drives outcomes. Throughout his career, Gray has highlighted the pitfalls produced by this linear approach to war and by implication to strategy, but this failing continues to manifest, often in insidious ways, among people who should know better, among strategists.

This lack of strategic awareness and an inability to recognize and act on a dialectical view of conflict also runs deep among scholars, who often focus on one side of conflict's dialectic to explain events. In

the aftermath of strategic surprise and intelligence failure, for instance, scholars quickly take up the task of explaining why some unlucky intelligence community or defense establishment failed to anticipate a significant military or political *fait accompli*. Their explanations generally focus on why organizational, analytic, informational, or cognitive failings led one party to be surprised by an attack, not on why the attacker was attracted to launching an extremely risky enterprise in the first place. Even less effort is spent explaining how the pre-attack motivations of the aggressor and victim might actually generate conditions conducive to deterrence failure, strategic surprise, and war. Surprise attack is a phenomenon produced by the interaction of at least two parties in conflict; to understand this phenomenon one would need a theory of surprise that can capture that interaction. To understand and avoid deterrence failure, surprise attack, and war, one has to understand how the interaction between victim and aggressor creates a set of conditions that makes intelligence failure likely.[1] Strategists who fail to understand that the interaction among adversaries shapes their circumstances and opportunities are unlikely to devise strategies that advance their interests while constraining their competitor's options.

Dialectical thinking—a strategist's approach to war—is reflected not only in the advice Gray offers to strategists, but in the way he presents strategic theory itself. For example, he notes that brilliant strategy is not a necessary condition for victory in war. Instead, even a weak strategist, *ceteris paribus,* can triumph over a more mediocre adversary. Strategy's dialectic reflects the notion of "relativity," an idea that permeates Gray's work but is often lost in the way other observers depict conflict. When other scholars identify new weapons systems or technologies (i.e., "silver bullets") or sure-fire strategies or new dominant realms of conflict (e.g., space, cyberwar) as a clear path to victory, they often fail to qualify such assertions with the opponent in mind. For example, the suggestion that Mao Zedong's People's War represents a revolutionary and unstoppable approach to modern warfare must be judged against the quality of the force the People's Liberation Army faced—Chiang Kai-Shek's Kuomintang units, which never achieved much combat effectiveness even after decades of continuous war and an outpouring of US material and technical support. By contrast, Mao's peasant armies suffered devastating casualties when they encountered competent US units during the Korean War. Strategy is relative.[2]

Much of *The Strategy Bridge* demonstrates how an awareness of conflict's dialectic must inform strategists—the effort to account for and manipulate the outcome of this dialectic is the basis of all strategy. In this sense, Gray reveals a constant and universal element of our reality, even though he repeatedly cautions the (maybe less perceptive) reader that the factors and forces that have a dominant influence on conflict's dialectic vary from time to time. Gray is very careful to note that there are no strategic "silver bullets" when it comes to conflict and that the exact relationships among the strategic considerations he surveys, at least on the margins, tend to be historically specific. Theories of strategy that privilege certain instruments or methods of war as transformational or permanently dominant—counterinsurgency, information operations, air power, cyber war, space power, etc.—are both misguided and misleading. Here too Gray fights an uphill battle because "focused" strategic theories are parsimonious, reassuring, and pleasing, at least to the community that possesses the weapons system or type of operation championed. By contrast, the weapon wielded by true strategists is strategy; they strive to sense and appreciate conflict's dialectic in all its manifestations.

The Second Chasm: Politics

The effort to account for and manipulate politics, in both its domestic and international manifestations, is the Achilles heel of strategy. Because war is ultimately about politics, Clausewitz would suggest that politicians have to make the final judgments about strategy because they possess the skills and experience needed to assess what is necessary and to some extent achievable in the realm of politics. Nevertheless, many elected officials lack the expertise to judge or even understand the requirements and potential course of the strategies, operations, and tactics advanced by their military subordinates. All politics is local, so most of their career focuses on issues that are profoundly domestic—provision of various services, employment and economic policy, government entitlements, social equity, etc. Their direct military experience, which usually occurs during their youth, is usually tactical in nature and highly idiosyncratic.[3] Dwight Eisenhower, whose military experience was both profoundly political and strategic, is the exception, not the rule.

By contrast, most military officers are never asked to make strategic, let alone political, judgments about the use of force. They initially become experts in executing tactics or operating particular weapons systems or service administrative procedures. Most end their careers in positions where they focus on developing combined arms operations, integrating and de-conflicting service preferences and capabilities (joint operations), helping to run their own service, or helping Defense Ministry officials administer the defense enterprise. Officers who excel at these tactical, operational, or administrative tasks and progress through the "idealized" career paths championed by their own service simply find themselves one day responsible for politically protecting their service's slice of the budgetary pie or offering strategic advice to politicians. Military career progression virtually guarantees that the officer occupying some billet is a neophyte—this is also true for those who are asked to develop strategy, i.e., to assess how war or the threat of war can be used to achieve political objectives.

Occasionally, officers who intuitively grasp politics or who have a knack for strategy occupy positions where they can put these talents to good use. Their backgrounds, however, tend to be both unusual and unsanctioned. The fact that they might have some prior, relevant experience or an appropriate education is actually an impediment to career advancement because it forces them to deviate from an operational focus that facilitates promotion to higher rank. If their talents are not recognized by senior officers at an early stage of their career so that they can be protected, they can fall by the wayside because promotion boards favor conformists, not iconoclasts.[4] Gray devotes a good deal of attention to debating what type of education would be most helpful to the strategist, but what he fails to realize is that the problem is more fundamental. In terms of the US military, career progression emphasizes operational experience over education, especially education related to understanding strategy or politics. One might sum up this general attitude among promotion boards as "learning is good, doing is better."

Strategy thus occurs in the context of modern civil-military relations, where both sides largely focus on their own concerns and develop different types of expertise until they are forced by circumstance to think seriously about strategy. When the chasm of politics looms, two types of mistakes often occur. Politicians can ask for specific types of military operations without knowing fully the scope, nature, requirements, and ramifications of the actions they are about to under-

take. In other words, military operations have their own unique logic, and sometimes politicians fail to understand that logic. By contrast, officers sometimes fail to recognize how key tactical or operational considerations and requirements embodied in some evolution will actually undermine political success. When this occurs, even victory on the battlefield can impede the achievement of political objectives.

Gray continually warns the reader that there is no natural harmony between different levels of war or in the effort to use or threaten to use force to constrain the political options of an opponent in a way that suits our interests. Strategy is the art of ensuring that our political objectives, and the means we select to obtain them, actually work in unison towards a common goal. One might also suggest that the first objective of strategy is "to do no political harm."

The Strategy Bridge

The 21 Dicta of Strategy developed by Gray provide a description of these chasms, with an eye towards correcting more or less common misperceptions and mistakes when it comes to the art of strategy. *The Strategy Bridge* is more about the chasm that needs crossing than it is about building the span itself. Of course Colin, being Colin, has much to say about the factors that come into play in bridge construction, and his musings about the philosophy of science, history, strategy, war, and peace are insightful, perceptive, and entertaining. But these are embellishments, qualifications, observations, and distinctions that sometimes add to and sometimes detract from the fundamental objective achieved by Gray. Ironically, Clausewitz seems to have worked in a similar fashion. First came a series of observations on a range of details and relationships; upon revision came the theoretical insights. Maybe Clausewitz was also a reluctant theorist. Or is it only a coincidence that *The Strategy Bridge* resembles *On War* in both *style* and *substance*?

The Strategy Bridge achieves its objective by offering a general theory of strategy. In other words, it offers an empirically grounded explanation of strategy, much in the same way Clausewitz offered an empirically grounded explanation of war, or Kenneth Waltz offered an empirically grounded explanation of international politics.[5] Although normative implications can be derived from all of these works, these authors do not intend to tell the reader how to make, or

to explain how states actually make, strategy, war, or foreign and defense policy. Instead, they focus on explaining the phenomenon itself by describing the sometimes hidden or even quite obvious forces, dynamics, opportunities, and challenges that shape our reality. They boil down our circumstances to their essence so that we can understand our situation, what interests and forces are in play, and gain some insight into how we can better our position to achieve our objectives. They are attempting to tell us how the world works, not how to work the world.

Notes

1. The interested reader should turn to James J. Wirtz, "Theory of Surprise," in *Paradoxes of Strategic Intelligence: Essays in Honor of Michael I. Handel*, eds. Richard K. Betts and Thomas G. Mahnken (London: Frank Cass, 2003), 101–16.

2. James J. Wirtz, "Politics with Guns: A Response to T.X. Hammes' 'War Evolves into the Fourth Generation,' " in *Global Insurgency and the Future of Armed Conflict*, eds. Terry Terriff, Aaron Karp, and Regina Karp (New York: Routledge, 2005), 47–51.

3. Early in his political career, John F. Kennedy was fond of telling audiences that he became a war hero when "they sank my boat."

4. Stephen P. Rosen, *Winning the Next War* (Ithaca, NY: Cornell University Press, 1991).

5. Kenneth N. Waltz, *Theory of International Politics* (Reading, MA: Addison-Wesley, 1979).

Abbreviations

AI	artificial intelligence
A&M	Agricultural and Mechanical
ADF	Aggressive Delaying Force
ASG	Advanced Studies Group
ATGW	anti-tank guided weapons
BAOR	British Army of the Rhine
CCP	Chinese Communist Party
COIN	counterinsurgency
CRC	Curriculum Review Committee
CSS	Confederate States Ship
DNC	Democratic National Committee
DOAE	Defence Operational Analysis Establishment
DOD	Department of Defense
EBO	Effects-Based Operations
FEBA	Forward Edge of the Battle Area
FRG	Federal Republic of Germany
HMS	His/Her Majesty's Ship
ICT	information and communications technologies
IDE	intermediate development education
IRA	Internet Research Agency
JOPP	Joint Operational Planning Process
JPME	Joint Professional Military Education
MDA	Main Defence Area
MDMP	Military Decision-Making Process
MoD	Ministry of Defence
NCO	Network-Centric Operations
NCW	Network-Centric Warfare
NDS	National Defense Strategy
NORTHAG	Northern Army Group
OMG	Operational Manoeuvre Group
OPMEP	Officer Professional Military Education Policy
PME	professional military education
PPP	purchasing power parity

RAF	Royal Air Force
RDT&E	research, development, testing, and evaluation
RMA	Revolution in Military Affairs
SAASS	School of Advanced Air and Space Studies
SAIS	School of Advanced International Studies
SDE	senior development education
SDI	Strategic Defense Initiative
SDSR	Strategic Defence and Security Review
SVR	Russian Foreign Intelligence Service; *Sluzhba Vlneshney Razvedki*
TNA	The National Archives
US	United States
U.S.C.	United States Code
USMC	United States Marine Corps
USN	United States Navy
USS	United States Ship
WP	Warsaw Pact

Contributors

Donovan C. Chau

Donovan C. Chau is a faculty fellow in the Kugelman Honors Program at the University of West Florida. Previously, he was an associate professor of political science at California State University, San Bernardino. Before academia, Dr. Chau worked as a professional staff member in the US House of Representatives and a US government contractor in homeland security and counterterrorism. He received his PhD from the University of Reading and is author of *Global Security Watch—Kenya and Exploiting Africa: The Influence of Maoist China in Algeria, Ghana, and Tanzania* as well as coeditor of the three-volume *China and International Security: History, Strategy, and 21st-Century Policy.*

Antulio J. Echevarria

Professor Antulio J. Echevarria II had a distinguished career in the US Army and is currently the editor-in-chief of the US Army War College Press, which includes *Parameters*. He is a graduate of the US Military Academy, the US Army Command and General Staff College, and the US Army War College. He holds a doctorate in modern history from Princeton University and is the author of six books, including *After Clausewitz* (Kansas 2001), *Imagining Future War* (2007), *Clausewitz and Contemporary War* (Oxford 2007), *Reconsidering the American Way of War* (Georgetown 2014), *Military Strategy: A Very Short Introduction* (Oxford 2017), and *War's Logic: Strategic Thought and the American Way of War* (Cambridge 2021) as well as more than one hundred articles and monographs on strategic thinking, military theory, and military history. He completed a NATO Fulbright Fellowship in 2000–2001 and a Visiting Research Fellowship at Oxford University in 2011–2012; he is a senior research fellow at the Foreign Policy Research Institute and an adjunct fellow at the Modern War Institute. He formerly held the US Army War College Elihu Root Chair of Military Studies.

Brice Franklin Harris

Brice Franklin Harris received his bachelor's degree from the University of Florida and his master's degree from Missouri State University, where he studied under Dr. William R. Van Cleave. He undertook his PhD at the Universityg, where he was supervised by Dr. Colin S. Gray, and was awarded his doctorate in 2007 while in residence at the Institute for Human and Machine Cognition in Pensacola, Florida—his hometown. From 2011 to 2019, Brice worked at the University of West Florida, ultimately serving as assistant vice president for research and economic opportunity. Brice died in March 2019 and is survived by his wife, Ashley, and son, Miles.

Scott Jasper

Capt Scott Jasper, USN, retired is a senior lecturer at the National Security Affairs Department at the Naval Postgraduate School, specializing in defense strategy, hybrid warfare, and cyber policy. He received his PhD from the University of Reading, UK, and is the author of *Russian Cyber Operations: Coding the Boundaries of Conflict* (Georgetown University Press) and *Strategic Cyber Deterrence: The Active Cyber Defense Option* (Rowman and Littlefield) and editor of *Conflict and Cooperation in the Global Commons, Securing Freedom in the Global Commons, and Transforming Defense Capabilities: New Approaches for International Security*. Jasper has published chapters in various handbooks related to cybersecurity and articles in *Strategic Studies Quarterly, Signal Magazine, United States Cybersecurity Magazine, the International Journal of Intelligence and CounterIntelligence, The National Interest, Small Wars Journal,* and *The Diplomat*, and blog posts for *The Conversation*, the Atlantic Council and Council on Foreign Relations. He has spoken on defense and cyber issues on national media outlets, like NPR 1A, KCBS Radio SF, and The First TV, and provided commentary in international newspapers, such as The *Los Angeles Times, Daily Express UK, French daily Libération*, and *S&P Global Market Intelligence*.

Jeannie L. Johnson

Jeannie L. Johnson is the director of the Center for Anticipatory Intelligence and an associate professor in the Political Science Department at Utah State University, where her primary research interest, strategic For Britain, culture examines the impact of national and organizational cultures on the formation of security policy. Before her academic career, Dr. Johnson worked within the Central Intelligence Agency's Directorate of Intelligence as a member of the Balkan Task Force from 1998 to 1999 and served with the US State Department in the Embassies in Paris and Zagreb. Dr. Johnson has conducted in-depth research on US national and military service cultures, including critical blind spots in our foreign and security policy. Her publications include the 2018 book *The Marines, Counterinsurgency, and Strategic Culture: Lessons Learned and Lost in America's Wars* as well as co-edited books on the application of strategic culture analysis to not only nuclear weapons. She received her doctorate in strategic studies from the University of Reading in 2013.

James D. Kiras

James D. Kiras is professor of strategy at the School of Advanced Air and Space Studies, Maxwell Air Force Base, Alabama, where he has directed the school's course of instruction on irregular warfare for almost 20 years. He is a senior fellow of the Joint Special Operations University, Tampa, Florida; a fellow of Irregular Warfare Studies at the US Air Force Special Operations School, Hurlburt Field, Florida; and a founding member of the Special Operations Research Association and its peer-reviewed publication, the *Special Operations Journal*. He worked for several years in defense policy and consulting, counterterrorism, and special operations, and publishes and lectures regularly on these subjects. His most recent books, for which he was a contributing editor, are *The (In)Visible Hand: Strategic Sabotage, Case Studies* (CANSOFCOM, 2021) and *Special Operations: Out of the Shadows* (Lynne Reinner, 2020). His first book was *Special Operations and Strategy: From World War II to the War on Terrorism* (Routledge, 2006).

David J. Lonsdale

David J. Lonsdale is a senior lecturer in war studies at the University of Hull, and a senior fellow of the Higher Education Academy. His main area of research is the theory and history of military strategy, with a particular focus on explaining the nature and process of strategy. Dr. Lonsdale is the author of *Alexander the Great: Lessons in Strategy* and the co-author of *Understanding Contemporary Strategy and Understanding Modern Warfare*. He also writes on nuclear strategy, cyber strategy, and military ethics.

Lukas Milevski

Lukas Milevski is an assistant professor (tenured) at Leiden University, where he teaches military strategy and international security. He has published widely on many aspects of strategy, including two books with Oxford University Press: *The Evolution of Modern Grand Strategic Thought* (2016) and *The West's East: Contemporary Baltic Defense in Strategic Perspective* (2018). He conducted his PhD studies under Colin Gray at the University of Reading between 2011 and 2014.

Danny Steed

Dr. Danny Steed is lecturer in cyber security at the Defence Academy of the United Kingdom for Cranfield University (UK). Having carried out doctoral research with Professor Gray, he has since been a lecturer at Exeter University (UK) before moving into operational cyber security for the British government and later private industry as a head of strategy. Steed is the author of two books, the latest—*The Politics and Technology of Cyberspace*—is available through Routledge.

C. Dale Walton

Dr. C. Dale Walton is professor of international relations at Lindenwood University in St. Charles, Missouri. Before coming to Lindenwood University, he taught at the University of Reading, in Great

Britain, and at Missouri State University. He has worked as a senior analyst at the National Institute for Public Policy in Fairfax, Virginia, and is the book review editor of the journal *Comparative Strategy*. He is the author of four books: *Beyond "American": Liberty and Nationhood in an Era of Technological and Cultural Revolution* (in press); *Grand Strategy and the Presidency: Foreign Policy, War, and the American Role in the World* (Routledge, 2014); *Geopolitics and the Great Powers in the Twenty-first Century: Multipolarity and the Revolution in Strategic Perspective* (Routledge, 2007); and *The Myth of Inevitable US Defeat in Vietnam* (Frank Cass/Routledge, 2002); and he is one of the co-authors of *Understanding Modern Strategy* (Cambridge, 2008; 2nd ed., 2017).

Kenton White

Kenton White is a lecturer in strategic studies and international relations at the University of Reading. He also is an active organizer for the Ways of War Centre at Reading. His main areas of research are NATO strategy, British defense policy over the last 200 years, the Peninsular War 1808–1814, and the study of strategy through history. White is also a keen wargamer.

Derek M. C. Yuen

Derek M. C. Yuen is a Hong Kong-based strategist, scholar, and columnist. He has a PhD in strategic studies from the University of Reading and is the author of *Deciphering Sun Tzu: How to Read "The Art of War"* (Hurst, 2014/2022). He has taught at numerous institutions in Hong Kong, including the University of Hong Kong and Chinese University of Hong Kong.
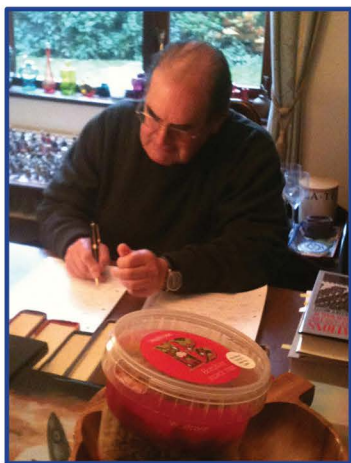
Colin S. Gray

Colin Gray's passion for strategy and history fueled a career of more than 50 years. He published 30 books and 300 articles and monographs, bringing his signature perspective, and often sense of humor, to each one. He was endlessly fascinated by national security policy, defense policy, strategic theory and culture, and military history. He was driven to work unstintingly and wanted only for the end result to be of practical use and benefit.

He cared deeply for his students, helping them as best he could, and took great pleasure in their successes. He also enjoyed and was inspired by what he learned from them. He would be extremely touched and proud to know that his students are now taking his teachings forward, building the future on the strong foundation he gave them, just as he did with the great thinkers who came before him.

EDITED BY DONOVAN C. CHAU

STRATEGY MATTERS

ESSAYS IN HONOR OF COLIN S. GRAY

When Colin died in 2020, Professor James Wirtz sent me a sympathy letter which lingered in my mind. In it he wrote the following paragraph:

" Colin touched many people in many ways. Teachers sometimes have effects on people they never really imagine or even intend. Their students are often profoundly influenced by a stray comment or suggestion. Colin has had that sort of impact on the entire strategic studies community."

I can confirm this assessment. Over the years I watched Colin inspire awe, respect, and affection as he imparted his profound, but often unsettling, knowledge of "Strategy" to several generations of students and military practitioners, not to mention academics and politicians, in both the US and the UK. Effortlessly it seemed, he met all challenges (and there were many!), with logic, humor, and a steely determination to analyze and avert threats in any arena of warfare.

I am happy to say that in the essays in this book his students have done him proud! Colin's legacy lives on.

- Valerie Gray

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