



TACTICAL ADAPTATION IN COMBINED ARMS WARFARE

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ABSTRACT

What is the true nature of tactical adaptation in combined arms warfare, and what is its relationship with operational performance? This analysis tests the hypothesis that wartime tactical adaptation delivers advantages that decisively cause operational victory or prevent operational defeat, and does not simply limit the costs of failures or setbacks in the operational and tactical realms. Assessing specific evidence from four case studies using a mixed methods approach of U.S. ground forces between 1944 and 1950 that form a vital segment of the literature on wartime tactical adaptation, the conclusions of this examination challenge the hypothesis tested. The results of this study indicate that tactical adaptation during wartime limits the costs of failures or setbacks but does not decisively cause campaign victory or defeat. The implications of this analysis corroborate claims that current literature on tactical adaptation insufficiently addresses the subject and many of the existing studies are flawed. The findings of the four case studies in this analysis deliver increased precision for assessing tactical adaptation as an element of warfare that is related to doctrinal development and organizational change, yet possesses distinct elements and unique influence on operational effectiveness and campaign outcome.

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CHAPTER 1: INTRODUCTION

What is the true nature of tactical adaptation in combined arms warfare, and what is its relationship with operational performance? Since tactics are acts conducted to achieve operational and strategic goals, they largely determine what is possible to be achieved, the costs of seeking objectives, as well as the benefits likely to emerge from a conflict. Since warfare is never conducted precisely as planned, tactical execution is prevented from occurring precisely as desired. As such, capacities and procedures are explored and exploited through anticipation and improvisation to improve performance. This process is tactical adaptation—a fundamental aspect of warfare. Yet despite the fundamental essence of tactical adaptation, current literature on the topic has both limitations in the topics assessed and deficiencies in its analysis.

Tactical adaptation is the exploration and exploitation of new tactical methods to improve operational performance through anticipation and improvisation. However, the current body of literature on wartime tactical adaptation insufficiently addresses the subject. Additionally, the existing studies are inherently flawed. If current thinking on wartime tactical adaptation is flawed, what is the correct relationship between tactical adaptation and operational effectiveness, and what can it truly deliver? If wartime tactical adaptation increases operational effectiveness during combined arms warfare, then it should result in clear advantages for achieving operational goals.

Hypothesis tested: Wartime tactical adaptation delivers advantages that decisively cause operational victory or prevent operational defeat, and does not simply limit the costs of

failures or setbacks in the operational and tactical realms. Results from testing this hypothesis will either support the current body of literature about wartime tactical adaptation or challenge existing conclusions by identifying key flaws and opportunities for further research.

Testing the hypothesis of this study indicates that tactical adaptation during wartime limits the costs of failures or setbacks but does not decisively cause campaign victory or defeat. This analysis and conclusion delivers increased precision for assessing tactical adaptation as an element of warfare that is related to doctrinal development and organizational change, yet possesses distinct elements and unique influence on operational effectiveness and campaign outcome. This claim is assessed through specific evidence from four case studies that form a vital segment of the literature on wartime tactical adaptation.

Research Methods and Testing

To test whether tactical adaptation causes operational victory or prevents defeat, each case study tests a supporting hypothesis using a mixed methods approach. Four case studies of U.S. ground forces between 1944 and 1950 are tested: U.S. First Army in the Normandy campaign's third phase as it fought through the *bocage*; First Army as it fought through the Huertgen Forest in the breakout across northwest Europe; U.S. Eighth Army fighting the Chinese People's Liberation Army XIII Army Group across the Yalu River in northern Korea; and X Corps against XI Army Group at the same time.¹

¹ Portions of these case studies were analyzed during coursework previously submitted in the Georgetown University Security Studies Program by Brett Van Ess.

The multiple case study design uses a holistic focus, with each case concentrating on one unit of analysis: how the independent variable of tactical adaptation causes the dependent variable of operational victory or defeat. Each of the four examples—two from each war—will make a single point through a different setting. A reliance on primarily qualitative analysis traces the causal pathways in these examples from the Second World War and Korean War that possess core elements of wartime tactical adaptation and reflect central themes on the subject.

These cases possess several advantages for the analysis. First, U.S. records and secondary sources provide a great deal of information and therefore deliver data-richness. Second, there are extreme values of tactical adaptation across the cases, from very high amounts by First Army in the *bocage* to very low amounts in the forest. Third, there are also very different results in the cases, from clear operational success to clear failure. Fourth, these cases appear to provide examples where the predominant strains of thought would predict different outcomes—examples that challenge prevalent assumptions and their predictions. Fifth, the cases are well matched for controlled cross-case comparisons since they have similar characteristics in the technology used at the time, the ground tactics applied by combined arms teams of U.S. forces, and all occur within less than a decade of each other. Additionally, each of the two cases from the Second World War and Korean War fight the same enemy—the German *Weisther* or the Chinese People’s Liberation Army—but display different degrees of tactical adaptation. Finally, these cases

sufficiently allow isolating how tactical adaptation influenced operational effectiveness for achieving campaign objectives.

Findings

Four case studies comprise the body of this analysis. In Case Study 1, First Army's tactical adaptation in the *bocage* of northern France during the Normandy campaign increased operational effectiveness to cause the capture of St. Lô and complete the campaign's third operational phase before the breakout across northwest Europe toward Germany. Faced with the unexpected problem of hedgerow terrain isolating effective combined arms teams and favoring German defenders, U.S. troops and commanders at the tactical level explored new methods to restore mobility, deploy more firepower, and coordinate mobility and firepower for synergistic, combined arms effects. Advantages gained through new tactics, techniques, and procedures delivered exploitable advantages for the attacking U.S. forces that cleared German defenders from the *bocage* and advanced First Army to St. Lô. This conclusion supports the study's primary hypothesis, suggesting that asking tactical adaptation to deliver fewer benefits than this overall goal may underestimate its role and misunderstand the true nature of its relationship with operational ways and strategic goals.

In Case Study 2, First Army's failure to adapt in the Huertgen Forest maintained low operational effectiveness but did not prevent First Army from capturing the forest and achieving operational goals before continuing into Germany. Faced with the unexpected problem of forested terrain isolating effective combined arms teams and favoring German

defenders, troops and commanders at the tactical level failed to explore new methods to restore mobility, deploy more firepower, or coordinate mobility and firepower for synergistic, combined arms effects. No advantages were gained through new tactics, techniques, or procedures, failing to deliver exploitable advantages for the attacking U.S. forces. However, these forces still achieved their operational objectives by pushing German defenders from the Huertgen Forest and advancing through the terrain to threaten Germany. This conclusion challenges the study's primary hypothesis that claims tactical adaptation is vital for attaining operational goals and campaign victory. Instead, results of Case Study 2 suggest that successful tactical adaptation increases operational effectiveness but is not a fundamental requirement of fighting and winning, and failure to adapt does not decisively cause campaign defeat. Hence, requiring tactical adaptation during operations may increase the expenditure of resources and be an unnecessary burden for achieving goals. The absence of tactical adaptation does not necessarily remove operational effectiveness.

In Case Study 3, Eighth Army's failure to adapt while retreating from the Yalu River in the northern Korean Peninsula maintained low operational effectiveness and contributed to operational defeat. Faced with the unexpected problem of attacking Chinese forces through compartmentalized and harsh terrain isolating effective combined arms teams, U.S. troops and commanders at the tactical level failed to improvise or anticipate to explore new methods for restoring tactical effectiveness. No advantages were gained through new tactics, techniques, or procedures, failing to deliver exploitable advantages for the retreating U.S. forces. Failure to perform tactical adaptation contributed to

operational defeat as one of several failures that doomed the Eighth Army in a catastrophic operation. This conclusion supports the study's primary hypothesis that tactical adaptation is necessary to prevent campaign defeat, since the lack of adaptation led to operational failure. Hence, tactical adaptation must be incorporated to prevent operational setbacks from becoming disastrous campaign defeats.

In Case Study 4, X Corps' failure to adapt retreating from the Yalu River in the northern Korean Peninsula increased operational effectiveness but failed to prevent operational defeat. Faced with the unexpected problem of attacking Chinese forces through compartmentalized and harsh terrain isolating effective combined arms teams, U.S. troops and commanders adhered to established tactics, techniques, and procedures to exploit fleeting opportunities, effectively limiting the costs of setbacks. However, disciplined adherence to tactical doctrine did not prevent operational defeat. This conclusion supports the study's primary hypothesis that failure to perform tactical adaptation causes operational defeat, but challenges claims that that adaptation is necessary to limit setbacks. Hence, asking tactical adaptation to save all setbacks may overestimate its role, misunderstand the true nature of its relationship with operational ways and strategic goals, and apply less effective tactical methods than are already easily available.

Policy Implications, Lessons, and Recommendations

This project targets U.S. decision makers and military strategists to help them achieve their objectives of American military success through effective operations and tactics. If

current thinking on tactical adaptation is flawed, then it prevents decision makers and strategists from accurately understanding what tactical adaptation can and cannot deliver. This work aims to prevent the costly repercussions of policy decisions that overestimate the rewards of what tactical adaptation can deliver. If tactical adaptation during wartime limits the costs of failures and setbacks but does not decisively cause campaign victory or defeat, then people must accurately understand this relationship when deciding how military force can achieve goals, when it will be effective, what goals are attainable, and why its use may succeed or fail in delivering desired outcomes. Essentially, a greater understanding of how tactical adaptation shapes operational effectiveness and campaign outcome delivers policymakers and strategists with more realistic assessments of what can and cannot work. The factors for consideration are simple: do not overestimate what tactical adaptation can provide.

The implications of this analysis have three immediate repercussions for policy direction: decisions concerning the use of force; assessing relative force; and designing forces. For decisions about the use of force, avoiding an overestimation of the ability for U.S. forces to adapt will help shape realistic campaign goals and measures of operational effectiveness. If strategists or decision makers desire greater progress during combat operations in Afghanistan, then they must understand what anticipating new problems and improvising new solutions can deliver. If there is an expectation in American warfighting doctrine that soldiers and marines must adapt to new combat situations—which there appears to be—then strategists and decision makers must understand the process of experimenting and exploiting capabilities, as well as the potential rewards.

Vitally, observers must not assume examples of tactical adaptation as clear doctrinal or organizational change. This assumption suffers from the imprecision displayed in much scholarly literature. Alone, tactical adaptation cannot produce doctrinal change or organizational learning; it is simply one step in the process.

In assessing relative force, analysts should consider the qualitative traits favoring adaptation when making their calculations. The ability to anticipate and improvise to explore and exploit new capacities may be essential to what goals are undertaken. If preparing to fight an adversary, that potential enemy's ability to use initiative and creativity is an important dimension of their ability to tailor methods to achieve larger goals. If the U.S. takes an action, what are the potential responses? More importantly, is an adversary able to act with such creativity that a response will be something currently unforeseen?

Finally, several implications exist for U.S. forces that are attempting to shape military forces to be effective in different manners. What traits are desired when shaping new Iraqi security forces? If tactical adaptation requires people with initiative and creativity to innovate new techniques and procedures, are these traits being encouraged and honed? U.S. forces appear to be pursuing a dual-track strategy in Iraq: attempting to change training to encourage individual initiative and creativity, while also selecting those with desirable traits. What are the costs if the U.S. fails? This initial analysis suggests that it would limit the ability of Iraqi forces to exploit opportunities and recover from setbacks, but alone would not decisively cause a campaign defeat. And if the U.S. is extremely

successful, would that produce a force with an overwhelming advantage over its regional neighbors and internal Kurdish army? If the ability to perform tactical adaptation is a valuable tool, how much and what a kind of capability does it deliver to those who wield it? And what are the second- and third-order effects of this trait?

CHAPTER 2: TACTICAL ADAPTATION LITERATURE REVIEW

Current literature on wartime tactical adaptation insufficiently addresses the subject, and many of the existing studies are inherently flawed. After reviewing the body of research, one concludes that the current field of analysis either omits concentrations on tactical adaptation or incorporates the subject with others into broad categories. Furthermore, the existing literature suffers from two flaws: an imprecise framework and a faulty premise that fails to question underlying assumptions and expectations about the nature of the relationship between tactical adaptation and operational effectiveness.

Assessing this omission in the field, flaws in the literature, limitations and deficiencies in the field, and five key themes in the literature, one concludes that the literature on tactical adaptation in combined arms warfare contains persisting shortcomings and pressing requirements. Additional research is required to challenge conclusions about the nature of tactical adaptation and its relationship with performance, rather than concentrating simply on how or why it occurs. New comparative analyses are required to adequately answer what is the true nature of tactical adaptation in combined arms warfare, and what is its relationship with operational performance.

An Omission in the Field

The current field of analysis insufficiently addresses the subject of wartime tactical adaptation by concentrating on wider military innovation, doctrinal change or organizational development. This scope of analysis either omits concentrations on tactical adaptation or incorporates the subject with others in a single category. The first trend

insufficiently addresses the topic, while the second fails to analyze the topic as one that possesses elements that are distinct from other larger elements of learning and change. Overall, current literature does not adequately address adaptation at the tactical level of war, where learning and doctrine meet techniques and procedures. Very recent scholarship has reengaged the topic of tactical adaptation, but a focus on counterinsurgency operations and specific techniques and procedures has failed to question underlying assumptions and expectations about the field.

Those attempting to fill the void in current scholarly analysis have largely been policy analysts and military operators. Much of the writing over the last half-decade attempting to resolve this omission has been from authors focused on policy planning and implementation instead of scholarly research. However, these studies do not fill the gap in current literature, as they remain narrowly focused on individual methods and examples, and lack the intellectual rigor of academic analyses. Vitaly, these contributions also suffer from two flaws shaping the current field of work. The attempts by writers in policymaking circles to address the omissions in scholarly literature about tactical adaptation support claims that there is a current need for additional, accurate analysis of the subject. An increased number of studies applying greater analytical rigor will help senior U.S. decision-makers to select military objectives that are achievable through ways that are effective and efficient in pursuing their goals. Failing to adequately understand this relationship will cause preventable losses in resources and human lives.

Flaws in the Literature

Existing literature on wartime tactical adaptation suffers from two major flaws: an imprecise framework and a faulty premise that fails to question underlying assumptions and expectations about the nature between tactical adaptation and operational effectiveness. First, a lack of precision hinders examining adaptation in tactics, techniques and procedures distinct from doctrinal change or organizational development. The opportunity exists to address this imprecision by conducting analyses that concentrate on wartime tactical adaptation and also gain a greater understanding of how it relates to doctrinal change and organizational learning. This review attempts to add some accuracy by precisely defining tactical adaptation and identifying what elements make it distinct from other forms of military learning.

The second flaw is a faulty premise underlying much of the field due to a widespread assumption that tactical adaptation is essential for operational effectiveness without first assessing how tactical adaptation affects operational effectiveness. This assumption prevents strategists from accurately understanding what tactical adaptation can and cannot deliver. Current policy recommendations inherently suffer from these underlying flaws with costly repercussions. This deficiency in questioning assumptions and expectations causes authors to concentrate on methods and reasons for adaptation while failing to consider how tactical adaptation actually influences operational performance. Despite considerable consensus that tactical adaptation is desirable, competing themes differ on its nature, relationship, and potential to change battlefield performance and

achieve larger goals. It is this flaw that may be addressed with testing several hypotheses from several competing themes within the field of literature on wartime tactical adaptation. An appropriate subject for this further analysis is combined arms warfare.

Limitations and Deficiencies in the Field of Study

The scope of this analysis rests between two ends of a spectrum currently under discussion, between examinations concentrating on wider military innovation, learning, or doctrinal change, and those concentrating solely on narrower techniques and procedures. In the broader field, “for most of the twentieth century scholarly writings on military innovation took the form of grand historical narratives, operational histories, or bureaucratic-political case studies.”² In response, Barry Posen’s 1984 *The Sources of Military Doctrine* applied a social science approach to innovation by French, British, and German military organizations after the First World War.³ This work “triggered the emergence of a new field, military innovation studies.”⁴ But many of these studies avoided concentrating on tactical adaptation, focusing instead on major changes in scope and impact, and new ways for militaries to function.⁵ Additionally, most research on

² Adam Grissom, “The Future of Military Innovation Studies,” *The Journal of Strategic Studies*, Vol. 29, No. 5 (October 2006), p. 906.

³ Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, New York: Cornell University Press, 1984).

⁴ Grissom, 906.

⁵ Allan R. Millett and Williamson Murray, eds. *Military Effectiveness*, Volumes 1-3, New Edition (New York: Cambridge University Press, 2010), first published by Unwin Hyman in 1988; Stephen Peter Rosen, “New Ways of War: Understanding Military Innovation,” *International Security*, Vol. 13, No. 1 (Summer 1988), pp. 134–168; Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, New York: Cornell University Press, 1991).

broader innovation, learning, or doctrinal change to date “has focused on military innovation in peacetime rather than in conflict.”⁶

Assessing the field of military innovation studies in 2006, Adam Grissom concluded that “none of the major models of military innovation” in the scholarly literature adequately addressed innovation from the “bottom-up”—the tactical level of warfare.⁷ Grissom assessed that the field of military innovation may be approaching a paradigm shift in assumptions and conceptual frameworks due to the insufficient attention delivered to innovation originating from tactics.⁸ He concluded that “there is an entire class of bottom-up innovations that have yet to be explored, understood, and explained,” and that “the door is open for an individual or group of scholars to make a major contribution to the field.”⁹ Over the next four years, many of the individuals responding to Grissom’s call hailed from policy planning and implementation circles, and did not conduct scholarly research.

Recent contributions touching on tactical analysis have been either practical lessons learned by military officers or public thinkers addressing policy implementation. Almost all of these studies have focused on U.S. efforts in Afghanistan and Iraq. Lessons learned by military officers regularly reviewed a specific method used in an area and offered it to

⁶ John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons from Malaya and Vietnam*, revised edition (Chicago: The University of Chicago Press, 2005), p. 214, first published in 2002.

⁷ Adam Grissom, “The Future of Military Innovation Studies,” *The Journal of Strategic Studies*, Vol. 29, No. 5 (October 2006), p. 920.

⁸ Grissom, 924.

⁹ Grissom, 930.

others, to include urban intelligence operations in Baghdad,¹⁰ information operations in Iraq¹¹ and the role of units in the “Anbar Awakening.”¹² Other recent studies have focused on the creation of new U.S. counterinsurgency doctrine, describing its formation and initial implementation in late 2006 in Iraq.¹³ Some analysts have written with more depth on tactical methods¹⁴ and specific examples of adversaries adapting tactics as they actively undermine each other.¹⁵ However, these studies remain narrowly focused on individual methods and examples. They also lack the intellectual rigor of academic analyses, a shortcoming addressed by two recent contributions.

Recent scholarly additions have reengaged the topic of tactical adaptation. Using case studies of Iraq and Afghanistan, James Russell and Theo Farrell each address the methods of tactical adaptation in August 2010’s *The Journal of Strategic Studies*.¹⁶

¹⁰ Ralph Baker, “HUMINT-Centric Operations: Developing Actionable Intelligence in the Urban Counterinsurgency Environment,” *Military Review* (March-April 2007), pp. 12-21.

¹¹ Timothy Bush, Mark Garrett, James Hutton, and Thomas Metz, “Massing Effects in the Information Domain: A Case Study in Aggressive Information Operations,” *Military Review* (May-June 2006), pp. 103-113.

¹² MacFarland, Sean, and Niel Smith. “Anbar Awakens: The Tipping Point.” *Military Review* (March-April 2008): 41-52.

¹³ Thomas Ricks, *The Gamble: General David Petraeus and the American Military Adventure in Iraq, 2006-2008* (New York: Penguin Books, 2009); Kimberly Kagan, *The Surge: A Military History* (New York: Encounter Books, 2009); John A. Nagl, “Forward to the University of Chicago Press Edition: The Evolution and Importance of Army/Marine Corps Field Manual 3-24, *Counterinsurgency*,” *The U.S. Army/Marine Corps Counterinsurgency Field Manual* (Chicago, Illinois: The University of Chicago Press, 2007), pp. xiii-xx; Sarah Sewall, “Introduction to the University of Chicago Press Edition: A Radical Field Manual,” *U.S. Army/Marine Corps Counterinsurgency Field Manual* (Chicago, Illinois: The University of Chicago Press, 2007), pp. xxiii-xliii.

¹⁴ Kimberly Kagan, “Enforcing the Law: The Baghdad Security Plan Begins, February 10, 2007-March 5, 2007,” Washington, DC: Institute for the Study of War (March 15, 2007); Kimberly Kagan, “Anbar Awakening: Displacing al Qaeda from Its Stronghold in Western Iraq, August 21, 2006-March 30, 2007,” Washington, DC: The Institute for the Study of War (April 5, 2007).

¹⁵ Brett Van Ess, “The Fight for Marjah: Recent Counterinsurgency Operations in Southern Afghanistan,” published simultaneously by the Institute for the Study of War and *Small Wars Journal*, September 30, 2010.

¹⁶ Theo Farrell, “Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006-2009,” *The Journal of Strategic Studies*, Vol. 33, No. 4 (August 2010), pp. 567-594;

Russell’s “Innovation in War” examines three battalions operating in Iraq between 2005 and 2007 concludes that the units “successfully innovated in war—a process largely executed organically within the units themselves.”¹⁷ Assessing how and why the units adapted during the time period, Russell argues that searching for tactical solutions to unpredicted problems delivered new organizational capacities not initially present, allowing the units to transition from a focus on conventional operations to counterinsurgency.¹⁸ Russell enters the opening identified by Grissom—the need to assess innovation originating in the tactical units—and presented examples of “ad hoc adaptation in which individual leaders reacted to local circumstances by cycling through different ways of employing their units and equipment on the battlefield.”¹⁹ New tactics, techniques, and procedures arose from improvisation and anticipation, allowing the American battalions to explore new methods and exploit capacities to increase operational effectiveness.

Farrell’s “Improving in War” complements Russell’s assessment by presenting a theory of how militaries improve operational performance during wartime.²⁰ Examining six British Task Forces between 2006 and 2009 in Helmand province of southern Afghanistan, Farrell assesses how the units adapted to the operational environment and the challenges they faced. Overall, Farrell argues that military organizations are rational and routine-bound, causing them to begin exploring new ways of operating principally

James A. Russell, “Innovation in War: Counterinsurgency Operations in Anbar and Ninewa Provinces, Iraq, 2005-2007,” *The Journal of Strategic Studies*, Vol. 33, No. 4 (August 2010), pp. 595-624.

¹⁷ Russell, 596.

¹⁸ Russell, 596.

¹⁹ Russell, 619.

²⁰ Theo Farrell, “Improving in War: Military Adaptation and the British in Helmand Province, Afghanistan, 2006-2009,” *The Journal of Strategic Studies*, Vol. 33, No. 4 (August 2010), pp. 567-594.

when they are at war and appear to be losing.²¹ The ability of a military organization to explore new ideas is necessary when encountering setbacks, and is further enabled by poor organizational memory, lower degrees of centralization, and high personnel turnover.²² Farrell cites these traits in British forces that were highly adaptive, and argues that these traits were vital in delivering operational successes. Echoing Grissom, Farrell concludes by declaring that “more research needs to be done” to understand military adaptation, and that recent events in Iraq and Afghanistan “confirms the importance of studying bottom-up military adaptation.”²³

While correctly citing the need to increase research on tactical adaptation, Farrell, Russell, and Grissom share a similar shortcoming: they focus on examining how and why militaries adapt instead of assessing how adaptation alters operational effectiveness. This concentration echoes the assumptions underlying earlier theorists looking for larger methods of innovation and doctrinal change without first asking what, precisely, are the role and effect of tactical adaptation. All apparently concur that improving operational performance—an inherent component of tactical adaptation as used in this analysis—is a positive outcome. As a positive outcome, the only questions are then *why* and *how* tactical adaptation occurs. This line of thought correctly challenges broad assumptions that tactical adaptation automatically occurs during wartime. Astute thinkers have correctly indicated that, although “the general idea that war provides the necessary environment for military learning and innovation is widespread,” many studies

²¹ Farrell, 571.

²² Farrell, 572-573.

²³ Farrell, 592, 589-590.

oversimplify the nature, process, elements, and requirements of wartime adaptation.²⁴

The historical examples of militaries failing to adapt begin to indicate additional complexity inherent in this topic: “there are so many examples of military organizations that have been unable, for whatever reasons, to learn from wartime experiences that we are forces to be cautious in assuming that innovation during wartime is a straightforward matter of observing what works and does not work in combat.”²⁵ Since adaptation is not a given, even when facing mortal danger, studying how and why organizations adapt are surely important fields of study. But these fields overlook differing assessments concerning the relationship of tactical adaptation with operational effectiveness.

Reviewing the major analyses of tactical adaptation, five themes emerge concerning the relationship between tactical adaptation and operational effectiveness. These themes are rarely stated overtly; rather, they underlay most of the core texts in the field of study. Vitality, these themes differ in the ability of tactical adaptation to increase operational effectiveness, as well as in the appropriate role of tactical adaptation in relation with the operational level of warfare. It is these differences in relationship and role that separate many of the most important works in this field, and delivers differing conclusions over how and why adaptation occurs.

²⁴ Rosen, 1991, 23.

²⁵ Rosen, 1991, 24.

Five Key Themes

This examination assesses five key themes in the field of literature on wartime tactical adaptation. First, tactical adaptation can create campaign success by developing new methods and exploiting strengths to substantially increase operational effectiveness. Second, tactical adaptation can compliment existing doctrine to improve operational effectiveness. Third, tactical adaptation is most effective when testing and applying doctrine—experimentation and anticipation from above is the most valuable asset. Fourth, tactical adaptation is essential for delivering military effectiveness by exploiting relative advantages through anticipation and improvisation. Fifth and finally, tactical adaptation is central to preventing massive failures, particularly the use of anticipation and improvisation to limit setbacks.

Theme 1: Creating Campaign Success

The first research theme argues that wartime tactical adaptation can create campaign success by developing new methods and exploiting strengths to substantially increase operational effectiveness. Based upon the German army experience during the First World War, exploring new methods of fighting that encouraged anticipation and improvisation delivered operational successes in 1918 despite ultimate campaign defeat. Tactical successes drastically increased operational effectiveness, and only failed to deliver overall campaign success either due to insufficient resources, a differential in operational mobility, or unclear strategy. This theme implies that tactical adaptation substantially increases operational effectiveness, to such a degree that it could deliver

campaign success. Much of the initial writings about tactical adaptation followed this theme.

German development of infiltration tactics experimented with new methods to exploit offensive maneuver by small units, demanding anticipation and improvisation at the tactical level. Timothy Lupfer chronicles how German field armies summarized their battlefield experiences and released the “key regulation” of *Principles of Command in the Defensive Battles in Position Warfare*, delivering a revised German doctrine stressing new principles that made improvisation, and anticipation the core tenets of tactics.²⁶ The new “infiltration” doctrine was based on an opportunistic philosophy requiring small units with initiative and creativity to exploit tactical opportunities.²⁷ Small units now had the capacity for *decisive* maneuver.²⁸

Authors deliver different assessments for Germany’s ultimate failure, to include an over-reliance on foot movement,²⁹ poor logistics,³⁰ and inconsistency between tactical methods and strategic goals.³¹ Yet the underlying theme in these works is that, although the application of new German infiltration tactics did not deliver strategic victory, *they could*

²⁶ Timothy Lupfer, “The Dynamics of Doctrine: The Change in German Tactical Doctrine During the First World War,” Leavenworth Paper No. 4, Combat Studies Institute, U.S. Army Command and General Staff College (July 1981), pp. 5-8.

²⁷ Rod Paschall, *The Defeat of Imperial Germany 1917-1918* (New York: De Capo Press, 1989), p. 130.

²⁸ Holger H. Herwig, “Thy Dynamics of Necessity: German Military Policy during the First World War,” in Allan R. Millett and Williamson Murray, eds. *Military Effectiveness*. Volume 1, *The First World War*, new edition (New York: Cambridge University Press); John A. English and Bruce I. Gundmundsson, *On Infantry*, revised edition (Westport, Connecticut: Praeger, 1994), pp. 80-115, originally published 1981. First published by Unwin Hyman in 1988.

²⁹ *Brassey’s Encyclopedia of Land Forces and Warfare* (Washington, DC: Brassey’s, 1996).

³⁰ Paschall, 161; Lupfer.

³¹ Herwig, 102; John Keegan, *The First World War* (New York: Random House, 1998).

have by increasing operational effectiveness to such a high degree that they would achieve decisive campaign objectives. This implication delivered an idea that wartime tactical adaptation could deliver operational victory.

Theme 2: Complimenting Existing Doctrine

A second theme argues that tactical adaptation must compliment existing doctrine to improve operational effectiveness, delivering new techniques and procedures that combine to form relative advantages over an adversary. Based largely on American experiences during the Second World War and supplemented by those of the British, Canadians, and Germans, works in this theme assess tactical adaptation as complimenting and refining existing methods, but does not deliver the decisive improvements argued in theme one. Improvisation and day-to-day anticipation supplements existing capacities with new techniques and procedures for performance, but does not use the massive experimentation in the first theme or imply a massive change in warfighting methods.

The key element of the second theme is not simply that it occurs from the bottom-up, but that operational effectiveness is enhanced and refined by assessing problems, testing ideas, and disseminating effective solutions. Largely assessing U.S. Army performance during the Second World War, authors led by Michael Doubler argue that army doctrine could be effectively adapted through combat exposure. Doubler's 1988 "Busting the Bocage" and 1994 *Closing with the Enemy* argue that quick adaptation contributed to ultimate victory.³² Supporting Doubler, Christopher Gabel and Roger Spiller displays

³² Michael Doubler, "Busting the Bocage: American Combined Arms Operations in France 6 June-31 July 1944," Combat Studies Institute, US Army Command and General Staff College (November

how the U.S. Army adapted for urban combat and river crossings.³³ Russell Hart's 2001 *Clash of Arms* concurs that militaries must adapt and disseminate combat's lessons, assessing that the U.S. army adapted to ultimately outfight its German opponent through a learning process of organizational dissemination.³⁴ Ultimately, Doubler, Hart, Gabel and Spiller contend tactical adaptation increases operational effectiveness by complimenting and supplementing existing doctrine through improvisation and day-to-day anticipation, but may not deliver momentous, decisive advantages that cause operational success.

Theme 3: To Apply, Test, and Develop Doctrine

The third theme contends that tactical adaptation is most effective when testing and applying doctrine, with experimentation and anticipation initiated from above and then implemented by tactical units. Developed and refined by the USSR Red Army during the Second World War, this method is generally summarized as a top-down approach to adaptation. The Soviet model discourages and often penalizes tactical improvisation or exploration, instead prioritizing exploitation of strengths.

Authors led by David Glantz argue that the Soviet Army developed a unique method for modifying how it fights during wartime to incorporate changes in technology, operational

1988); Michael D. Doubler, *Closing with the Enemy: How GIs Fought the War in Europe, 1944-1945* (Lawrence, Kansas: University Press of Kansas, 1994), p. 2.

³³ Christopher R. Gabel, "'Knock 'em All Down': The Reduction of Aachen, October 1944," *Urban Operations: A Historical Casebook* (Fort Leavenworth, Kansas: Combat Studies Institute, US Command and General Staff College, 2002), pp. 72-73; Roger J. Spiller, "River Crossings: Crossing the Rapido," in Roger J. Spiller, ed., *Combined Arms in Battle Since 1939* (Fort Leavenworth, Kansas: US Army Command and General Staff College Press, 1992), chapter 28; Doubler, *Closing*.

³⁴ Russell A. Hart, *Clash of Arms: How the Allies Won in Normandy* (Norman, Oklahoma: University of Oklahoma Press, 2001), pp. 5-6.

and tactical needs, and larger developments in military affairs.³⁵ Soviet tactics favored obedience over initiative, and were designed to occur slowly and from higher levels of command. Lower level commanders and units maintained a strict adherence to doctrine in an inflexible style of fighting. The obligation for adapting Soviet tactical techniques and procedures rested upon the general staff, tolerating very little innovation from below.

The Soviet method of tactical adaptation occurred in a unique top-down manner, and was not expected to suddenly grasp campaign victory. Rather, Soviet adaptation was designed to test methods for their effectiveness, which were then incorporated into rigid doctrine. Many times this method was highly effective, producing “radical and unorthodox military techniques,”³⁶ and “the most imagination in thinking about future operational possibilities” between the World Wars.³⁷ This operational success of Red Army forces that fundamentally prevented bottom-up tactical adaptation may suggest that tactical adaptation is unnecessary for operational victory.

Theme 4: Essential for Military Effectiveness

The fourth theme of research argues that tactical adaptation is essential for delivering the military effectiveness of combined arms battle by creatively exploiting one’s own strengths and the weaknesses of an adversary. Without tactical adaptation, operational

³⁵ Robert H. Scales Jr., *Firepower in Limited War* (Washington, DC: National Defense University Press Publication, 1993); David M. Glantz and Jonathan House, *When Titans Clashed: How the Red Army Stopped Hitler* (Lawrence, Kansas: University Press of Kansas, 1995); David Glantz, *August Storm: The Soviet 1945 Strategic Offensives in Manchuria* (Ft. Leavenworth, Kansas: Combat Studies Institute, 1983); David Glantz, “Soviet Operational Formation For Battle: A Perspective,” *Military Review*, Vol. 63, No. 2 (February 1983), pp. 1-12.

³⁶ Glantz, “Perspective,” 3-4.

³⁷ Millett, Allan R. Millett and Williamson Murray, *A War to be Won: Fighting the Second World War* (Cambridge, Massachusetts: The Belknap Press of Harvard University, 2000), p. 20.

performance of a force will either stay poor or decline. Effective tactical adaptation is therefore a fundamental element of operations. In combined arms warfare, the scale of campaigns and the need for precise timing requires a decentralization of authority and autonomy so that tactical advantages are quickly recognized and exploited at low levels of command to translate into operational victory.

Kenneth Pollack, Allan Millet, and Williamson Murray lead the fourth theme. Pollack's 2002 *Arabs and War* examines six Arab armies between 1948 and 1991, concluding that the armies displayed military *ineffectiveness*.³⁸ They constantly lost wars or only won them barely, even when possessing apparent relative advantages in several conventional measures of military power.³⁹ The inability to anticipate or improvise caused tactical units to repeat mistakes and exacerbated their setbacks, while also failing to take advantage of fleeting opportunities.

Allan Millet and Williamson Murray's 2000 *A War to be Won* assesses that without anticipation and improvisation, tactical units cannot exploit fleeting opportunities from one's own strengths and the weaknesses of an adversary.⁴⁰ In their 1988 three-volume *Military Effectiveness* series, Millett and Murray repeatedly display how anticipating and improvising regularly increased effectiveness with varying degrees of results.⁴¹ Tactical

³⁸ Kenneth M. Pollack, *Arabs at War: Military Effectiveness, 1948-1991* (Lincoln, Nebraska: University of Nebraska Press, 2002).

³⁹ Pollack, xi, 2.

⁴⁰ Allan R. Millett and Williamson Murray, *A War to be Won: Fighting the Second World War* (Cambridge, Massachusetts: The Belknap Press of Harvard University, 2000).

⁴¹ Allan R. Millett and Williamson Murray, eds., *Military Effectiveness*, Volumes 1-3, new edition (New York: Cambridge University Press, 2010), first published by Unwin Hyman in 1988.

adaptation delivered momentous benefits at the Meuse in 1940, but produced no discernable campaign advantage in 1944 German counterattack through the Ardennes.⁴²

Overall, Pollack, Millet, and Murray share an assessment of tactical adaptation that it is a necessary element for maximizing effectiveness by exploiting relative advantages that are often fleeting on the battlefield. Anticipation and improvisation are necessary to be effective conductors of combined arms warfare and delivering the expected measures of operational performance. Deficiencies in tactical adaptation can contribute to larger failures and successes, but are not the overwhelming factor determining success or defeat. Overall, this theme focuses largely on what tactical adaptation cannot accomplish; the final theme assesses what it can.

Theme 5: Preventing Massive Failure

Led by Eliot Cohen and John Gooch, the fifth theme argues that tactical adaptation is central to preventing massive failures. This theme contends that anticipation and improvisation prevent setbacks from exacerbating into colossal disasters: “failure to adapt to new and unexpected circumstances” is the element that may immediately lead to “catastrophic failure” of a military organization.⁴³

While failure to adapt may lead to total defeat, it is not guaranteed. Failure to adapt causes setbacks that combine with other shortcomings that make it “more difficult—and

⁴² Millett and Murray, *A War to be Won*, 75, 89, 471.

⁴³ Eliot A. Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War* (New York: Free Press, 1990), p. 25.

perhaps more unlikely” to recover.⁴⁴ If a military organization fails to learn, adapt, or foresee and prepare, “catastrophic failure occurs,” and “when this happens, there is often no escape from absolute disaster without outside assistance.”⁴⁵ Adaptation prevents catastrophic failure, and significantly lowers the probability of aggregate failure by effectively handling the ever-changing present. Since “every campaign presents some unforeseen challenge or circumstance,” the capacity for tactical adaptation during wartime is central for preventing setbacks from escalating into larger campaign failures by decreasing operational effectiveness in debilitating degrees.⁴⁶

Similar to Pollack, Cohen and Gooch present tactical adaptation during warfare as an inherent element of operational effectiveness. Yet while Pollack concentrates on what tactical adaptation can provide—the ability to take initiative and exploit opportunities as an essential element of combined arms warfare—Cohen and Gooch present the costs of failing to adapt—losing the chance to limit setbacks, allowing them to potentially escalate to massive failure. In this fifth theme, failure to adapt does not decisively lead to campaign defeat. Rather, it vastly increases the costs of setbacks and decreases the probability of recovering from them.

Conclusions

A survey of the literature on tactical adaptation in combined arms warfare reveals persisting limitations and deficiencies in the research. Concentrating on either wide

⁴⁴ Cohen and Gooch, 26.

⁴⁵ Cohen and Gooch, 26.

⁴⁶ Cohen and Gooch, 27.

military innovation or narrow techniques and procedures delivers only limited attention to actual adaptation at the tactical level. While recent scholarship has begun addressing this limitation, the emphasis on counterinsurgency fails to allow an evaluation of the true nature of tactical adaptation and its relationship with ways and goals by avoiding a critical assessment of where most knowledge from the field has originated—combined arms warfare. The next steps for research are to challenge conclusions about the nature of tactical adaptation and its relationship with performance, and not concentrating simply on how or why it occurs. Analyzing five themes in the literature on tactical adaptation reveals competing arguments and raises fundamental questions. Can tactical adaptation create campaign success? Does it simply compliment existing doctrine, or test and apply new ones? Moreover, what outcomes are produced by different prioritizations of improvisation, anticipation, experimentation and exploitation? New comparative analyses are required to adequately answer what is the true nature of tactical adaptation in combined arms warfare, and what is its relationship with operational performance.

CHAPTER 3: U.S. FIRST ARMY IN NORTHWEST EUROPE

Two cases studies of U.S. First Army in Northwest Europe during 1944 deliver distinct results to this study's hypothesis that wartime tactical adaptation delivers advantages that decisively cause operational victory or prevent operational defeat, and does not simply limit the costs of failures or setbacks in the operational and tactical realms.

In Case Study 1, First Army's tactical adaptation in the *bocage* of northern France during the Normandy campaign increased operational effectiveness to cause the capture of St. Lô and complete the campaign's third operational phase before the breakout across northwest Europe toward Germany. Faced with the unexpected problem of hedgerow terrain isolating effective combined arms teams and favoring German defenders, U.S. troops and commanders at the tactical level explored new methods to restore mobility, deploy more firepower, and coordinate mobility and firepower for synergistic, combined arms effects. Advantages gained through new tactics, techniques, and procedures delivered exploitable advantages for the attacking U.S. forces that cleared German defenders from the *bocage* and advanced First Army to St. Lô. This conclusion supports the study's primary hypothesis, suggesting that asking tactical adaptation to deliver fewer benefits than this overall goal may underestimate its role and misunderstand the true nature of its relationship with operational ways and strategic goals.

In Case Study 2, First Army's failure to adapt in the Huertgen Forest maintained low operational effectiveness but did not prevent First Army from capturing the forest and achieving operational goals before continuing into Germany. Faced with the unexpected

problem of forested terrain isolating effective combined arms teams and favoring German defenders, troops and commanders at the tactical level failed to explore new methods to restore mobility, deploy more firepower, or coordinate mobility and firepower for synergistic, combined arms effects. No advantages were gained through new tactics, techniques, or procedures, failing to deliver exploitable advantages for the attacking U.S. forces. However, these forces still achieved their operational objectives by pushing German defenders from the Huertgen Forest and advancing through the terrain to threaten Germany. This conclusion challenges the study's primary hypothesis that claims tactical adaptation is vital for attaining operational goals and campaign victory. Instead, results of Case Study 2 suggest that successful tactical adaptation increases operational effectiveness but is not a fundamental requirement of fighting and winning, and failure to adapt does not decisively cause campaign defeat. Hence, requiring tactical adaptation during operations may increase the expenditure of resources and be an unnecessary burden for achieving goals. The absence of tactical adaptation does not necessarily remove operational effectiveness.

Case Study 1: Tactical Adaptation Causes Operational Victory First Army Adapting in the *Bocage*, June-July 1944

Case Study 1 Hypothesis:

If wartime tactical adaptation causes operational victory, then tactical adaptation by U.S. First Army in the *bocage* of northern France caused operational victory in the third phase of the Normandy campaign to capture St. Lô before the breakout across northwest Europe in 1944.

Case Study 1 Results:

Analyzing U.S. First Army in *bocage* of northern France displays that tactical adaptation increased operational effectiveness by complimenting doctrine and caused operational victory. This improvement contributed to ultimate campaign success across northwest Europe.

American learning in the *bocage* displays tactical adaptation increasing operational effectiveness and created campaign success by exploring new tactical methods and exploiting their advantage. Thus, tactical adaptation may not simply refine and enhance operational effectiveness. Rather, tactical adaptation may cause operational success and lead to overall campaign victory.

This conclusion supports the study's primary hypothesis. Hence, asking tactical adaptation to deliver fewer benefits than this overall goal may underestimate its role and misunderstand the true nature of its relationship with operational ways and strategic goals.

U.S. First Army's tactical adaptation in the *bocage* of northern France during the Normandy campaign increased operational effectiveness to cause the capture of St. Lô and complete the campaign's third operational phase before the breakout across Europe toward Germany. Faced with the unexpected problem of hedgerow terrain favoring German defenders and isolating effective combined arms teams, troops and commanders at the tactical level explored new methods to restore mobility, deploy more firepower, and coordinate mobility and firepower for synergistic, combined arms effects.⁴⁷ Advantages gained through new tactics, techniques, and procedures delivered exploitable advantages for the attacking U.S. forces that cleared German defenders from the *bocage* and advanced First Army to St. Lô.

First Army in the Bocage: Overview of Analysis

First Army in the breakout across northwest Europe revealed a doctrine that was fundamentally sound and could be effectively adapted through combat exposure.⁴⁸ Battle stimulated innovation, with lessons determined and disseminated to improve operational effectiveness. In a relatively short time period, First Army fought through France's *bocage* country and "learned to use sophisticated combined arms tactics with deadly efficiency" on the battlefield.⁴⁹ This successful adaptation caused operational success and shifted the campaign toward Germany and ultimate victory. The "slow, painstaking crawl

⁴⁷ Russell A. Hart, *Clash of Arms: How the Allies Won in Normandy* (Norman, Oklahoma: The University of Oklahoma Press, 2001), p. 279.

⁴⁸ Hart, 5-9, 416-419; Peter R. Mansoor, *The GI Offensive in Europe: The Triumph of American Infantry Divisions, 1941-1945* (Lawrence, Kansas: University of Kansas Press, 1999).

⁴⁹ Doubler, *Closing with the Enemy*, Michael Doubler, *Closing with the Enemy: How GIs Fought the War in Europe, 1944-1945* (Lawrence, Kansas: University of Kansas Press, 1994), p. 2.

through the worst of the *bocage*” ultimately “determined the outcome of the Normandy campaign” as American infantry “decimated some of the best units in the German armed forces.”⁵⁰

First Army’s ability to learn, adapt, and apply new tactical techniques and procedures with creativity and flexibility constantly improved the application of combined arms warfare.⁵¹ American learning in the *bocage* displayed tactical adaptation increasing operational effectiveness and creating campaign success by developing new methods and exploiting strengths. First Army adapted through battle exposure to improve combat effectiveness in new and often unexpected circumstances. Tactical adaptation in the hedgerows did not simply refine and enhance operational effectiveness; it caused operational success and led to overall victory. In the *bocage*, First Army revealed how militaries as dynamic institutions can adapt, learn, and innovate during times of war to mitigate the consequences of continuing mistakes and increase operational effectiveness.

Operational Goals in the Bocage

Following the amphibious assault and consolidation along the Normandy coast, First Army’s advance toward St. Lô grinded to a crawl in the *bocage* hedgerows of northern

⁵⁰ Peter R. Mansoor, *The GI Offensive in Europe: The Triumph of American Infantry Divisions, 1941-1945* (Lawrence, Kansas: University Press of Kansas, 1999), p. 158.

⁵¹ Michael Doubler, “Busting the Bocage: American Combined Arms Operations in France 6 June-31 July 1944,” Combat Studies Institute, US Army Command and General Staff College (November 1988), available at the Combined Arms Research Library digital database, <http://carl.army.mil/resources/csi/doubler/doubler.asp>; Doubler, *Closing with the Enemy*. See also John Sloan Brown, *Draftee Divisions: The 88th Infantry Division in World War II* (Lexington, Kentucky: University Press of Kentucky, 1986); Peter Raja Mansoor, “The Development of Combat Effective Divisions,” and Mansoor, “Building Blocks of Victory: American Infantry Divisions in the War Against Germany and Italy, 1941-1945,” Ph.D. thesis, Ohio State University, 1995; cited in Hart, p. 8, footnote 32.

France.⁵² Following the June 6 invasion, the “Battle of the Hedgerows” began July 3 as First Army pushed south from the Cotentin Peninsula into Coutances and toward St. Lô, “the most decisive piece of terrain in the American zone due to the eight roads and one railroad that converged there.”⁵³ Controlling this decisive location prevented German reinforcement west of the Allied front and would allow a massive thrust east toward Germany.⁵⁴

Tactical setbacks in the *bocage* directly undermined operational and campaign goals. Stalled progress prevented the strategic directive to “enter the continent of Europe and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces.”⁵⁵ Strategy required seizing the beachheads and expanding the coastal area of control before attacking inland and turning toward Paris, and failure to advance through the *bocage* would undermine this turning-movement objective. Facing a tactical setback that threatened operational and strategic goals, First Army adapted and retrained to overcome struggles of fighting through the *bocage* hedgerows over several weeks to achieve vital objectives of the Normandy campaign.⁵⁶

⁵² Paul Collier, Alastair Finlan, Mark Grove, Philip Grove, Russell Hart, Stephen Hart, Max Hastings, Robin Havers, David Horner, and Geoffrey Jukes, eds., *The Second World War: A World In Flames* (Oxford, UK: Osprey Publishing, 2004), p. 390.

⁵³ Mansoor, 153.

⁵⁴ Intelligence Annex to Army Group B War Journal, 10 July 1944, p. 5, Microcopy T-311, Roll 1, Combined Arms Research Library, Fort Leavenworth, Kansas, cited in Mansoor, 153, footnote 71.

⁵⁵ Forrest C. Pogue, *The Supreme Command*, United States Army in World War II (Washington, D.C.: U.S. Army, Office of the Chief of Military History, 1954), pp. 52-53. Cited in Doubler, *Closing*, p. 31, footnote 1.

⁵⁶ Hart, 271; Mansoor, 158.

Terrain

The *bocage* landscape west of Rouen-Châteaudun in northwest France is a “confused mosaic of little woods and thick, high hedges alternating with little fields or, on higher ground, patches of heath.”⁵⁷ Hills and irregular landscapes are filled with small and irregularly shaped farming fields separated by hedgerows that are high earthen banks with masses of vegetation, grown over hundreds of years to create formidable barriers.⁵⁸ These barriers vary between a width of one and four feet and rise up to fifteen feet tall, dividing the countryside into enclosed compartments of pastures, orchards, and farming fields.⁵⁹ Sunken roads between the hedgerows channel movement and increase the compartmentalization of the terrain, turning the area into a large patchwork of small 200-400 yard pockets in a large irregular shape and in no pattern.⁶⁰ Challenges from the physical geography “seem to have taken First Army by complete surprise,” and U.S. commanders “had done little to prepare their units for fighting among the hedgerows.”⁶¹ In this unfamiliar terrain, U.S. attackers would meet well-prepared German defenders.

Capable and Prepared German Defenders

German defenders possessed “skill and tenacity and the powerful defensive advantage of the bocage terrain.”⁶² Well-prepared German forces could use the favorable defensive terrain to stall and repulse U.S. attacks. Cover, concealment, and obstacles for attackers

⁵⁷ Arthur Davies, “Geographical Factors in the Invasion and Battle of Normandy,” *Geographical Review*, Vol. 36, No. 4 (October 1946), p. 618.

⁵⁸ Mansoor, 142.

⁵⁹ Doubler, *Closing*, 34.

⁶⁰ Doubler, *Closing*, 34; Mansoor, 142.

⁶¹ Davies, “Geographical Factors”; Doubler, “Busting the Bocage,” 12.

⁶² Hart, 278. Italics added.

provide valuable defensive advantages, and “anyone occupying a high place that afforded a clear view of the surrounding countryside would have a distinct advantage.”⁶³

Bocage terrain favored the defense-in-depth used by German defenders.⁶⁴ Defenders in advanced positions and outpost zones could slow attackers by using greater firepower from high-quality automatic weapons⁶⁵ before withdrawing to the main defensive line on the reverse slope of a hill or ridge.⁶⁶ If this main line were breached, German defenders would apply artillery and aggressively counterattack after the barrage.⁶⁷ Mobile reserves further back could counterattack any penetration once forward troops identified the nature and location of the main enemy attack.⁶⁸

German defenders were “well prepared and very adept at defending the hedgerow country,” with the *bocage* compartmentalized terrain favoring small-unit tactics successfully employed.⁶⁹ A small detachment could defend a field and its surrounding hedgerows, with a series of these detachments creating a forward defensive line of

⁶³ Doubler, *Closing*, 34.

⁶⁴ See Doubler, “Busting,” 12.

⁶⁵ By 1944 the German army increased the number of automatic weapons in their infantry divisions, and German machine guns were a higher quality than the Americans'. Although a German division in 1944 possessed 12,500 people—a reduction of 4,500 from before—divisions now increased from 700 to 1,503 submachine guns and from 643 to 656 machine guns. The German MG 42 machine gun fired 1,200 rounds per minute, compared with the American M1919 Browning's 500. The German MP 40 was also very useful in the hedgerow's compartmentalized terrain. From Mansoor, 149. Mansoor cites Joseph Balkowski, *Beyond the Beachhead: The 29th Infantry Division in Normandy* (Harrisburg, PA: Stackpole, 1989; reprint, New York: Dell, 1992), pp. 99-102; Kent Roberts Greenfield, Robert R. Palmer, and Bell I Wiley, *The Organization of Ground Combat Troops* (Washington, D.C.: Historical Division, U.S. Army, 1947), p. 275; U.S. War Department, *Handbook on German Military Forces* (Washington, D.C.: Government Printing Office, 1945), p. II-8, II-10, VII-8.

⁶⁶ Mansoor, 148; U.S. War Department, *Handbook on German Military Forces* (Washington, D.C.: Government Printing Office, 1945), IV-21 to IV-23. Cited in Mansoor, p. 149, footnote 53.

⁶⁷ Mansoor, 149; U.S. War Department, *Handbook on German Military Forces*, IV-25.

⁶⁸ Hart, 278.

⁶⁹ Doubler, *Closing*, 36.

interconnected, compartmentalized fields.⁷⁰ This defensive orientation was specifically designed to disrupt attackers' coordination and momentum through direct fire from rifles and machine guns, and indirect fire from pre-planned mortars and artillery.⁷¹ Communication wires and trenches connecting units facilitated defensive coordination. The efficacy of German defenses was demonstrated in early clashes with U.S. forces.⁷²

Balance of Forces

Four corps of First Army faced three corps of German defenders: U.S. VIII Corps in the west, VII Corps and XIX Corps in the middle, and V Corps in the east. Divisions from these corps would battle German LXXXIV Corps west of the Vire River and II Parachute Corps in the east, supported by XLVII Panzer Corps straddling the U.S./UK area of responsibilities of Omaha and Gold beaches.⁷³ After a three-week hiatus, VIII Corps began fighting through the *bocage* toward St. Lô on July 3, 1944; the initial assaults did not go well for the First Army attackers.

Initial U.S. Attacks and Setbacks

First Army attacks into the *bocage* revealed shortcomings and created setbacks that were exploited by German defenders. Unprepared to fight in the hedgerows, facing stout defenders, and the inability to coordinate small units in combined arms teams revealed that existing tactics, techniques, and procedures were insufficient or ineffective. These

⁷⁰ Doubler, *Closing*, 37.

⁷¹ Doubler, *Closing*, 37-38.

⁷² Doubler, *Closing*, 38.

⁷³ Mansoor, 152-156.

shortcomings and setbacks inspired adaptation in new tactical methods for achieving operational goals.

American forces were unprepared to fight in the *bocage*. Campaign strategists “had barely considered the problems of conducting battle inland,” and “First Army had not specifically prepared troops to fight in the hedgerow terrain.”⁷⁴ Combat commanders “had done little to prepare their units for fighting among the hedgerows.”⁷⁵ This shortcoming was admitted by BGen James Gavin: “None of us had really appreciated how difficult it would turn out to be.”⁷⁶ Unprepared, First Army applied existing doctrine that proved insufficient to achieve objectives.

Tactical shortcomings and German defenders repelled attacking American forces that had lost the vital mobility and firepower of their combined arms teams in the *bocage*'s compartmentalized terrain.⁷⁷ First Army could not conduct the close coordination of multiple arms at the small-unit level required in the hedgerows' pockets.⁷⁸ Terrain channeled attackers into frontal assaults and undermined unit maneuver, so the fighting “demanded excellent combined-arms coordination if the attacker was to prevail.”⁷⁹ With insufficient firepower to overwhelm German defenders and tanks unable to overcome the earthworks and vegetation, small units engaged in close combat that “placed a premium

⁷⁴ Davies; “Only in May did the Allies consider operations in the bocage,” PRO WO 205/118, “Appreciation of Possible Development of Operations to Secure a Logement Area—Operation OVERLORD,” 7 May 1944, p. 4, cited in Hart, p. 277, footnote 32.

⁷⁵ Doubler, *Closing*, 36.

⁷⁶ James M. Gavin, *On to Berlin: Battles of an Airborne Commander, 1943-1946* (New York: Viking Press, 1978), p. 121, cited in Doubler, *Closing*, 36.

⁷⁷ Doubler, “Busting,” 15.

⁷⁸ Mansoor, 143.

⁷⁹ Hart, 277.

on small-unit initiative.⁸⁰ Yet infantry struggled to conduct the small unit tactics required.

First Army infantry failed to effectively conduct inter-arms coordination and fire-and-maneuver tactics. Instead of aggressively maneuvering to apply effective direct fire, U.S. attackers located German defenders and called for indirect fire. This process slowed the advance and allowed defenders to maneuver quickly and respond.⁸¹ Tanks unable to move thorough the hedgerows initially remained on roads until their vulnerability to attackers forced U.S. armor into a passive role simply following the infantry. Artillery performed well as an independent arm, but the inability to coordinate infantry, armor, and artillery reduced operations into small battles between infantrymen instead of integrating combat arms for a synergistic application of mutually complementary effects. Unless First Army adapted tactical methods, the invasion would stall in the *bocage* in a bloody stalemate that favored German defenders.

First Army Adaptation: Revised Tactics Increase Operational Effectiveness

Troops and commanders at the tactical level explored new methods to restore mobility, deploy more firepower, and coordinate mobility and firepower for synergistic, combined arms effects.⁸² Advantages gained through new tactics, techniques, and procedures delivered exploitable advantages for the attacking U.S. forces that cleared German defenders from the *bocage* and advanced First Army to St. Lô. Concluding the third

⁸⁰ Hart, 278; Doubler, “Busting,” 14.

⁸¹ Doubler, *Closing*, 39-40; Hart, 279.

⁸² Hart, 279.

phase of the Normandy campaign, Allied forces could turn east and breakout across Europe in the main thrust into Germany.

Rapid exploration of new tactical methods through improvisation and anticipation created opportunities and exploited their advantages. These methods were disseminated “largely from the bottom up.”⁸³ Tactical leaders were willing to innovate when they met with failure or difficulty, and commanders proved receptive to new ideas and solutions. New ideas “flowed upward from the men actually engaged in battle.”⁸⁴ These lessons quickly disseminated to forces and training the adapted methods improved combat effectiveness.⁸⁵ Overall, adaptation in small unit tactics and tank modifications decisively altered the relative operational effectiveness of American attackers and German defenders, delivering First Army operational success.

Troops and commanders reconnected the components of combined arms teams that were isolated by terrain and defenders through revised techniques and procedures.⁸⁶ Infantry and armor stopped attacking in separate echelons and began attacking simultaneously in mutually supporting elements. Together, tanks’ firepower could allow infantrymen to advance and clear the hedgerows. But before these teams could function in combined arms, tanks had to breach the hedgerows.

⁸³ Hart, 417.

⁸⁴ Doubler, “Busting,” 27.

⁸⁵ Doubler, *Closing*; Hart, 417.

⁸⁶ Paragraph from Doubler, *Closing*, 42-43.

New explosive breaching techniques and vehicular modifications allowed First Army tanks to penetrate the hedgerows and infantrymen to conduct small unit combined arms assaults. The 29th Infantry Division equipped Sherman tanks with two commercial pipes that gouged large holes into the hedgerows in which engineers placed improvised explosives using 105-mm artillery shells.⁸⁷ Several units copied the new techniques for breaching hedgerows with explosives, while other learned to smash through them.

V Corps developed “Rhino” tanks fitted with scrap iron as large saw teeth that rammed into the hedgerows and cut through them.⁸⁸ Designed and supervised by non-commissioned officers, the initial modifications, design, and assembly of Shermans into “Rhino” tanks quickly passed up the chain of command and disseminated back down.⁸⁹ By late July 60% of the Sherman tanks in First Army possessed the new teeth for cutting through hedgerows.⁹⁰ Supplemented with revised communication procedures allowing armor and infantry better coordination, First Army successfully breached and cleared the hedgerows in coordinated combined arms teams.⁹¹

⁸⁷ Doubler, *Closing*, 44.

⁸⁸ Max Hastings, *Overlord: D-Day and the Battle for Normandy* (London: Michael Joseph, 1984), p. 252; Martin Blumenson, *Breakout and Pursuit*, U.S. Army in World War II (Washington DC: Office of the Chief of Military History, Department of the Army, 1961), pp. 206-7; cited in Doubler, “Busting,” 17 footnote 32.

⁸⁹ Major William C. Sylvan, US Army Diaries, 14 July 1944, USAMHI; Omar Nelson Bradley, *A Soldier's Story* (1951; reprint, New York: Rand McNally, 1978), p. 342; cited in Doubler, “Busting the Bocage,” 17, footnote 33.

⁹⁰ Sylvan, US Army Diaries, 14 July 1944, USAMHI; Bradley, *A Soldier's Story*, 342; First Army Report, 5, pp. 200-201; cited in Doubler, “Busting,” p. 17, footnote 34.

⁹¹ US Army Ground Forces Observer Board, European Theater of Operations, Report no. 191, “Notes on Interviews with Various Commanders in Normandy,” pp. 6-7; cited in Doubler, “Busting,” 23-24, footnotes 63, 64, and 65.

Revised techniques and procedures produced two similar methods for small units to closely coordinated fire and maneuver and defeat German defenders. One was based in squads, and another in companies. In one revised method, the 29th Infantry Division developed a four-phase attack they practiced and implemented with diagrams and explanatory notes distributed in training memorandums and required units to practice.⁹² Tanks first applied suppressing fire as infantry moved into the area, engaging defenders at close range as the tanks simultaneously backed away for engineers to place more explosives. Demolitions exploded a hole in the hedgerow as infantry assault, followed by the tank to help clear objectives and the unit prepares for assaulting the next compartment.⁹³ By early July, battalions executing the new tactical methods broke through German defenses.⁹⁴ Enemy resistance “eased and then collapsed” on the path to St. Lô as American units “made spectacular progress” penetrating enemy defenses and “completely ruptured the German main line of resistance.”⁹⁵ The 2nd Infantry Division developed similar methods, using engineers, armor, and an infantry squad to breach the hedgerows and battle with closely supported and coordinated teams.⁹⁶ After a hedgerow was secure, engineers would immediately breach the next one with a tank and supporting infantry.

In the other revised method, the 3rd Armored Division used firepower and mobility to attack multiple hedgerows in coordinated, company-sized assaults across multiple

⁹² Doubler, *Closing*, 51.

⁹³ 29th Infantry Division Hedgerow Tactics, from Doubler, *Busting*, 41.

⁹⁴ Doubler, *Closing*, 52.

⁹⁵ Doubler, *Closing*, 52.

⁹⁶ Doubler, *Closing*, 53.

fields.⁹⁷ Coordinating tank and infantry companies, revised methods attacked three hedgerows simultaneously. The outer hedgerows were attacked first by a breach followed by a tank platoon spraying the internal barriers with direct fire. Moving slowly, the tanks were covered by infantry and then fired at the sides of the center hedgerow. Blasting the flanks of the center hedgerow, forces finally breached its front and converged on the defenders before regrouping to attack again. In application, these new methods of “coordinated tank-infantry-engineer teams successfully pushed the Germans back.”⁹⁸

A decentralized process encouraged improvising solutions to combat problems and anticipating future ones. Learning was not automatically disseminated; no centralized learning system existed in the U.S. Army since it “never fully centralized nor formally institutionalized a system for gathering lessons from the field, digesting them, and then disseminating them back down to lower levels” during the Second World War.⁹⁹ Instead, divisions learned at different rates and disseminated knowledge to subordinate units. New ideas were encouraged as commanders and troops honestly evaluated their performance, identified deficiencies, explored new tactical methods in various techniques and procedures, and exploited opportunities when created.¹⁰⁰ Forced to adapt while conducting offensive operations with limited resources against unforeseen setbacks in the *bocage*, First Army allowed combat units to find solutions and approve those considered effective.

⁹⁷ Doubler, *Closing*, 54-57.

⁹⁸ Doubler, *Closing*, 56.

⁹⁹ Mansoor, 153; Dennis J. Vetock, *Lessons Learned: A History of US Army Lesson Learning* (Carlisle Barracks, PA: USAMHI 1988), p. 71, cited in Mansoor, 153, footnote 77.

¹⁰⁰ Hart, 291.

Analysis and Conclusions

First Army proved “capable of adapting to a new and hostile environment,” showing “a remarkable capacity to learn from their mistakes and experiences as they devised new tactics and procedures to meet the unexpected challenges of the *bocage*.”¹⁰¹ Faced with the unexpected problem of hedgerow terrain favoring German defenders and isolating effective combined arms teams, First Army experimented with new methods of tank mobility and tactics, techniques, and procedures using small, combined arms teams in squads and companies to increase operational effectiveness. Troops and commanders at the tactical level explored new methods to restore mobility, deploy more firepower, and coordinate mobility and firepower for synergistic, combined arms effects.¹⁰² Advantages gained through new tactics, techniques, and procedures delivered exploitable advantages for the attacking U.S. forces that cleared German defenders from the *bocage* and advanced First Army to St. Lô. Concluding the third phase of the Normandy campaign, Allied forces could turn east and breakout across Europe into Germany.

Yet if First Army effectively adapted in the *bocage*, why did it fail in the Huertgen Forest?

¹⁰¹ Doubler, *Closing*, 57.

¹⁰² Hart, 279.

Case Study 2: Failure to Adapt Does Not Prevent Operational Victory First Army in the Huertgen Forest, October 1944

Case Study 2 Hypothesis:

If wartime tactical adaptation causes operational victory or prevents defeat, then the lack of tactical adaptation by U.S. First Army in the Huertgen Forest in 1944 prevented operational victory.

Case Study 2 Results:

Analyzing First Army's failure to adapt in the Huertgen Forest while still achieving operational goals indicates that tactical adaptation is not a prerequisite for operational victory. Similarly, the absence of tactical adaptation does not ensure operational defeat. American failures to learn while fighting German adversaries in the Huertgen Forest did not prevent attaining the operational objective of capturing the forest, gaining control south of Cologne, and positioning forces to advance toward the Rhine.

This conclusion challenges the study's primary hypothesis that claims tactical adaptation is vital for attaining operational goals and campaign victory. The conclusion of Case Study 2 suggests that successful tactical adaptation increases operational effectiveness but is not a fundamental requirement of fighting and winning. Additionally, this conclusion suggests that failure to adapt does not decisively cause campaign defeat. Hence, requiring tactical adaptation during operations may increase the expenditure of resources and be an unnecessary

burden for achieving goals. The absence of tactical adaptation does not necessarily remove operational effectiveness.

First Army in the Huertgen: Overview of Analysis

First Army in the Huertgen Forest failed to adapt methods through combat exposure. Battle stimulated no innovation, and no lessons were determined or disseminated to improve operational effectiveness. First Army failed to apply the combined arms tactics effectively applied in the *bocage*; forces attacked with unchanging tactical methods producing low operational effectiveness. American attackers continued to confront strong German positions and “bled themselves dry.”¹⁰³

First Army used five divisions to push through the forest and gain control by December 1, suffering over 8,000 dead and 23,000 wounded.¹⁰⁴ Failure to adapt prevented First Army from mitigating setbacks but did not prevent operational success or undermine ultimate campaign victory. First Army’s inability to learn, adapt, or apply new tactical techniques and procedures with creativity and flexibility constantly prevented the improved application of combined arms warfare. In the Huertgen, First Army revealed how tactical adaptation is not a prerequisite for operational victory. Rather, militaries failing to adapt, learn, or innovate during times of war fail to mitigate the consequences of continuing mistakes or enhance operational effectiveness.

¹⁰³ Hart, 419.

¹⁰⁴ Charles B. MacDonald, *The Siegfried Line Campaign* (Washington DC: Center of Military History United States Army, 1990), p. 493, originally published 1963; Russell F. Weigley, *Eisenhower’s Lieutenants: The Campaign of France and Germany 1944-1945* (Bloomington, Indiana: Indiana University Press, 1974), pp. 416-420.

Operational Goals in the Huertgen

By late September 1944, the Allied advance into Germany was stalled from the Siegfried Line to the Moselle River.¹⁰⁵ New strategic objectives were issued in November and major attacks resumed, aiming to destroy German forces near the Rhine, seize bridgeheads and advance east.¹⁰⁶ The first phase required First Army to attack and gain control south of Cologne, necessary for massing forces on the Rhine's west bank.¹⁰⁷ Additionally, attacking the Huertgen Forest would destroy many German defenders and position forces for future advances toward the Rhine.¹⁰⁸

Terrain

The Huertgen Forest was a “tactical nightmare” for First Army as attacking forces faced a critical disadvantage in the wooded terrain.¹⁰⁹ Three woods, the Wenau, Hürtgen, and Rötgen form the larger forest encompassing approximately 50 square miles along the German and Belgian border.¹¹⁰ The forest lies inside a triangle formed by Aachen, Monschau, and Duren, south of the Aachen plain and north of the Ardennes.¹¹¹ Ridges, deep gorges, rivers and streams divided the terrain into small compartments and posed

¹⁰⁵ The General Board, United States Forces, European, “Strategy of the Campaign in Western Europe, 1944-1945,” Study Number 1, p. 53; for movements of VII Corps immediately before the Huertgen, see Charles B. MacDonald, *The Operations of VII Corps in September 1944*, Office of the Chief of Military History, Department of the Army (March 1953).

¹⁰⁶ General Board, “Strategy of the Campaign in Western Europe,” 54; Charles B. MacDonald, *The Siegfried Line Campaign* (Washington DC: Center of Military History United States Army, 1990), pp. 376-378, originally published 1963; Max Hastings, et. al., *The Second World War: A World In Flames* (Oxford, UK: Osprey Publishing, 2004), p. 404.

¹⁰⁷ MacDonald, *Siegfried Line*, 390.

¹⁰⁸ Doubler, *Closing*, 175.

¹⁰⁹ Allan R. Millet and Williamson Murray, *A War to be Won: Fighting the Second World War* (Cambridge, Massachusetts: The Belknap Press of Harvard University Press), p. 461; Weigley, 365.

¹¹⁰ Russell F. Weigley, *Eisenhower's Lieutenants: The Campaign of France and Germany 1944-1945* (Bloomington, Indiana: Indiana University Press, 1974), p. 365.

¹¹¹ Doubler, *Closing*, 174.

multiple challenges for attackers.¹¹² Ridgelines grow higher toward the east, so attackers were “nearly always” moving uphill.¹¹³ Two large ridges cut across the forest from the southwest to the northeast, allowing defenders controlling the high ground to dominate the forests below, as well as the deep gorge and river between the ridges.¹¹⁴ Pine trees over a hundred feet tall block sunlight, combining with rain and fog to limit visibility and disorient individuals.¹¹⁵ The dense canopy keeps the forest floor damp and dark, exacerbated by rain and mud. Attackers faced logging trails across deep gorges, and defenders controlling the few roads for reinforcement and re-supply.¹¹⁶

Compartmentalization and low overhead visibility limited direct artillery, air support, and armor deployment, removing the synergistic effects of combined arms war. These geographic limitations ensured U.S. forces would be “locked in close-quarters combat on the forest floor” in a “fragmented series of infantry contests.”¹¹⁷ In this difficult terrain, U.S. attackers would meet well-prepared German defenders.

Capable and Prepared German Defenders

German defenders possessed favorable terrain and experience in forest fighting from battle in the east, useful for achieving their objective of controlling roads and supply

¹¹² Doubler, *Closing*, 174.

¹¹³ Mike Sullivan, “Armor Against the Huertgen Forest: The Kall Trail and the Battle of Kommerscheidt,” *Armor*, Vol. 111, No. 3 (May/June 2002), p. 25.

¹¹⁴ Weigley, 365.

¹¹⁵ Charles B. MacDonald, *The Battle of the Huertgen Forest* (New York: Jove Books, 1963), p. 5; Sullivan, 25.

¹¹⁶ Millet and Murray, *A War to be Won*, 461; for “lines of operation” definition and components, see *Field Manual 100-5: Operations*, Headquarters, Department of the Army, United States of America (June 1993), p. 6-7.

¹¹⁷ Doubler, *Closing with the Enemy*, 178; Weigley, 365.

routes while funneling attackers into narrow trails and bleeding them dry.¹¹⁸

Additionally, forces were motivated knowing that losing the area “would threaten their entire position in front of the Rhine.”¹¹⁹

The defensive orientation used forward outpost lines to delay attackers and allow defenders to determine the location and size of the attacking force. Entrenched, covered positions supported with pre-positioned mortars, machine guns, and artillery provided valuable tactical advantages. Counterattacks would be avoided due to the deadly lessons from past forest operations. Instead, fighting withdrawals were planned through series of defenses-in-depth. Forward observers and snipers hid in trees, runners communicated between units, and soldiers were specifically assigned in each company to track direction and location in the disorienting forest.

Balance of Forces

U.S. First Army comprised of V, VII, and VIII Corps, possessing nine infantry divisions, three armored divisions and supporting units, totaling 318,422 men stretched across a 120-mile front.¹²⁰ VII Corps led the attack toward Cologne, but this thrust made the corps vulnerable to counterattacks along the right flank—from the Huertgen Forest.¹²¹ An

¹¹⁸ Paragraph on German institutional learning from combat experience relies on “How the Germans Fight in Wooded and Broken Terrain,” *Intelligence Bulletin*, Vol. III, No. 5 (January 1945), available at <http://www.lonesentry.com/articles/wooded-terrain/index.html>; Doubler, *Closing*, 173. See also US War Department, Military Intelligence Division, “German Forest Fighting,” *Tactical and Technical Trends*, No. 54 (January 1945), pp. 70-77; Milton L. Rosen, “Forest Fighting,” *Infantry Journal* (April 1945), pp. 8-10; cited in Doubler, *Closing with the Enemy*, 173, footnotes 2 and 3.

¹¹⁹ Millet and Murray, *A War to be Won*, 460.

¹²⁰ MacDonald, *Siegfried Line*, 397-399. For infantry division sub-organization, see The General Board, United States Forces, European Theater, “Organization, Equipment, and Tactical Employment of the Infantry Division,” Study Number 15, appendices 2, 3, and 4.

¹²¹ Doubler, *Closing*, 175.

additional attack was necessary to protect the right flank of VII Corps by attacking German forces in the Huertgen.¹²² VII Corps' 9th Infantry Division first moved into the western half of the forest to attack and capture Schmidt, along with its vital roadways and dams, before V Corps attacked the remaining eastern half.¹²³ V Corps contained the 2nd, 8th, and 28th divisions, of which the 28th would bear the brunt of the German defenders, landing on the 109th, 110th, and 112th regiments.¹²⁴ German defenders belonged to Army Group B, with the Fifth Panzer and Seventh Armies divided through the northern edge of the Huertgen Forest.¹²⁵ Fifth Panzer faced part of VII Corps, while Seventh Army faced U.S. First Army V Corps, as well as other corps outside the Huertgen.¹²⁶

Battle in the Huertgen Forest: Attacking Without Adaptation

First Army attacks into the Huertgen Forest revealed shortcomings and created setbacks that were exploited by German defenders. Unprepared to fight in the forest, facing stout defenders, and unable to coordinate small units in combined arms teams, battle revealed that existing tactics, techniques, and procedures possessed low operational effectiveness. However, these shortcomings and setbacks failed to inspire adaptation in new tactical methods for achieving operational goals.

¹²² Millett and Murray, 460.

¹²³ MacDonald, *Siegfried Line*, 323-324.

¹²⁴ V Corps commanded by MG Leonard Gerow, with 2nd Division commanded by MG Walter Robinson, 8th by MG Donald Stroh and 28th by Norman Cota. In 28th ID, 109th Regiment commanded by LTC Daniel Stricker, 110th by COL Theodore Seeley, and 112th by LTC Carl Peterson. In Thomas G. Bradbeer, "Major General Cota and the Battle of the Huertgen Forest: A Failure of Battle Command?" US Army Command and General Staff College, p. 38. Army Group B commanded by Field Marshal Walter Model, with Fifth Panzer under Hasso von Manteuffel and Seventh Army under Erich Brandenberger.

¹²⁵ MacDonald, *Siegfried Line*, 395.

¹²⁶ MacDonald, *Siegfried Line*, 395-396.

Troops and commanders at the tactical level did not explore new methods to restore mobility, deploy more firepower, or coordinate mobility and firepower for synergistic, combined arms effects. Disadvantages continued through the use of unchanging tactics, techniques, and procedures, failing to deliver exploitable advantages for the attacking U.S. forces that eventually cleared German defenders from the forest and advanced First Army. Without exploring new tactical methods through improvisation and anticipation, no new opportunities were created or exploited, and no new methods were disseminated. Tactical leaders were largely unwilling to innovate when they met with failure or difficulty, and commanders proved unreceptive to new ideas and solutions. Failure to adapt small unit tactics or restore combined arms effectiveness did not decisively alter the relative operational effectiveness of American attackers and German defenders.

First Army attacked into the Huertgen with the 9th Division on October 6, and the fighting quickly “established a pattern for the entire grueling war of attrition that became synonymous with the Huertgen Forest campaign.”¹²⁷ Over 15 days 9th Division advanced only two miles, failed to control the forest, and suffered almost 5,000 casualties.¹²⁸ Costly attacks plodded across the compartmentalized terrain, with little assistance from tanks, artillery, or air support.¹²⁹ American infantrymen “incompletely trained in woods fighting” lost their sense of direction, and company-level command and control often fell apart.¹³⁰ Despite experiences displaying the use of widely separated columns in the forest

¹²⁷ MacDonald, *Siegfried Line Campaign*, 330-332; Doubler, *Closing*, 177.

¹²⁸ Millet and Murray, *A War to be Won*, 461.

¹²⁹ Doubler, *Closing*, 174.

¹³⁰ Weigley, 366.

was to “invite disaster,” First Army did not change the method of attack.¹³¹ Initial attacks into the forest took five days, advanced only 1,500 meters, and cost almost a thousand men. After ten days, the division advanced only 1,500 meters further, with casualties now totaling 4,500.¹³² Failing to meet the objective of capturing Schmidt, the 9th Division halted attacks at the end of October and prepared for the assault by V Corps. Zones of responsibility were changed between VII and V Corps, so the subsequent attack toward Schmidt fell on solely on V Corps.

On November 2, V Corps attacked with the 28th Division without implementing new tactical methods, and was battered until rendered combat ineffective. The 28th relieved 9th Division from October 26 to 27, and was ordered to “secure high ground in the vicinity” of Schmidt and maintain contact with VII Corps.¹³³ No new techniques or procedures were implemented, and neither mission nor doctrine significantly changed. This lack of adaptation “virtually ordained” that the attacks “follow closely the planned route of the 9th Division’s unsuccessful October thrust.”¹³⁴ The 112th Regiment formed the central thrust through three miles of forest, flanked on the left by the 109th and the to the right by the 110th.

While the 28th Division clashed with Germany’s 89th Infantry Division and elements of the 275th infantry and 116th Panzer divisions, none of the American attackers “made any

¹³¹ MacDonald, *Siegfried Line Campaign*, 430-431.

¹³² Weigley, 366.

¹³³ Field Order Number 30, Headquarters V Corps, 21 October 1944, and Letter of Instructions, Headquarters V Corps, 23 October, in Bradbeer, p. 40.

¹³⁴ MacDonald, *Siegfried Line Campaign*, 343.

appreciable advance.”¹³⁵ Through the thick woods lined with mines, barbed wire and bunkers, following a “pattern the ground fighting would take for the next four days.”¹³⁶ Large units couldn’t maneuver and maintain command and control, and small units became separated, disorientated, lost, and easy prey for German ambushes. Small unit leaders often lost their sense of direction, further undermining command and coordination within and between units. By the fourth day, some men began panicking and fleeing, reflecting psychological hardships of forest fighting beyond even the expected rigors of combat.¹³⁷ After five days the 109th Regiment had to be relieved without achieving its objectives. Two days later the 112th was also relieved after losing 2,093 men.¹³⁸ Fighting by the 110th was “bloody and costly and accomplished very little,” barely improving its original position. After suffering 6,184 casualties, the 28th Division was no longer combat effective.¹³⁹ From November 14-18 the 28th Division was relieved and replaced by the 8th ID. The 28th Division then transferred to VII Corps in the Ardennes.¹⁴⁰ However, the operation continued for several weeks.

American forces continued to attack the Huertgen Forest until December with similar tactical methods producing low operational effectiveness. First Army threw “one division after another into the dark maw” of the forest, using a total of five divisions, a combat

¹³⁵ MacDonald, *Siegfried Line Campaign*, 346. Charles MacDonald and Sidney Mathews, *Three Battles: Arnaville, Altuzzo, and Schmidt* (United States Department of Defense, 2004), pp. 256-257, cited in Doubler, *Closing with the Enemy*, p. 181, footnote 22.

¹³⁶ MacDonald, *Siegfried Line*, 442.

¹³⁷ Thomas Christianson, “Morale: The Destruction of the 28th Infantry Division in the Huertgen Forest, November 1944,” in Spiller, ed., *Combined Arms in Battle Since 1939*, chapter 23.

¹³⁸ Charles B. MacDonald and Sidney T. Mathews, *Three Battles: Arnaville, Altuzzo, and Schmidt* (Washington, DC: United States Army Center of Military History, 1993), p. 415. First printed in 1952 as CMH Pub 11-7-1.

¹³⁹ Bradbeer, 43; Millet and Murray, *A War to be Won*, 461.

¹⁴⁰ Bradbeer, 30.

command of armor, and several additional battalions.¹⁴¹ Regiments from the 4th Division began supplementing the main attack, but the 12th Regiment “began losing ground before it had fairly found its way into the forest, and it never recovered enough to do more than cling by its knuckles in defense.”¹⁴² The rest of the 4th ID arrived on November 16, but by November 28 it had “spent its offensive power” and had to begin being replaced with the 83rd Division.¹⁴³ By December 1, the Huertgen Forest had completed “its shattering of two more American divisions, to follow the 9th and 28th.”¹⁴⁴

Despite these losses, by December 1 First Army finally achieved operational breakthrough: the 8th ID had “dragged” itself through the forest and within a kilometer of its edge.¹⁴⁵ After suffering over 8,000 dead and 23,000 wounded, First Army controlled the Huertgen Forest.¹⁴⁶ Operationally, the Americans hurt parts of six German divisions and denied the area’s future use to attack the flank of a continued assault toward the Rhine.¹⁴⁷ Setbacks were numerous and the costs required for this objective were exceptionally high, exacerbated by the inflexibility and static nature of U.S. forces. American attackers continued to confront strong German positions and “bled themselves dry.”¹⁴⁸

¹⁴¹ MacDonald, *Siegfried Line*, 493; Weigley, 416.

¹⁴² Weigley, 416.

¹⁴³ Combat Studies Institute Battlebook 11-A, “Huertgen Forest” (Fort Leavenworth, Kansas, 1984), p. III-19; Weigley, 420.

¹⁴⁴ Weigley, 420.

¹⁴⁵ Weigley, 420.

¹⁴⁶ MacDonald, *Siegfried Line*, 493.

¹⁴⁷ Since German casualty records were destroyed after the war, precise data on defending forces’ losses in the Huertgen do not exist.

¹⁴⁸ Hart, 419.

Analysis and Conclusions: Failure to Learn and a Failed Process

Five divisions failed to overcome the challenges of the Huertgen Forest when faced with the unexpected problem of forest fighting favoring German defenders and isolating effective combined arms teams. Through unchanged methods, First Army constantly and continually failed to improvise or experiment with new tactics, techniques, or procedures to increase operational effectiveness or effectively anticipate solutions to challenges faced.

One may incorrectly conclude that the tactical and operational challenges of forest terrain undermine the very nature of combined arms operations. Although the terrain posed many tactical and operational setbacks, the compartmentalized nature of forest fighting and lack of air support were not fundamentally different than the limits seen previously in the *bocage*. First Army successfully adapted earlier in the campaign, but failed in the forest. Nothing in the physical terrain or nature of offensive action in thick forests appears to be completely unique from previous, surmountable obstacles.

Compartmentalized, forested terrain and a limited road network made the use of armor very difficult or impossible, and poor weather hampered air support, similar to the hedgerows.¹⁴⁹ Poor visibility and inadequate communications prevented First Army from applying combined arms effects designed to simultaneously integrate and apply infantry, artillery, air power, and armor, just as it had struggled near St. Lô. In the Huertgen,

¹⁴⁹ Kenneth McMillin, Strategic Analysis, "The Battle of the Hürtgen Forest: Why?" USAWC Strategy Research Project, U.S. Army War College, Carlisle Barracks, Pennsylvania, March 27, 2001, p. 14; Benjamin Taylor, "Operation *Schmidt*," *Military Review*, Vol. 34, No. 5 (August 1954) pp. 32-37.

failing to explore new tactical methods through anticipation and improvisation removed the strength of U.S. combined arms warfare.

Failure to adapt was not caused by one or two commanders. The prescriptive action for all units in the Huertgen appeared to be “more of the same”: V Corps followed the same pattern of VII Corps, with the 28th Division implementing no substantial changes from the 9th Division, and the 4th and 8th infantry divisions mirroring the techniques, procedures, and tactical doctrine of their predecessors. Regiments committed the same mistakes of previous regiments, and small units continued to repeat the mistakes of their predecessors. First Army continued to apply an inflexible instrument in the Huertgen, as five divisions could not find a way to adapt in the forest and effectively apply combined arms operations. Notably, many commanders in the Huertgen had displayed exceptional adaptation months earlier in the *bocage*. Failure to adapt in the Huertgen was an army-wide problem.

The essential character of fighting in the Huertgen prevented troops and commanders from learning from their mistakes. The nature of battle, not simply the physical terrain, disrupted the process of adaptation successfully applied in the hedgerows. High casualty rates and limited troops removed and replaced entire divisions quickly, losing opportunities for old outfits to pass lessons learned to new units. Additionally, high loss rates limited the time available for troops to anticipate problems, explore solutions, test them, and exploit opportunities to see how they fared. With limited opportunity to

develop new methods through constant engagement and collaboration, new ideas either died or failed to be disseminated.

Battle in the Huertgen produced three to five times as many casualties than other operations. This loss rate created confusion and uncertainty that failed to foster experimentation and frustrated the entire adaptive process. Combat deaths, casualties, separation, and psychological trauma terminated creative thinking and creative thinkers. Constant engagement fostered fear, confusion, and concern for basic survival. In a process depending on feedback between tactical innovators and receptive senior officers, the entire process was disrupted. Units were often alone and concentrating on basic objectives and survival, limiting collaboration or innovation when addressing larger tactical problems. Troops died too fast to effectively test new ideas, and any innovation occurring was lost by regiment and division rotations.

CHAPTER 4: EIGHTH ARMY AND X CORPS RETREAT FROM THE YALU

Case studies of Eighth Army and X Corps in North Korea during 1950 deliver distinct results to this study's hypothesis that wartime tactical adaptation delivers advantages that decisively cause operational victory or prevent operational defeat, and does not simply limit the costs of failures or setbacks in the operational and tactical realms.

In Case Study 3, Eighth Army's failure to adapt while retreating from the Yalu River in the northern Korean Peninsula maintained low operational effectiveness and contributed to operational defeat. Faced with the unexpected problem of attacking Chinese forces through compartmentalized and harsh terrain isolating effective combined arms teams, U.S. troops and commanders at the tactical level failed to improvise or anticipate to explore new methods for restoring tactical effectiveness. No advantages were gained through new tactics, techniques, or procedures, failing to deliver exploitable advantages for the retreating U.S. forces. Failure to perform tactical adaptation contributed to operational defeat as one of several failures that doomed the Eighth Army in a catastrophic operation. This conclusion supports the study's primary hypothesis that tactical adaptation is necessary to prevent campaign defeat, since the lack of adaptation led to operational failure. Hence, tactical adaptation must be incorporated to prevent operational setbacks from becoming disastrous campaign defeats.

In Case Study 4, X Corps' failure to perform tactical adaptation while retreating from the Yalu River in the northern Korean Peninsula increased operational effectiveness but

failed to prevent operational defeat. Faced with the unexpected problem of attacking Chinese forces through compartmentalized and harsh terrain isolating effective combined arms teams, U.S. troops and commanders at the tactical level did not fundamentally alter tactics, techniques, or procedures. Rather, established tactical methods effectively limited the costs of setbacks despite failing to prevent overall operational defeat. This conclusion supports the study's primary hypothesis that failure to perform tactical adaptation causes operational defeat, but challenges claims that adaptation is necessary to limit setbacks. Hence, asking tactical adaptation to limit setbacks may actually apply less effective methods than established tactics, techniques and procedures, overestimating the role of tactical adaptation the true nature of its relationship with operational ways and strategic goals.

Initial Strategic Setting and Operational Goals Attacking North Korea

By November 1950, U.S.-led UN forces appeared to have destroyed North Korea's center of gravity and was expecting a quick termination to the campaign. The Communist Democratic People's Republic of Korea (DPRK) military was smashed by the UN Command Far East composed of Eighth Army, X Corps, Japan Logistical Command, Naval Force Far East, and Far East Air Forces.¹⁵⁰ On September 15, 1950, U.S. forces landing at Inchon surprised and outflanked the majority of Korean People's Army (KPA) forces. Combined with UN forces pushing from the Pusan perimeter, U.S. forces captured Pyongyang on October 20 and continued to drive north toward the Chinese border, the Yalu River. By mid-November a UN combined force led by the U.S. and Republic of

¹⁵⁰ Billy Mossman, *Ebb and Flow: November 1950-July 1951*, United States Army in the Korean War series (Washington, DC: United States Army Center for Military History, 1990), p. 26, Chart 1—"Theater Lines of Communication for Operations in Korea 23 November 1950."

South Korea (ROK) approached the Yalu and temporarily halted to prepare for additional attacks north.

The UN strategy for occupying North Korea and eliminating KPA forces applied two major operational thrusts by Eighth Army and X Corps driving north of the 38th parallel toward China.¹⁵¹ Mountains, terrain, and climate dictated that simultaneous operations to achieve campaign objectives must be executed independently.¹⁵² Mechanized operations were inhibited by the existence of only a few lowlands for travel, and rugged terrain “made movement in any direction difficult, particularly cross-country and east-west.”¹⁵³ The units operated miles out of ground contact with each other, and after the Chinese attacked they continued operating in relative isolation.¹⁵⁴

Eighth Army would continue attacking north in the peninsula’s west, while X Corps would push more quickly northward along the eastern coast. The Eighth Army attack would follow six roads across a broad front through the Chongchon Valley toward the Chongchon River west of the Taebaek Mountains running down the middle of the Korean Peninsula.¹⁵⁵ The newly formed X Corps, led by the First Marine Division, would move north of Wosan along the mountains’ east toward the Changjin (Chosin) Reservoir in four

¹⁵¹ Allan R. Millett, *The Korean War* (Washington, DC: Potomac Books, 2007), p. 5.

¹⁵² Roy E. Appleman, *Escaping the Trap: The U.S. Army X Corps in Northeast Korea, 1950* (College Station, TX: Texas A&M University Press, 1990), p. 26.

¹⁵³ Mossman, 5.

¹⁵⁴ Max Hastings, *The Korean War* (New York: Simon & Schuster, 1987), p. 147.

¹⁵⁵ T.R. Fehrenbach, *This Kind of War: The Classic Korean War History* (Washington, DC: Brassey’s, 2000), p. 237, originally published in 1963; Appleman, *Escaping*, 14-15.

main columns to outflank any remaining North Korean defenders, supporting through one Main Supply Route (MSR).¹⁵⁶

By this time, the DPRK's Korean People's Army (KPA) was not a militarily effective force. North Korea air and naval forces were "defeated early in the war" and remained "virtually nonexistent."¹⁵⁷ The KPA was depleted, with only one effective unit by late November.¹⁵⁸ The KPA operated as a vehicle-heavy force and deployed "like the conventional forces they were."¹⁵⁹ Using Soviet-supplied resources, the units used predictable conventional tactics of frontal assaults backed by tanks and artillery, supported by flank attacks.¹⁶⁰ These attacks were often conducted in open daylight. By late November, KPA IV Corps was the only major unit still functioning, employing just one division and two brigades against ROK I Corps in the northeast. North Korea's II Corps was active only as a guerrilla force in the central mountains near the 38th parallel, conducting "desultory" operations as they attempted to reorganize.¹⁶¹ The rest of the North Korean Army was reorganizing in Manchuria.¹⁶² After the fighting between North

¹⁵⁶ Eliot A. Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War* (New York: Free Press, 1990), p. 166; Appleman, *Escaping*, 14-15, 22; Fehrenbach, 237.

¹⁵⁷ Mossman, 55.

¹⁵⁸ Roy E. Appleman, *South to the Naktong, North Korea to the Yalu (June-November 1950)*, United States Army in the Korean War (Washington, DC: United States Army Center for Military History, 1992), p. 769; GHQ, FEC, Order of Battle Information, North Korean Army, 21 August 1951 and 16 September 1951, in Mossman, 51, footnote 2.

¹⁵⁹ Cohen and Gooch, 177.

¹⁶⁰ Cohen and Gooch, 177.

¹⁶¹ Mossman, 51-52.

¹⁶² Mossman, 52.

Korean and UN forces, “the threat to South Korea was completely overturned” and the KPA was “virtually annihilated.”¹⁶³

UN forces held an overwhelming advantage over the KPA by fall 1950, and had repelled the North Korean invasion of South Korea. On November 23 the UN commanded 533,000 personnel from the ROK and member countries in Korea, with 423,313 ground forces.¹⁶⁴ This ground force included 223,950 ROK and 178,464 U.S. personnel—153,536 soldiers and 24,928 marines.¹⁶⁵ Near the Yalu River, U.S. forces were divided along the middle by the Taebaek Mountains, with the Eighth Army to the west and X Corps to the east.¹⁶⁶ ROK II Corps was on the far-east flank of Eighth Army, positioned along the mountain range considered an extremely useful and effective natural defensive barrier.

The disposition of UN forces display the main thrust of UN attacks would arrive from Eighth Army the west, supplemented by X Corps in the east. Eighth Army, “by far the larger portion of the ground strength,” included U.S. I Corps and IX Corps, as well as ROK II Corps and III Corps.¹⁶⁷ The U.S. corps had four total infantry divisions—the 2nd, 24th, 25th, and 1st Cavalry—and the ROK corps had eight divisions—the 1st, 2nd, 5th, 6th, 7th, 8th, 9th, 11th. The separate X Corps contained the ROK I Corps, U.S. Army 3rd and 7th

¹⁶³ Carter Malkasian, *The Korean War: 1950-1953* (Oxford, Great Britain: Osprey Publishing, 2001), pp. 27-28.

¹⁶⁴ Mossman, 23.

¹⁶⁵ Mossman, 23-24.

¹⁶⁶ Richard W. Stewart, *The Korean War: The Chinese Intervention: November 1950-January 1951* (Washington, DC: United States Army Center of Military History, 2000), pp. 8-9.

¹⁶⁷ Mossman, 26.

divisions, and was spearheaded by the 1st Marine Division.¹⁶⁸ Although U.S. divisions reorganized after 1945 now possessed 4,000 more men and greater organic firepower, the weapons, vehicles, and other equipment “were in the main the same models and types used in World War II.”¹⁶⁹ While comprising a large overall force, the geography and terrain of North Korea prevented Eighth Army and X Corps from acting as a coordinated team in a continuous front.

Geography and Terrain

Geography separated X Corps and Eighth Army while terrain dictated that battle along the Yalu River would be “an infantryman’s conflict.”¹⁷⁰ The Taebaek Mountains created a seventy-five mile gap between Eighth Army and X Corps.¹⁷¹ Additionally, these units’ reliance on motor transport across long, hazardous mountain roads caused them to function in relative isolation from each other.¹⁷²

While a physical gap separated Eighth Army and X Corps, “the plain fact is that there was no gap between the Eighth Army and the X Corps that could have been used militarily.”¹⁷³ Terrain conditions dictated that simultaneous operations to achieve campaign objectives “simply had to be executed independently of each other.”¹⁷⁴ For the two thrusts conducted by Eighth Army and X Corps, gaps and compartmentalized terrain

¹⁶⁸ Mossman, 25-28.

¹⁶⁹ Mossman, 30.

¹⁷⁰ Samuel Lyman Atwood Marshall, *Infantry Operations and Weapons Usage in Korea* (London: Greenhill Books, 1988), p. v.

¹⁷¹ Allen S. Whiting, *China Crosses the Yalu: The Decision to Enter the Korean War* (Stanford, California: Stanford University Press, 1960), p. 123.

¹⁷² Whiting, 123.

¹⁷³ Appleman, *Escaping*, 26.

¹⁷⁴ Appleman, *Escaping*, 26.

within each operational theater presented a larger problem than operating in two distinct realms.

Within X Corps and Eighth Army many miles separated the smaller units across the operational area, and “both lateral and feeder communications were inadequate” for inter-unit coordination or situational awareness.¹⁷⁵ This compartmentalization caused small units to be atomized, and they would be forced to fight relatively independently. The terrain near the Yalu River caused this thin dispersal of forces to be an obstacle that could not be overcome simply with more firepower. Deep corridors and few roads limited communication, supply, and channeled movement into relatively predictable avenues.

Terrain limited artillery, air support, and armor movement to remove the synergistic effects of combined arms warfare and ensured that U.S. infantry would conduct the majority of combat. Although U.S. forces possessed howitzers and tanks, fighting was destined to be a clash of guns and mortars. Ridges, valleys, and ravines created uneven topography so defending fields of fire did not have a clear path against significant numbers of attacking forces.¹⁷⁶

Guns would be the most important weapons in North Korea. The .30-caliber M1 rifle was the primary weapon used by U.S. forces, vital to kill attackers moving along a narrow front. The M2 carbine supplemented the M1, although this weapon often performed sluggishly in the cold weather and had to warm up before capable of firing on full

¹⁷⁵ Whiting, 123.

¹⁷⁶ Marshall, *Infantry Operations and Weapons*, 6.

automatic. The .30-caliber Browning Automatic Rifle (BAR) could provide a base of fire around the action of other infantrymen, essential due to the terrain's limiting effect on .50-caliber machine guns. The machine gun could block avenues of advance from straight ahead, but the weapon could not provide the all-around protection seen in the Second World War due to the restricted fields of fire in the hilly, compartmentalized terrain. The result was a highly restricted use of the .50-caliber machine gun, rendering the machine gun insufficient to either secure a position or repel an enemy attack by itself.¹⁷⁷ These tactical limitations would be seen when applying operational plans. Overall, UN forces would battle an enemy far different than the KPA foe previously battled by U.S. and ROK forces: the Chinese soldiers. They began to appear in October and November 1950.

Chinese Strategic Goals and Campaign Plan

Chinese political strategy aimed to drive the UN out of the Korean Peninsula by defeating their military forces in battle. Chinese military strategy for the People's Liberation Army (PLA) planned to enter North Korea with three divisions and slow Eighth Army's push north while testing U.S. and ROK fighting capabilities before ambushing the UN's two operational thrusts with five armies.¹⁷⁸ After smashing ROK forces between the UN's two operational thrusts, PLA attackers would encircle and destroy forward elements of Eighth Army and X Corps to weaken American commitment and panic South Korea.¹⁷⁹

¹⁷⁷ Marshall, *Infantry Operations and Weapons*, 75.

¹⁷⁸ Millett, *The Korean War*, 38; Millett, *They Came From the North*, 295.

¹⁷⁹ Millett, *The Korean War*, 42.

After probing attacks in October 1950 to determine UN locations and capabilities, Chinese military strategists determined “they had found a formula for fighting the United Nations Command.”¹⁸⁰ Deep-penetration night operations would overwhelm the shocked defenders, cutting off logistic lines by infiltrating past infantry positions and ambushing artillery units and counterattacking forces.¹⁸¹ Bypassing and enveloping UN forces by moving quickly under darkness to infiltrate past infantry positions, Chinese attackers would isolate UN units by cutting off routes for supply or movement followed by ambushes against counterattacking forces.¹⁸² Penetrating attacks targeted command posts, supply points, communication and logistical resources; probes and infiltration attacks targeted artillery and crew served weapons; and light artillery and mortars would briefly attack defenders before infantry assaults moved close to either destroy UN troops or pass defenses to establish positions in their rear.¹⁸³ Although suffering from a severe relative imbalance in firepower, mechanization, general resources, and expecting major losses in manpower, Chinese attackers were capable of conducting these operations.

Capable and Prepared Chinese Attackers

Chinese attackers possessed favorable preparation, surprise, and terrain for their capable light infantry forces to drive their adversaries from the Korean Peninsula, but they also possessed significant relative shortcomings. While the overall size of forces battling each other would be approximately the same size, soldiers in the People’s Liberation Army (PLA) were predominately light infantry moving on foot, possessing almost no tanks, few

¹⁸⁰ Millett, *The Korean War*, 38.

¹⁸¹ Millett, *The Korean War*, 38-39.

¹⁸² Millett, *The Korean War*, 38.

¹⁸³ Millett, *They Came From the North*, 312-313.

field artillery capabilities, and limited motor transport.¹⁸⁴ This lack of transport hindered operational movements by undermining divisions' ability to continue operations or assist their wounded. While tactical units could march long distances at a fast rate, the operational pace of an entire army was much slower than the UN's mechanized transport.¹⁸⁵ Additionally, cold weather hurt the PLA soldiers more than the better-equipped UN forces. Overall, the PLA were capable attackers and militarily effective from different capabilities than Eighth Army and X Corps, but did not possess any inherent operational or organizational superiority over their adversaries despite achieving strategic and operational surprise.

Initial PLA probing attacks provided situational awareness of Eighth Army and X Corps forces that ultimately delivered strategic surprise but did not predetermine the operational outcome. Actions in late October and early November were "cautious and limited," concealing movements and maintaining tactical surprise.¹⁸⁶ These initial movements were subtler than those seen in the KPA, with feinting, probing, and withdrawing to test and confuse defenders.¹⁸⁷ Small arms and mortars attacked UN forces before the attackers withdrew, continuing only limited skirmishes over the next few weeks. PLA forces continued to probe UN defenses and eventually marched back across the Yalu River to meet with the larger Chinese force staging to attack. The PLA conducted similar probing movements against both Eighth Army and X Corps, delivering an approximately similar intelligence advantage against the two UN operational thrusts. Despite delivering an

¹⁸⁴ Cohen and Gooch, 174.

¹⁸⁵ Millett, *The Chinese Came From the North*, 353.

¹⁸⁶ Whiting, 117-118.

¹⁸⁷ Cohen and Gooch, 177.

operational advantage, the advantage of surprise was not substantially different for PLA forces whether facing Eighth Army or X Corps.

Over 300,000 PLA would attack the UN forces.¹⁸⁸ Peng Te Huai commanded the two units sent from the Fourth Field Army for use in Korea, army groups XIII and XI.¹⁸⁹ U.S. Eighth Army was to be attacked by XIII Army Group in the west, while U.S. X Corps was to be attacked by XI Army Group in the east. The 200,000-strong XIII Army Group consisted of six armies each with three 8,000-10,000-man infantry divisions comprised of three infantry regiments. The 38th Army included the 112th, 113th, and 114th divisions, and the other five armies followed suit: the 39th (115, 116, 117); 40th (118, 119, 120); 42nd (124, 125, 126); 50th (148, 149, 150); and 66th (196, 197, 198).¹⁹⁰ IX Army Group possessed three armies with four divisions: the 20th Army with the 58th, 59th, 60th, and 89th; the 26th (76th, 77th, 78th, 88th); and the 27th (79th, 80th, 81st, 90th). The additional division in each army of IX Army Group raised their size to 40,000 each, totaling 120,000 in the entire group.

PLA units were light infantry with limited firepower and lacked mechanization. The Chinese used “little artillery, less air power, and no tanks.”¹⁹¹ Divisions had twelve 75mm howitzers and twelve 120mm mortars, while three regiments shared a heavy weapons battalion consisting of six 82 mm mortars, 12.7 mm heavy machine guns, and a

¹⁸⁸ PLA forces from Cohen and Gooch, 174; Korean Institute of Military History, *The Korean War*, Volume II (Lincoln, Nebraska: University of Nebraska Press, 2001), p. 103; Hastings, 159-161; Mossman, 54.

¹⁸⁹ It was previously erroneously reported that Lin Piao commanded Chinese forces in Korea, but this information is inaccurate. See Hastings, 159-160.

¹⁹⁰ For regiments included in these divisions, see Mossman, p. 54, table 2.

¹⁹¹ Marshall, *Infantry Operations and Weapons*, xiii.

small anti-tank company lightly armed.¹⁹² Overall, the PLA relied on light machine guns, mortars, and grenades, with many using “the same potpourri of captured Japanese and American weapons that had served them during four years of civil war in China.”¹⁹³ Yet these quantitative shortcomings also delivered qualitative strengths.

PLA light infantry moved fast and was largely “men of exceptional military experience.”¹⁹⁴ While the PLA infantry “did not do a lot of things,” the things they did “they tended to do well.”¹⁹⁵ Many of the troops had fought in the Chinese civil war and “virtually all senior officers had fought the Japanese” during the Second World War.¹⁹⁶ Many soldiers began in their teens, and it was in the PLA that they learned to read, write, and march “forever.”¹⁹⁷ Although later replacements would be of a lower quality, the initial groups of PLA veterans sent to attack across the Yalu River were strong marchers, disciplined, capable of withstanding adverse physical conditions, and many had known “no other life but that of war since their teens.”¹⁹⁸

Light PLA units could quickly move in their tactical theater, but the lack of mobilization slowed overall operational reach and tempo. Wearing cotton uniforms and tennis shoes while carrying light loads allowed PLA soldiers to move quickly, and individuals carried only a weapon, grenade, eighty rounds, spare foot rags, sewing kit, chopsticks, and

¹⁹² Millett, *They Came From the North*, 300.

¹⁹³ Whiting, 124.

¹⁹⁴ Hastings, 161-162.

¹⁹⁵ Halberstam, 403.

¹⁹⁶ Mossman, 56.

¹⁹⁷ Hastings, 162.

¹⁹⁸ Hastings, 163.

usually a week's rations of tea, rice, sugar, and an occasional tin of meat.¹⁹⁹ Chinese soldiers only required eight to ten pounds of supply a day, compared with 60 for a UN soldier who also carried forty to fifty pounds.²⁰⁰ The reduced supply requirements also caused a larger percentage of soldiers in PLA units to be infantrymen than the U.S. adversaries. These reduced supplies, particularly the lack of cold weather clothing, would severely undermine PLA effectiveness in conducting sustained operations. However, in October 1950 PLA forces concentrated on preparing to attack.

Between October 13 and 25, over 130,000 PLA of the XIII Army Group crossed the Yalu River and prepared to attack the defending U.S. Eighth Army and ROK II Corps. The first objective of establishing a bridgehead was achieved when the 42nd Army blocked the road running north-west from the Chosin Reservoir, the 40th moved from Sinuiju to Pukchin, and the 50th and 66th followed.²⁰¹ IX Army Group crossed the Yalu River in early November at Manp'ojin and Lin-chiang with little difficulty, and moved into U.S. X Corps' operational area at Changjin, an area including the Chosin Reservoir.²⁰²

PLA forces moved undetected by the UN.²⁰³ Night movements avoided UN air bombardments and general detection, using vehicles in blackout conditions along narrow roads while soldiers carried their loads.²⁰⁴ Rigid marching and bivouac discipline combined with camouflage and field craft to avoid aerial detection, including the use of

¹⁹⁹ Hastings, 162.

²⁰⁰ Hastings, 162; Marshall, *Infantry Operations and Weapons*, 43-44.

²⁰¹ Hastings, 161.

²⁰² Mossmann, 53-54.

²⁰³ Hastings, 161.

²⁰⁴ Korean Institute of Military History, 104.

secondary roads under complete darkness.²⁰⁵ Strategic and operational surprise allowed PLA attackers to thrust deeply behind defenders' positions and fundamentally alter the campaign orientation, reversing UN forces from their initial northern attack to battle through a retreat.

PLA Deep Attacks Change Operational Objectives

PLA deep attacks isolated and compartmentalized Eighth Army and X Corps, forcing them to reorient their campaign objectives from northern attack to a fighting retreat out of their operational theaters. November 25-27 1950, the PLA crushed ROK II Corps in central Korea and attacked Eighth Army and X Corps while simultaneously flanking these forces through the central Taebaek Mountains. The 38th and 42nd armies combined surprise frontal assaults, overrunning defending units, and bypassing movements up to six miles deep to catch retreating or counterattacking ROK forces.²⁰⁶ ROK II Corps was “completely disintegrated” along the eastern flank of U.S. Eighth Army, and the collapse of the ROK portion of the line exposed the entire flank of the Eighth Army.²⁰⁷

Attempting to encircle U.S. forces, PLA forces launched frontal and deep flanking attacks against the Eighth Army along the Chongchong River and X Corps at the Changjin (Chosin) Reservoir.

Chinese tactics followed a simple and effective pattern repeatedly attacking on a narrow front in a deep column of platoons until penetrating defensive lines while equally strong

²⁰⁵ Mossman, 55.

²⁰⁶ Millett, *They Came From the North*, 336.

²⁰⁷ Malkasian, 32.

forces raced to the enemy's rear to cut off communication, supply, or reinforcements.²⁰⁸ Although using a large amount of people, the PLA did not conduct human wave assaults.²⁰⁹ Forces followed a tactical doctrine that applied a large amount of people through guerrilla tactics that were highly effective in the terrain of northern Korea. PLA infantrymen could move very fast in difficult terrain, almost always at night and on foot in columns. Columns would break off multiple well-spaced thin lines to move against defenders.²¹⁰ These lines would then "slip along the flanks of their enemies, looking for soft spots, while taking up positions behind them in order to cut off any retreat."²¹¹ Loud, confusing attacks would quickly occur using light machine guns, grenades, and mortar fire, all at very close ranges and from multiple directions, often surprising and overrunning rear defenders.²¹² Attacks would become isolated engagements as hilly and broken terrain with valleys and ridges compartmentalized defenders into small units. Communication between defending units was difficult or impossible, even with field telephones and portable radios, ensuring that these battles were regularly fought alone.²¹³ The PLA would attack at night and U.S. forces would respond during the day, creating an exhausting cycle of incessant fighting.²¹⁴

If UN units began retreating, PLA forces would continue attacking to exploit the confusion they had created. Probing patrols attacked to locate defensive positions, and

²⁰⁸ Appleman, *Escaping*, 362-363.

²⁰⁹ Appleman, *Escaping*, 362.

²¹⁰ Marshall, *Infantry Operations and Weapons*, 5.

²¹¹ Halberstam, 403.

²¹² Cohen and Gooch, 177; Eighth Army, G-1, Daily Historical Report, November 27, 1950, cited in Cohen and Gooch, 177, footnote 39.

²¹³ David Rees, *Korea: The Limited War* (New York: St. Martin's Press, 1964), pp. 155-156.

²¹⁴ Marshall, *Infantry Operations and Weapons*, 29.

after these reconnaissance patrols the PLA directly attacked between rifle companies with mortars and small arms. The attackers maneuvered in small groups around the perimeter to seize the highest ridgelines and directly attack the company command post. Nearby U.S. artillery positions were also attacked at the same time, so they could not support the infantry battalion. If the defensive line was not overrun, by morning there would be large gaps and the positions had to be recovered. Combined, these factors often cancelled a planned U.S. counterattack.²¹⁵

Once PLA forces bypassed and enveloped unprepared defenders, the operational objectives changed for the U.S. forces previously aiming to push to China. Eighth Army and X Corps re-oriented and now had to conduct a fighting retreat from the Yalu River toward the coast. These two case studies deliver different conclusions about the nature of wartime tactical adaptation and its relationship with operational effectiveness.

²¹⁵ Example from Russell A. Gugeler, *Combat Actions in Korea* (Washington, DC: United States Army Center of Military History, 1987), pp. 54-61.

**Case Study 3: Failure to Adapt Contributes to Operational Defeat
U.S. Eighth Army Retreats to Pyongyang, November-December 1950**

Case Study 3 Hypothesis: If wartime tactical adaptation causes operational victory or prevents defeat, then the lack of tactical adaptation by U.S. Eighth Army as it fought from the Yalu River to Pyongyang in late 1950 caused operational defeat.

Analyzing U.S. Eighth Army fighting the PLA displays that failure to perform tactical adaptation contributed to operational defeat as one of several failures that doomed the Eighth Army in a catastrophic operation.

This conclusion supports the study's primary hypothesis that tactical adaptation is necessary to prevent campaign defeat, since the lack of adaptation led to operational failure. Hence, tactical adaptation must be incorporated to prevent operational setbacks from becoming disastrous campaign defeats.

Eighth Army: Overview of Analysis and Operational Goals

Eighth Army failed to adapt methods through combat exposure. Battle stimulated no innovation, and no lessons were determined or disseminated to improve operational effectiveness. Eighth Army failed to effectively apply combined arms tactics as forces applied unchanging tactical methods producing low operational effectiveness and

exacerbating setbacks. American attackers continued to fall apart against strong PLA positions in a retreat labeled “the essence of adaptive failure.”²¹⁶

The Eighth Army fought along the Chongchong River to Pyongyang. By early December PLA forces decisively defeated Eighth Army, “and the latter was gathering speed in a headlong retreat southward.”²¹⁷ On December 5, Eighth Army began evacuating, “now in full retreat by land, sea, and air, its men fleeing from North Korea by every means available” after suffering over 11,000 casualties.²¹⁸ The U.S. 2nd Division and ROK 6th, 7th, and 8th divisions were “shattered units.”²¹⁹

Failure to adapt contributed to Eighth Army’s operational defeat. Eighth Army’s inability to learn, adapt, or apply new tactical techniques and procedures with creativity and flexibility constantly prevented the improved application of combined arms warfare. In North Korea during late 1950, Eighth Army revealed how failure to perform tactical adaptation exacerbates setbacks and lowers operational effectiveness. Hence, militaries failing to adapt, learn, or innovate during times of war fail to mitigate the consequences of continuing mistakes or enhance operational effectiveness.

Battling to Pyongyang: Fighting Without Adaptation

Eighth Army counterattacking to Pyongyang revealed shortcomings and created setbacks that were exploited by PLA fighters. Unprepared to fight in the compartmentalized

²¹⁶ Cohen and Gooch, 161.

²¹⁷ Roy E. Appleman, *Disaster in Korea: The Chinese Confront MacArthur* (College Station, TX: Texas A&M University Press, 1989), p. 75.

²¹⁸ Hastings, 172.

²¹⁹ Stewart, 13.

terrain, facing stout Chinese soldiers, and unable to coordinate small units in combined arms teams, battle revealed that existing tactics, techniques, and procedures possessed low operational effectiveness. However, these shortcomings and setbacks failed to inspire adaptation in new tactical methods for achieving operational goals.

Troops and commanders at the tactical level did not explore new methods to restore mobility, deploy more firepower, or coordinate mobility and firepower for synergistic, combined arms effects. Disadvantages continued through the use of unchanging tactics, techniques, and procedures, failing to deliver exploitable advantages for the counterattacking U.S. forces that eventually retreated to Pyongyang. Without exploring new tactical methods through improvisation and anticipation, no new opportunities were created or exploited, and no new methods were disseminated. Tactical leaders were largely unwilling to innovate when they met with failure or difficulty, and commanders proved unreceptive to new ideas and solutions. Failure to adapt small unit tactics or restore combined arms effectiveness reduced the operational effectiveness of American soldiers against Chinese forces.

After flanking Eighth Army, PLA forces attacked westward. The PLA 40th Army struck the 2nd and 25th divisions on the 25th in a pattern that would continue for Eighth Army: gaps between units were found and exploited, opening units' vulnerable flanks to attack.²²⁰ The Chinese attacked the next night with five armies against the exposed flank from the loss of ROK II Corps, with the 42nd and 38th “pouring through the broken ROK

²²⁰ Stewart, 10.

lines to Eighth Army's east and threatening to envelop the entire force."²²¹ As Eighth Army began its fighting retreat, nightly Chinese attacks ended "in desperate close-quarter fighting."²²² After three days the 25th Division in Yongbyon and Ipsok retreated to the Chongchong River, and the 2nd Division was defeated.

Blocked Eighth Army units reacted to disadvantages and suffered momentous losses, failing to exploit PLA shortcomings in firepower or combined arms capabilities. By November 28th the PLA 38th Army outmaneuvered 2nd Division to the south and blocked its movement, cutting off the only possible road for retreat from Kunu-ri to Sunchon.²²³ The "most pivotal position in the Eighth Army line" was destroyed by PLA small arms, grenades, and mortars.²²⁴ Retreating to Kunu-ri, 2nd Division "fell apart" and required months before it could fight again.²²⁵ The retreating 2nd Division from Kunu-ri was "the crises for Eighth Army" that continued without any change or adaptation until rendered combat ineffective.²²⁶

Across the hilly terrain of North Korea, once units were isolated into independent combat units their tactics, techniques, and procedures for effectively establishing defensive perimeters were ineffective. Terrain and limited resources meant that foxholes, wire, obstacles, and defensive weapons, and patrols had to be adjusted by anticipated the

²²¹ Stewart, 11.

²²² Hastings, 168.

²²³ Malkasian, 33.

²²⁴ Appleman, *Disaster*, 154.

²²⁵ Stewart, 12; Hastings, 169.

²²⁶ Appleman, *Disaster*, 292; Mossman, 127.

nights' problems and improvising new solutions.²²⁷ Small units scattered along hills and rivers did not allow absolutely inflexible tactics to be effective. American firepower was limited as "each company fought alone, out of sight, often out of knowledge of any other American unit" as Eighth Army was "bitten to death."²²⁸

Setbacks created by ineffective tactics were exacerbated by failing to improvise or adapt new solutions that increased combat effectiveness. Untrained in anticipating or improvising as an inherent element of small unit tactics, Eighth Army tactical shortcomings caused ineffective tactics to be repeated and continually degrading operational effectiveness. Without alternative tactics, "panic began to sprout" and setbacks synergistically combined to decimate Eighth Army.²²⁹

Despite the losses, by December 5 Eighth Army finally reached Pyongyang. Although ultimately achieving the revised operation objective of Pyongyang, the Chinese held the battlefield after defeating numerous UN units. Losses and costs endured by Eighth Army were exceptionally high. Overall, the Eighth Army retreat must be considered an operational failure. Although failure to adapt was not the sole cause of campaign defeat, setbacks and low operational effectiveness were exacerbated by the inflexibility and static nature of U.S. forces.

²²⁷ Cohen and Gooch, 184; SLA Marshall, "Commentary on Infantry Operations and Weapons Usage in Korea, Winter of 1950-1951," ORO-R-13 (Chevy Chase, MD: Johns Hopkins University Operations Research Office, 1952), pp. 52-54, cited in Cohen and Gooch, 184, footnote 55.

²²⁸ Fehrenbach, 210-211.

²²⁹ Fehrenbach, 234.

Analysis and Conclusions: Failure to Adapt Exacerbates Operational Defeat

Eighth Army campaign defeat cannot be blamed solely on a failure to adapt. However, partial blame for a lack failure to overcome the challenges of surprise and compartmentalized terrain when faced with the unexpected problem of PLA attackers and isolated elements for applying American combined arms firepower may be lain on a lack of tactical adaptation. Through unchanged methods, Eighth Army constantly and continually failed to improvise or experiment with new tactics, techniques, or procedures to increase operational effectiveness or effectively anticipate solutions to challenges faced.

The essential character of Eighth Army fighting in the western peninsula required anticipating and improvising to meet the new challenges of fighting PLA light infantry in defensive battles and a fighting retreat. Continually applying the same Tactics, techniques, and procedures continued to produce low operational effectiveness, exacerbating setbacks and contributing to campaign defeat. While unlikely that tactical anticipation would cause campaign victory or substantially increase operational effectiveness due to PLA advantages in surprise and the favorable tactical positions for effectively applying their strengths, the example of X Corps suggests any different tactics, techniques, or procedures could increase operational effectiveness and would produce less disastrous results.

**Case Study 4: Failure to Adapt Does Not Prevent Operational Defeat
U.S. X Corps Retreats to the Coast, November-December 1950**

Case Study 4 Hypothesis: If wartime tactical adaptation causes operational victory or prevents defeat, then the lack of tactical adaptation by X Corps against the PLA as it fought from the Yalu River to Wonsan, Hungman, and Songjin in late 1950 caused operational defeat.

Analyzing X Corps and the PLA displays that failure to perform tactical adaptation may effectively limit the costs of setbacks and relative disadvantages in combined arms warfare, and does not decisively cause operational defeat. X Corps displayed an impressive ability to prevent greater setbacks by adhering to trained tactics, techniques, and procedures, directly increasing operational effectiveness. While limiting setbacks did not prevent overall operational defeat, failing to adapt increased operational effectiveness as established tactical methods were continually applied to mitigate initial operational surprise and favorable PLA positions.

This conclusion supports the study's primary hypothesis that failure to perform tactical adaptation causes operational defeat, but challenges claims that adaptation is necessary to limit setbacks. Hence, asking tactical adaptation to limit setbacks may actually apply less effective tactical methods than established techniques and procedures, overestimating the role of tactical adaptation and misunderstanding the true nature of its relationship with operational ways and strategic goals.

X Corps: Overview of Analysis and Operational Goals

X Corps' failed to adapt methods through combat exposure. Battle stimulated no innovation, and no lessons were determined or disseminated to improve operational effectiveness. X Corps applied unchanging tactical methods. However, adherence to unchanging methods produced higher operational effectiveness than in Eighth Army and limited several setbacks related to PLA strategic and operational surprise. American counterattacks out of the Chosin Reservoir did not fall apart against strong PLA positions in a retreat of campaign failure that, somewhat paradoxically, also contained battlefield victories. Defeating IX Army Group in a series of battles enabled X Corps to withdraw most of its forces as effective combat tactical units.²³⁰

PLA IX Army Group encircled U.S. X Corps at the Chosin Reservoir and forced the “longest retreat in American military history,” but failed to destroy the 1st Marine Division and rest of X Corps before it escaped.²³¹ PLA IX Army Group concentrated its attack on the 1st Marine Division at the reservoir 60 miles from its supply and communication hub at Hamhung-Hungnam and connected by one poor road along mountainous terrain.²³² Once destroying the 1st Marine Division, the main strength of X Corps, IX Army Group planned to systematically destroy the other units of X Corps now isolated and vulnerable in a scatter across the harsh terrain. Although the ultimate objective of destroying the division failed, PLA attacks harmed X Corps as it fought southeast to ports in Songjin, Hungman, and Wonsan before evacuating in late

²³⁰ Roy E. Appleman, *Escaping the Trap: The U.S. Army X Corps in Northwest Korea, 1950* (College Station, TX: Texas A&M University Press, 1990), p. 356.

²³¹ Malkasian, 36.

²³² Appleman, *Escaping*, 359.

December. While Chinese planners “chose the right strategy” and made “the best choice of operations available to them,” PLA execution failed to produce desired results.²³³

Battlefield successes of X Corps and the 1st Marine Division can be attributed to adhering to tactical doctrine. X Corps did not adapt, did not innovate, and did not change: “It was war waged ‘according to the book.’”²³⁴ Basic precautions of preparing defensive positions, effectively using terrain, correctly using weapons through disciplined tactics, and aggressively patrolling mitigated setbacks and increased operational effectiveness.²³⁵

Failure to adapt may have contributed to X Corps operational defeat, but it also appears that adhering to established tactics contributed to battlefield victories and increased operational effectiveness by mitigating setbacks. X Corps’ inability to learn, adapt, or apply new tactical techniques and procedures with creativity and flexibility may have prevented the improved application of combined arms warfare in northwest Korea, but it certainly produced examples of effective combat power. Success in X Corps units rested “on no mysterious formula for victory,” but rather on “enforcing such drudgery” as maintaining weapons and equipment, and preparing effective defenses to retain combat effectiveness.²³⁶

In North Korea during late 1950, X Corps revealed how failure to perform tactical adaptation can limit setbacks and increase operational effectiveness. Hence, militaries

²³³ Appleman, *Escaping*, 357, 359.

²³⁴ Cohen and Gooch, 187.

²³⁵ Cohen and Gooch, 187.

²³⁶ Cohen and Gooch, 187-189.

reluctant to adapt, learn, or innovate during times of war may effectively mitigate setbacks and produce battlefield victory. Attempting to adapt, learn, or innovate during times of war may actually exacerbate the consequences of continuing mistakes or undermine operational effectiveness.

Battling to the Coast: Fighting Without Adaptation

X Corps forces were shaped like a “U” along the south of Chosin Reservoir when the PLA attacked November 27. The PLA 80th Division struck against the upper-right end of the line while simultaneously moving to cut off supply routes and possible avenues for retreat further south, near the southeastern bend of the “U.” Additionally, PLA 79th and 89th divisions struck U.S. forces northwest of the reservoir in the northwest tip of the “U,” while the 59th, 58th, and 60th divisions attacked the southwest curve, base, and route further south.²³⁷ By the morning only three isolated perimeters were still held by X Corps forces: the northwest tip of the “U” at Yudam-ni, the base at Hagaru, and ten miles south along the supply route at Koto-ri. The units of X Corps were dispersed among hundreds of square miles in largely inaccessible places, facing at least twelve enemy divisions.²³⁸

The only road for a major force to move in operational theater was the Hungnam-Hagaru-ri-Yudam-ni road X Corps used to approach the Chosin Reservoir and the Chinese had isolated and cut off by November 27. PLA forces cut the road and established roadblocks, effectively isolated segments of X Corps from their supporting troops and combat units. The PLA successfully fragmented X Corps to begin destroying the compartmentalized

²³⁷ Hastings, 175; Stewart, 16.

²³⁸ Hastings, 175.

forces.²³⁹ Cutting off supply and escape routes, PLA soldiers held positions “of great strength and in large numbers all along this road, and they had turned back all efforts to open the road...the same tactics worked, with much less cutting of roads to the rear, against Eighth Arm in the west.”²⁴⁰

X Corps tactics nullified initial setbacks and early Chinese successes. Troops and commanders did not explore new methods, relying instead on training and applying inflexible tactics to increase operational effectiveness. Initially, PLA IX Army Group “laid their trap well” and the initial movements near the Chosin Reservoir could have sent defenders in a disastrous route, but X Corps held its perimeters and “stayed in them and fought.”²⁴¹ After holding and fighting at Yudam-ni, X Corps units fought for ten days through Hagaru-ri and Koto-ri to Chinhung-ni by adhering to basic tactics: they “climbed the hills flanking the road and cleared the enemy there before allowing its trains to move ahead on the only road by which they could reach safety.”²⁴² Planning attacks to retreat along the road, X Corps units “had to fight and defeat the Chinese for every mile of the way” through the patient application of unchanging tactics in “a textbook application” of tactical lessons.²⁴³ Steady, disciplined tactics seized enemy-held high ground along the route of movement before its use by traveling columns to pass through toward the coast.

²³⁹ Appleman, *Escaping*, 28, 72.

²⁴⁰ Appleman, *Escaping*, 184.

²⁴¹ Appleman, *Escaping*, 363.

²⁴² Appleman, *Escaping*, 365.

²⁴³ Appleman, 365.

X Corps effectively withdrew from northeast Korea by applying unchanging tactics to mitigate initial shortcomings and setbacks. Withdrawing from Yudam-ni and Hagaru to the coast on a tenuous supply route fighting through Chinese forces, roadblocks, and extreme cold, “whenever the Chinese attacked the column or the enclaves at Koto-ri and points south, Marines and GIs stopped the assaults” as battalions “took their high-ground objectives without fail.”²⁴⁴ Although the main road was cut into as many as twelve isolated segments and the terrain prevented divisions from remaining intact, units formed solid perimeters in valleys near Yudam-ni, Hagaru, and Koto-ri, consolidating forces and “keeping tight, steel-ringed perimeters by night whatever happened in the rear.”²⁴⁵

After suffering 8,735 casualties,²⁴⁶ by December 11 X Corps was in an enclave protected by air strikes, naval gunfire and artillery support, and effectively evacuated by December 24 with “nothing of the ‘bug out’ odor that stuck to the Eighth Army.”²⁴⁷ X Corps suffered campaign defeat as the Chinese controlled the operational theater. However, failure to change tactics, techniques or procedures mitigated setbacks created by IX Army Group’s initial surprise and advantageous positions. X Corps increased operational effectiveness but did not salvage campaign defeat as the PLA drove U.S. forces out of North Korea, and “no American troops ever returned there.”²⁴⁸

²⁴⁴ Millett, *The Came From the North*, 349.

²⁴⁵ Fehrenbach, 243.

²⁴⁶ Mossman, p. 147, Table 3, “X Corps Battle Casualties, 27 November-10 December 1950.”

²⁴⁷ Millett, *The Came From the North*, 354.

²⁴⁸ Appleman, *Escaping*, 368.

Analysis and Conclusions

X Corps did not adapt to a new and hostile environment, and did not develop new tactics or procedures to meet the unexpected challenges of northeast Korea. Faced with the unexpected problem of isolated units battling capable and prepared PLA soldiers, X Corps applied standard methods for infantry movement and battle. Troops and commanders at the tactical level applied existing doctrine, and the advantages gained delivered exploitable advantages for the counterattacking U.S. forces. Clearing Chinese soldiers from the hills and main supply route, X Corps effectively retreated from the Chosin Reservoir to the coast. Although conducting a retreat in campaign defeat, X Corps' application of established tactics increased its operational effectiveness and mitigated several PLA advantages.

CHAPTER 5: POLICY IMPLICATIONS

This project targets U.S. decision makers and military strategists to help them achieve their objectives of American military success through effective operations and tactics. If current thinking on tactical adaptation is flawed, then it prevents decision makers and strategists from accurately understanding what tactical adaptation can and cannot deliver. This work aims to prevent the costly repercussions of policy decisions that overestimate the rewards of what tactical adaptation can deliver. If tactical adaptation during wartime limits the costs of failures and setbacks but does not decisively cause campaign victory or defeat, then people must accurately understand this relationship when deciding how military force can achieve goals, when it will be effective, what goals are attainable, and why its use may succeed or fail in delivering desired outcomes. Essentially, a greater understanding of how tactical adaptation shapes operational effectiveness and campaign outcome delivers policymakers and strategists with more realistic assessments of what can and cannot work. The factors for consideration are simple: do not overestimate what tactical adaptation can provide.

The implications of this analysis have three immediate repercussions for policy direction: decisions concerning the use of force; assessing relative force; and designing forces. For decisions about the use of force, avoiding an overestimation of the ability for U.S. forces to adapt will help shape realistic campaign goals and measures of operational effectiveness. If strategists or decision makers desire greater progress during combat operations in Afghanistan, then they must understand what anticipating new problems and improvising new solutions can deliver. If there is an expectation in American

warfighting doctrine that soldiers and marines must adapt to new combat situations—which there appears to be—then strategists and decision makers must understand the process of experimenting and exploiting capabilities, as well as the potential rewards. Vitaly, observers must not assume examples of tactical adaptation as clear doctrinal or organizational change. This assumption suffers from the imprecision displayed in much scholarly literature. Alone, tactical adaptation cannot produce doctrinal change or organizational learning; it is simply one step in the process.

In assessing relative force, analysts should consider the qualitative traits favoring adaptation when making their calculations. The ability to anticipate and improvise to explore and exploit new capacities may be essential to what goals are undertaken. If preparing to fight an adversary, that potential enemy's ability to use initiative and creativity is an important dimension of their ability to tailor methods to achieve larger goals. If the U.S. takes an action, what are the potential responses? More importantly, is an adversary able to act with such creativity that a response will be something currently unforeseen?

Finally, several implications exist for U.S. forces that are attempting to shape military forces to be effective in different manners. What traits are desired when shaping new Iraqi security forces? If tactical adaptation requires people with initiative and creativity to innovate new techniques and procedures, are these traits being encouraged and honed? U.S. forces appear to be pursuing a dual-track strategy in Iraq: attempting to change training to encourage individual initiative and creativity, while also selecting those with

desirable traits. What are the costs if the U.S. fails? This initial analysis suggests that it would limit the ability of Iraqi forces to exploit opportunities and recover from setbacks, but alone would not decisively cause a campaign defeat. And if the U.S. is extremely successful, would that produce a force with an overwhelming advantage over its regional neighbors and internal Kurdish army? If the ability to perform tactical adaptation is a valuable tool, how much and what a kind of capability does it deliver to those who wield it? And what are the second- and third-order effects of this trait?

CHAPTER 6: CONCLUSIONS

What is the true nature of tactical adaptation in combined arms warfare, and what is its relationship with operational performance? This work concludes that wartime tactical adaptation does not deliver advantages that decisively cause operational victory or prevent operational defeat. Rather, tactical adaptation limits the costs of failures or setbacks in the operational and tactical realm. This conclusion challenges the primary hypothesis tested in the four case studies included in this analysis. It also challenges existing conclusions in the current body of literature about wartime tactical adaptation, identifying opportunities for further research.

First, a better definition of tactical adaptation is required. In this analysis, tactical adaptation is the exploration and exploitation of new tactical methods to improve operational performance through anticipation and improvisation. However, this definition is deemed wanting. Is anticipation and improvisation required? Who must conduct these actions? Must revised tactical methods increase operational effectiveness to be considered adaptation? How applicable must the changes be to other operational theaters or types of warfare? These questions concerning definition indicate a dearth of rigorous analysis on the subject of wartime tactical adaptation.

Second, additional study is required to adequately address the subject and explore opportunities for further study. One recent author echoed this claim: “scholars and analysts should more closely consider the sources and process of military innovation in

wartime.”²⁴⁹ Current examples of wartime tactical adaptation, it was argued, “are perhaps only the beginning of what can be new avenues of theoretical and empirical research that scholars and military professionals alike can undertake to further enhance our collective understanding of the complex processes at work in the pursuit of building and maintaining innovative military organizations.”²⁵⁰ With a field so new and unexamined, early conclusions may prove to be inaccurate or incomplete as methods are refined, additional data is collected, and conclusions are challenged. Exciting opportunities exist for future analyses to conduct these tasks, answering current questions in a superior fashion and asking important new ones that are currently overlooked or misunderstood.

Third, the findings of this study reveal challenges inherent in assessing warfare and causes of effectiveness. Although the cases studies selected possess several advantages for the analysis, they also have many disadvantages. Limited information was available to assess German and Chinese capabilities, goals and intentions, much less their rate of tactical adaptation and its effect on operational effectiveness. Additionally, comparisons of American forces are not all the same—members of X Corps’ 1st Marine Division were trained longer and differently than their Eighth Army counterparts, with each receiving individual infantry training and, possibly, delivering the capacity to conduct more effective tactics. These case studies examined how terrain compartmentalized combined arms tactics, possibly delivering a limited application of the study’s lessons to other realms of operational effectiveness.

²⁴⁹ James A. Russell, *Innovation, Transformation, and War: Counterinsurgency Operations in Anbar and Ninewa Provinces, Iraq, 2005-2007* (Stanford, CA: Stanford University Press, 2011), p. 211.

²⁵⁰ Russell, 211.

Fourth, the case of X Corps challenges several assumptions and raises questions both exciting and troubling. In northeast Korea, X Corps increased operational effectiveness to overcome initial setbacks through the opposite of adaptation: the disciplined application of existing tactics, techniques, and procedures in a relatively inflexible manner. Although this result does not nullify findings concerning what tactical adaptation can or cannot deliver, it does indicate a larger element of operational effectiveness this study failed to address sufficiently. This analysis began by assuming adaptation limited setbacks and exploited fleeting opportunities, but the example of X Corps displays that these results may be achieved, at least partially, by avoiding adaptation or change. What determines when operational effectiveness may be increased by adaptation versus the disciplined application of tactics? How can or should this determination be made? By what person, organization, or authority? What if the scenario is incorrectly assessed and the decision made is ultimately wrong? If X Corps attempted tactical adaptation it may have increased its operational effectiveness; or, it may have suffered an outcome worse than the disaster of Eighth Army in the west. These questions and problems reflect troubling scenarios with unclear answers and deadly repercussions.

Fifth and finally, an ethical obligation exists to examine this subject in greater detail. Although easy to overlook in lecture halls or libraries, the four case studies examined in this analysis illuminate the immense human suffering and momentous costs associated with low operational effectiveness, and the painful process of revising tactical methods. This analysis suggests there may be no easy answers in the near future. Analytical outcomes will often be incomplete or inconclusive. But a clear relevance exists for

current and future strategists, policy makers, warfighters, and citizens to understand what can be reasonably expected of a fighting force when applied to achieve strategic goals, and what may be the probable costs for this pursuit. Misunderstanding what tactical adaptation can provide will produce costly results and additional human suffering.

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