NOT JUST LUCKY: HOW PATTON'S THIRD ARMY ADAPTED TO GENERATE OPERATIONAL LEVEL INFORMATION ADVANTAGE FROM MARCH TO SEPTEMBER 1944

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE
Art of War Scholars

by

SPENCER L. FRENCH, MAJOR, U.S. ARMY
B.S., Georgetown University, Washington, DC, 2008

Fort Leavenworth, Kansas
2021

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED *(From - To)*
18-06-2021	Master's Thesis	SEP 2020 – JUN 2021

4. TITLE AND SUBTITLE

Not Just Lucky: How Patton's Third Army Adapted to Generate Operational Level Information Advantage from March to September1944

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Spencer L. French, Major

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORG REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

In August 1944, Patton's Third Army smashed through German defenses in Normandy and broke out in a rapid pursuit across France. Third Army's success was substantially due to its effectiveness at generating operational level information advantage. Information advantage enabled Third Army to gain and maintain the initiative, anticipate decisions, and extend operational reach. Yet when Third Army activated in England in the Spring of 1944, it possessed neither the information forces nor the staff processes to generate information advantage effectively. This study examines how Patton successfully embedded a unique military culture that encouraged rapid adaptation within Third Army's information forces. Specifically, it explores how Patton's visionary leadership created a sense of organizational urgency, reducing change resistance. It also analyzes how Patton's coalition established robust feedback loops and a culture of self-criticism and experimentation. Finally, it looks at how Patton leveraged diverse expertise to develop devastatingly effective solutions to complex problems. Improvements in Third Army's ability to generate information advantage resulted not from any technological advance or material factor but from a military culture that encouraged adaptation.

15. SUBJECT TERMS

World War II, Third Army, George S. Patton Jr, Army Information Service, Signal Intelligence Service, Adaptation, Information Advantage, Urgency, Feedback Loops, Diverse Expertise

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. PHONE NUMBER *(include area code)*
(U)	(U)	(U)	(U)	199	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: Spencer L. French

Thesis Title: Not Just Lucky: How Patton's Third Army Adapted to Generate Operational Level Information Advantage from March to September 1944

Approved by:

_____, Thesis Committee Chair
Peter S. Im, MSS, MMAS, MMSI

_____, Member
Dean A. Nowowiejski, Ph.D.

_____, Member
LTC Michael B. Stokes, M.S.

Accepted this 18th day of June 2021 by:

_____, Assistant Dean of Academics for
Dale F. Spurlin, Ph.D. Degree Programs and Research

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

NOT JUST LUCKY: HOW PATTON'S THIRD ARMY ADAPTED TO GENERATE OPERATIONAL LEVEL INFORMATION ADVANTAGE FROM MARCH TO SEPTEMBER 1944, by Major Spencer L. French, 199 pages.

In August 1944, Patton's Third Army smashed through German defenses in Normandy and broke out in a rapid pursuit across France. Third Army's success was substantially due to its effectiveness at generating operational level information advantage. Information advantage enabled Third Army to gain and maintain the initiative, anticipate decisions, and extend operational reach. Yet when Third Army activated in England in the Spring of 1944, it possessed neither the information forces nor the staff processes to generate information advantage effectively. This study examines how Patton successfully embedded a unique military culture that encouraged rapid adaptation within Third Army's information forces. Specifically, it explores how Patton's visionary leadership created a sense of organizational urgency, reducing change resistance. It also analyzes how Patton's coalition established robust feedback loops and a culture of self-criticism and experimentation. Finally, it looks at how Patton leveraged diverse expertise to develop devastatingly effective solutions to complex problems. Improvements in Third Army's ability to generate information advantage resulted not from any technological advance or material factor but from a military culture that encouraged adaptation.

ACKNOWLEDGMENTS

First, I want to give a special thanks to my partner and best friend, Jessica; your love and encouragement made this work possible. I also want to thank our two daughters Elizabeth and Mary, who helped me keep everything in perspective while writing.

This work would not be possible without the guidance of Mr. Peter Im, my Thesis Committee Chair. Our conversations on the topic of Information Advantage spurred my progress, kept me motivated, and inspired me to put the pieces together.

In no small way, Dr. Dean Nowowiejski is the intellectual "Godfather" of this thesis. His monograph, "Concepts of Information Warfare in Practice: General George S. Patton and the Third Army Information Service, August-December, 1944," served as the foundation and jumping-off point for this thesis. His consistent guidance and direction kept me on track and drove the completion of this work.

Special thanks are also due to Lieutenant Colonel Michael Stokes. Lieutenant Colonel Stokes continually challenged me to refine and hone my arguments.

I also must sincerely thank Colonel Gregory Fontenot, USA Retired. While not a formal member of my thesis committee, as the former director of the School of Advanced Military Studies and the University of Foreign Military and Cultural Studies, his perspective was essential in helping me validate my analysis of Patton's approach to the operational art. Furthermore, as the author of multiple military history books, including one on the European Theater of Operations (*Loss and Redemption at St. Vith*, *On Point*, and *The First Infantry Division and the US Army Transformed*), Colonel Fontenot provided invaluable feedback and helped me refine my historical approach.

I would be remiss if I did not mention the team at the team at the Combined Arms Doctrine Directorate, Lieutenant Colonels William Connor, Michael Flynn, and Charles Schrankel, USA Retired. Thank you for taking the time to delve deep into 1940s and present-day US Army doctrine with me.

This work was further made possible by the "Owl" peer review group. Thank you, to my fellow Art of War Scholars Majors Nicole Kruse and Vincent "RoK" Noel, for giving me the constructive criticism and support I needed to complete this project.

I also want to thank the professionals at the Ike Skelton Combined Arms Research Library. The phenomenal research assistance of Mr. Rusty Rafferty and Mr. John Dubuisson is reflected on almost every page of this thesis. Special thanks also go to Mr. Rob Simpson at the National Cryptologic Museum Library, Ms. Melissa Davis at the Marshall Foundation Library and Archives, and Ms. Alexandra Adler at the Citadel Library and Archives.

Finally, I want to acknowledge the contributions and sacrifice of the Soldiers of the Third US Army, particularly the Signaleers, Intelligence professionals, and Cavalrymen of the Signal Intelligence Service, the 118th Radio Intercept Company, the Third Army Signal Service companies, the Third Army G-2 section, and the Sixth Cavalry Group. The ingenuity and dedication of officers like Colonel Edward "Joe" Fickett, Lieutenant Colonel Melvin Helfers, Major Thomas Stewart III, Major Charles Flint, Captain Clarence Helland, Captain George Lieberberg Lieutenant Victor Young, Lieutenant Gerald Goulette and innumerable other "pick and shovel" Soldiers preserved my freedom to write this work.

TABLE OF CONTENTS

Page

ACRONYMS

AFHQ	Allied Force Headquarters
AIS	Army Information Service
RI	Radio Intelligence
SHAEF	Supreme Headquarters Allied Expeditionary Force
SIAM	Signal Information and Monitoring
SIS	Signal Intelligence Service
SSC	Signal Service Company

ILLUSTRATIONS

Page

TABLES

Page

CHAPTER 1

INTRODUCTION

> Information is like eggs—the fresher, the better.
> —Lieutenant General George S. Patton Jr., *War As I Knew It*

Background

In the summer of 1944, Hitler remained master of western Europe, and the Wehrmacht stood athwart all paths to Berlin. The end to almost five years of bloody conflict seemed nowhere in sight. Despite horrific losses on the eastern front, the Germans were still a force to be reckoned with, possessing substantial material resources and its "potent doctrine of combined arms, decentralized leadership, and small-unit initiative."[1] While the US Army had experience in combat against the Germans in North Africa and Italy, the scope of the undertaking in France was qualitatively different, posing wholly new challenges. Many American formations going into the fight in France were new and unbloodied. It was with this force that the Allies planned to invade fortress Europe. Once the Allies established a foothold in France, the plan earmarked Third US Army, under Lieutenant General George S. Patton Jr., as an exploitation force that would seize Brittany and the port of Brest. Allied planners intended the supplies flowing through Brest to fuel a long, systematic campaign across France, which, even if all went well, was forecasted to take at least another year to reach the German border.[2]

---

[1] Williamson Murray and Allan R. Millet, *A War to Be Won: Fighting the Second World War* (Cambridge, MA: Harvard University Press, 2000), 412.

[2] Robert W. Williams, "Moving Information: The Third Imperative," *ARMY* 25, no. 4 (April 1975): 17.

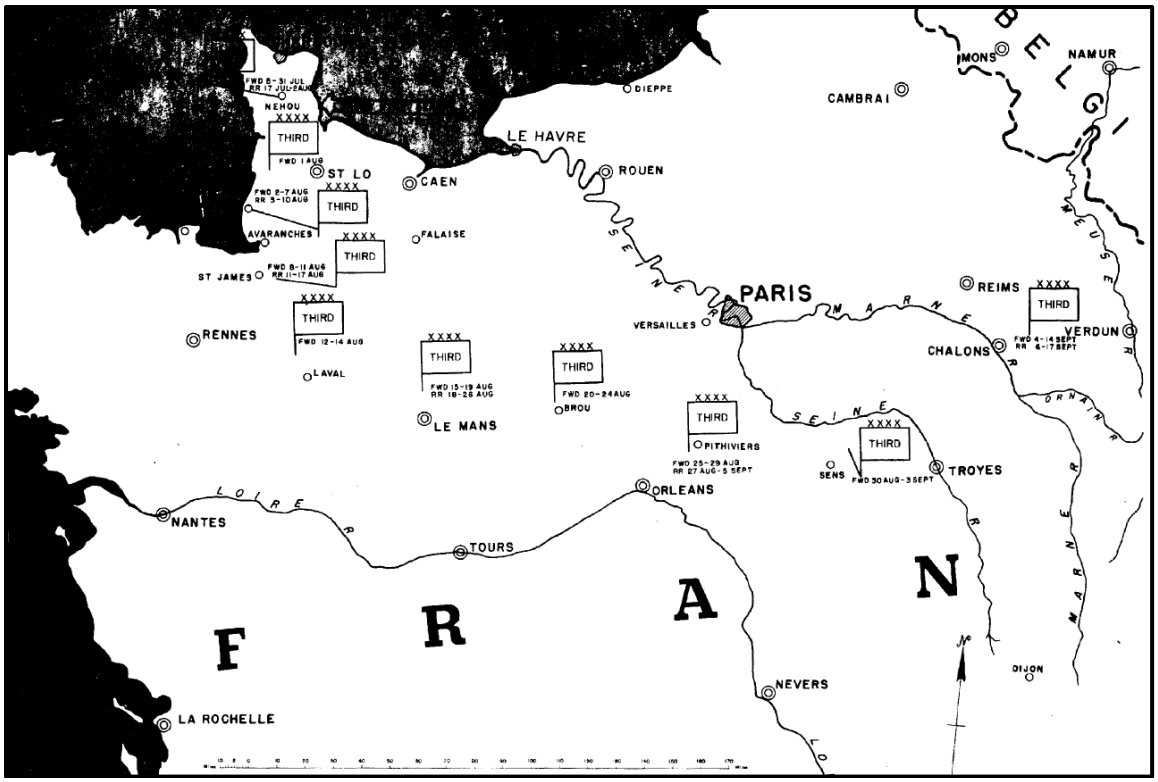

Figure 1. Map of France 1944 Depicting Third Army Headquarters Locations

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Headquarters Commandant* (Regenburg, Germany, May 1944), 8, Combined Arms Research Library, World War II Operational Documents.

Yet this is not what occurred. By early September, only a month after Third Army broke out from Normandy, Paris was liberated, and the Allies were on Germany's doorstep. Almost 500,000 German troops were killed, wounded, missing, or captured. Losses to German materiel, particularly permanently installed systems or those lacking mobility, were near total.[3] Consistently, from the moment it became operational on 1

[3] Martin Blumenson, *Breakout and Pursuit* (Washington, DC: Center of Military History, 1993), 700.

August 1944 until it reached the Moselle River in September, Third Army was always one step ahead of the German defenders. By the first week of August, Patton's armored columns were dashing towards Brest in the west, the Loire to the south, and the Seine to the east. Throughout August, Third Army overran unprepared German defenses and outmaneuvered German attempts to counterattack or reform their lines. Despite the challenges posed by immature technology, logistical constraints, a new and challenging operational environment, and a peer enemy, Patton found a way to generate advantage.

Patton derived his success from his dynamic approach to warfare. Patton sought to seize the initiative, maintain a high operational tempo, and continuously take his following action before the enemy could react to his previous one. The effect became cumulative as Patton gained a further advantage in each successive decision cycle. Rapid exploitation disintegrated the enemy in-depth, while speed compensated for security, allowing Patton to economize his force and concentrate combat power. The means to attain speed in decision making and speed in execution was information. Patton, therefore, viewed the possession of an information advantage as the means to "rock the enemy back on his heels and prevent him from ever recovering."[4]

Patton created a cohesive and integrated approach. Specifically, he sought to generate what 21st Century US Doctrine defines as information advantage, "a condition when a force holds the initiative in terms of relevant actor behavior, situational

[4] Dean A. Nowowiejski, "Concepts of Information Warfare in Practice: General George S. Patton and the Third Army Information Service August-December, 1944" (Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 1997), 16.

understanding, and decision making."[5] Generating an information advantage over the German forces allowed Third Army to gain and maintain the initiative, manage prudent risk, anticipate decisions, and extend its operational reach. His information advantage approach looked first to understand what the enemy intended to do, thereby enabling Third Army to, in Patton's words, "do it first." The approach also sought to deprive the enemy of accurate information or the time to process it while simultaneously enabling friendly decision-making through assured communications and decision-making processes. Finally, the approach attacked the enemy cognitively, employing information to allow rapid maneuver and employing maneuver to generate new opportunities to exploit enemy information.

Yet, the organizations, systems, and processes necessary to execute this vision did not exist in the spring of 1944. Third Army needed to create some of the required capabilities and concepts from scratch. It had to adapt and reorganize other organizations and processes to better support Patton's vision. Spring and early summer 1944 was a period of dynamic change within Third Army. This period of change culminated in the creation of new and unique structures dedicated to managing and applying information and integrating it with other capabilities to "change or maintain perceptions, attitudes, and other elements that drive desired behaviors to support human decision making."[6] By the time it went into operation on 1 August 1944, Third Army had developed what 21st

[5] United States Army Cyber Command (ARCYBER), "Operational Art for an Information Age Army" (Speech delivered to the US Army Command and General Staff College, Fort Leavenworth, KS, October 2020), 6.

[6] Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Publishing Directorate, 2017), xiii.

Century US Joint Doctrine would define as information forces. While they arrived in France untested, not only did these nascent information forces succeed, but they also became progressively more militarily effective as they accumulated combat experience and performance feedback. Throughout August, Third Army improved the integration of its capabilities and supporting functions. It also better aligned its concepts with available technology while remaining both physically and intellectually flexible and mobile. These changes directly enabled Third Army to generate information advantage over the Germans and sweep across France.

Information Advantage: *"a condition when a force holds the initiative in terms of relevant actor behavior, situational understanding, and decision making."*

Information Advantage Activities: *"employment of capabilities to support decision making, protect friendly information, and affect relevant actor perceptions, attitudes, and behaviors in order to gain and maintain information advantage."*

Information Forces: *"the planners and integrators of information advantage activities; elements possessing certain specific capabilities that primarily participate in information advantage activities as part of their core mission; and portions of the intelligence apparatus dedicated to supporting information advantage activities."*

Figure 2. Information Advantage and Related Definitions

Source: Created by the Author.

The explanation for this rapid change in Third Army between March and September 1944 lies in the process of adaptation. Positive adaptations are alterations to a military element's organization, equipment, processes, or other features that increase overall military effectiveness, increasing the probability that the element accomplishes its goals.[7] The process, at least theoretically, is relatively straightforward. Contact with the enemy produces performance feedback. Military organizations analyze this feedback, develop solutions to address performance shortfalls, and apply those solutions, thereby increasing military effectiveness. Yet, history shows that Third Army's rapid

[7] Author's definition based on the definition of adaptation provided by Alberts. David S. Alberts, "The Agility Advantage: A Survival Guide for Complex Enterprises and Endeavors" (Department of Defense Command and Control Research Program, Washington, DC, September 2011), 218.

improvement is the exception rather than the rule. Positive adaptation is hardly a given, and many-if, not most-organizations fail to adapt or do so slowly. Therefore, Third Army's experience is uncommon and suggests that another factor facilitated this rapid adaptation and military effectiveness improvement.

Thesis

Third Army's unique military culture directly facilitated the process of adaptation within its information forces, enabling Third Army to improve its military effectiveness and generate information advantage. Patton's visionary leadership created a sense of organizational urgency. This urgency created a coalition dedicated to positive change within Third Army and reduced change resistance, facilitating positive adaptation. Patton and his coalition established robust feedback loops and a culture that welcomed self-criticism and experimentation. These formal and informal systems enabled Third Army to collect, analyze, and interpret performance feedback data accurately and efficiently. Finally, Patton encouraged the active participation of a diverse set of experts. He brought together individuals who challenged and complimented one another, forming a group greater than the sum of its parts. United in their commitment to Patton's information advantage vision, they consistently developed unorthodox but devastatingly effective solutions to complex problems. Improvements in Third Army's ability to generate information advantage resulted not from any technological advance or material factor. The progressive improvement of Third Army's ability to generate information advantage and its resultant sweep across France was the direct result of a military culture that emphasized continual improvement, welcomed feedback, and embraced diversity of thought.

Conceptions of Information Advantage in 1944 and 2021

US doctrinal concepts related to information have evolved significantly since 1944. 21st Century joint doctrine defines information as "the content and data that individuals, groups, and information systems communicate and exchange, as well as the human and technical processes used to exchange information."[8] This study employs the 21st Century term of information advantage not only for the sake of clarity but because it better reflects Patton's innovative approach to information. While this study explores the definition of information advantage in greater detail in chapter 2 and Appendix A, it represents a position of advantage that allows the commander to anticipate decisions, make them faster, and see them carried out with assurance. Information advantage is not a "natural" condition of being that results simply from having superior means; military organizations must actively generate it.

21st Century US Army concepts specify that gaining and maintaining information advantage is accomplished through the conduct of information advantage activities, "the employment of capabilities to support decision making, protect friendly information, and affect relevant actor perceptions, attitudes, and behaviors."[9] Information advantage activities are not simply the employment of a capability to have an effect, but they are ongoing integrated processes aimed at generating marked operational advantage over the enemy.

---

[8] ARCYBER, "Operational Art for an Information Age Army," 6.

[9] Ibid.

The US Army in 1944 did not possess a similar overarching framework for gaining and maintaining advantage. Instead, it suggested techniques that commanders could integrate into operations to achieve tactical surprise. Doctrine at the time recognized that "the degree of surprise attained [in offensive operations] is dependent in a large measure on the coordination and timing of measures taken to deceive the enemy."[10] To this end, Army doctrine stipulated strict radio silence in preparation for deliberate attacks.[11] It also suggested that "feints demonstrations and simulated concentrations may be employed to mislead the enemy regarding the strength, time, or place of attack," and "dissemination of false information" could "deceive or mislead the enemy."[12] US Army doctrine also stressed the importance of safeguarding "secret, confidential, and restricted documents," and ensuring "secrecy in the transmission of messages."[13] These measures though were aimed primarily at achieving tactical surprise. There was little consideration of how to gain and maintain an advantage over the enemy throughout a campaign.

US Army doctrine in 1944 was also immature in its conception of how to employ specific other nascent capabilities. As the European Theater General Board concluded at the end of the conflict, "no substantial body of doctrine or plan of operations for psychological warfare existed before the outbreak of World War II, even now no fixed

---

[10] US War Department, Field Manual 100-5, *Operations* (Washington, DC: Government Printing Office, 1941), 109, Combined Arms Research Library, Obsolete Military Manuals, accessed 14 April 2021, https://cgsc.contentdm.oclc.org /digital/collection/p4013coll9/id/978/rec/1.

[11] Ibid., 118.

[12] Ibid., 58.

[13] Ibid., 59.

place for psychological warfare in the staff has been determined."[14] Similarly, beyond the recommendations to secure communications and speed information from the battlefield to the headquarters, there was little discussion of processes to enhance situational awareness and decision making. Besides recommending that commanders provide the enemy with "false information," US Army doctrine was similarly mute on precisely how to design and integrate a deception plan into maneuver. All told, US Army doctrine throughout the conflict emphasized the massing of firepower, and over enhancing friendly decision-making and disrupting enemy decision-making.[15]

Patton's approach reflected a more intent-based framework for managing the employment of capabilities. He possessed a clear conception of how to achieve specific effects on friendly and enemy decision-making in an orchestrated fashion. Specifically, Third Army conducted three distinct activities:

1. Enable Decision Making: Enhance understanding of human and information dimensions; assure systems and processes for decision making.
2. Protect Friendly Information: Identify, secure, obscure and defend friendly information and information systems from compromise or attack.

[14] General Board of the United States Forces European Theater, "Study No. 131, Psychological Warfare" (Report of the General Board United States Forces, European Theater, November 1945), 2, accessed 19 January 2021, https://carlcgsc.libguides.com /c.php?g=1005839.

[15] Walter E. Kretchik, *U.S. Army Doctrine from the American Revolution to the War on Terror* (Lawrence, KS: University Press of Kansas, 2011), 149.

3. Counter Adversary Information Use: Attack adversary elements of combat power and defend friendly use of information against adversary information attack capabilities.[16]

Chapters three through five of this study demonstrate that the concepts underpinning information advantage activities would not have been alien to Patton or Third Army by mid-1944, even though the terms did not exist in the doctrine of the time.

When seeking to describe or categorize military capabilities, 21st Century US Army doctrine employs the term information related capabilities (IRCs): "tools, techniques, or activities employed within a dimension of the information environment that can be used to create effects and operationally desirable conditions."[17] US Army doctrine in 1944 did not possess a framework for defining the relationship between capabilities and information. FM 100-5 placed many "information related capabilities" under the category of "counterintelligence," listing measures available to a commander as including:

> secrecy; discipline; concealment; tactical measures designed to deceive the enemy; restrictions on the preparation, transmission, and use of documents; signal communication security; precautions in the movements of troops and individuals; regulation of the activities of newspaper correspondents, photographers, radio news commentators, and visitors; censorship; counterespionage, and counterpropaganda.[18]

---

[16] United States Cyber Command, "Information in Joint Operations" (Presentation, US Cyber Command Headquarters, Fort Meade, MD, 14 January 2021), 28.

[17] Headquarters, Department of the Army (HQDA), Army Training Publication (ATP) 3-13.1, *The Conduct of Information Operations* (Washington, DC: Government Publishing Directorate, 2018), 3-2.

[18] US War Department, Field Manual 100-5 (1941), 57.

US Army doctrine did not attempt to define the relationship between other capabilities like physical attacks on communications systems and information one way or another. Thus, in keeping with 1940's doctrine, Patton did not distinguish between "information related capabilities" and other military capabilities. Patton was revolutionary in his recognition that all military activities produce information[19] and that all military capabilities impact the operational environment's information and human dimensions.[20] For instance, Patton understood that physical actions on the ground could affect the information dimension as much as actions in the electromagnetic spectrum. Thus, this study proposes that Patton did have a well-developed conception of the competition for time and information and how military forces could employ capabilities to generate information advantage and enable aggressive maneuver.

Consequently, in part due to lack of doctrine and part due to its commander's cutting-edge conceptual framework, Third Army drew little distinction between the nature or category of capabilities themselves. Instead, it concentrated on the effects it wished to achieve in employing these capabilities, how to integrate them as part of activities, and the goal of generating advantage. Therefore, this study does not use the term "information related capabilities," as this term was neither in use at the time nor reflects Third Army's approach to information advantage. Instead, the study employs the broad term "capabilities" or specifies the exact capabilities employed.

---

[19] JCS, JP 3-0, III-17.

[20] United States Army Cyber Command (ARCYBER), *Information Advantage: Expanded White Paper* (Fort Gordon, GA: ARCYBER, February 2021), 3-1.

The organizations that host these capabilities and are responsible for managing information advantage activities or portions of information advantage activities are information forces. For this study, the author defines information forces as comprising the planners and integrators of information advantage activities; elements possessing certain specific capabilities that primarily participate in information advantage activities as part of their core mission; and portions of the intelligence apparatus dedicated to supporting information advantage activities.[21] Individual information forces host one or more capabilities and carry out or contribute to one or more information advantage activity. While Third Army did not employ the term information force, it did create unique organizations such as the Army Information Service (AIS) specifically to enable decision making. Third Army's employment of other organizations such as its Signal Intelligence Service (SIS), also shows that it considered these organizations as primarily responsible for protecting friendly information and denying the enemy the use of information. While Third Army never developed a single entity overall responsible for managing information and deliberately integrating it across functions, it gradually adapted existing elements and staff sections to perform such a role. Thus, to discuss adaptation and operational level information advantage, it is appropriate to employ the term "information forces" to describe certain portions of Third Army.

[21] Author's definition adapted from Christopher E. Paul and Michael Schwille, "The Evolution of Special Operations as a Model for Information Forces," *Joint Force Quarterly* 100 (1st Quarter 2021): 8.

Table 1. Comparison of Doctrinal Concepts 1944 and 2021

US Army and Joint Force 2021	Published US Army 1944	Patton 1944
Information Advantage	No overarching ooncept	Unnamed concept; outpace enemy decision-making cycle
Information Advantage Activities	No Overarching Framework; Measures to Achieve Tactical Surprise: i.e., Deception, Feints, Demonstrations, and Communications Security	Unnamed framework; enable friendly decision making, protect friendly information, attack enemy decision making
Information Related Capabilities	No distinction between "information" and other capabilities; some grouping of capabilities under "counterintelligence."	No distinction between "information" and other capabilities
Information Forces	No doctrinal definition	Unnamed construct; built organizations to serve an information purpose

Source: Created by the Author.

In many ways, Third Army and Patton's approach to information, while based in 1940s US Army doctrine, was revolutionary. Patton's approach to information reflected his unique approach to warfare overall and set him apart from his peers. Patton approached information competitively, seeing information advantage as a means to open windows of opportunity against the enemy. He drew few distinctions between military capabilities, organizing his thinking in terms of activities that could generate an advantage. Finally, he recognized specific capabilities needed to be housed in purpose-built forces to provide integrated effects. In the 21st Century, these concepts would be

called “information advantage,” “information advantage activities,” and “information forces.”[22]

Research Approach and Outline

The study aimed to identify how Third Army adapted to generate operational level information advantage between March and September 1944. Specifically, this study examined the role that three organizational factors—organizational urgency, robust feedback loops, and diverse expertise—played in developing positive adaptations and increased military effectiveness. To analyze adaptation and assess military effectiveness, the author employed a historical approach informed by a theoretical model of adaptation in combat. This model of adaptation in combat served as a frame for examining the historical record of Third Army in 1944.

The second chapter of this study lays out the theoretical model for adaptation within information forces. First, it articulates a framework for information advantage. This framework and related definitions are explored in greater detail in Appendix A. It then establishes a set of four parameters for measuring operational-level military effectiveness in information forces. These parameters include the integration of information resources, integration of support functions, consistency between operational concepts and available technology, and organizational mobility and flexibility. It then

[22] Note: While Colonel Gregory Fontenot, USA Ret., was not a formal member of the thesis committee, he provided guidance on the historical approach of the thesis. The author incorporated this guidance in addressing the similarities and differences between US Army doctrine in 1944, Patton's approach to information in 1944, and 21st Century US Army and Joint concepts related to information.

provides a model for adaptation and explores the relationship between the three primary organizational factors and positive adaptation.

Having established a model for adaptation and the role of organizational factors, the study proceeds to trace adaptation within Third Army between March and September 1944. In the third chapter, the study examines how Patton's experiences in North Africa and the Mediterranean led him to develop a unique and integrated approach to information advantage and how his influence shaped Third Army's culture. The fourth chapter demonstrates how the culture he built enabled Third Army to restructure itself in England to better align with his vision for information advantage. The fifth chapter illustrates how Third Army's culture facilitated dramatic adaptation in combat and increased combat effectiveness in France. Together these chapters trace the rapid adaptation of Third Army between March and September 1944 and illustrate the impact of cultural factors on the performance of Third Army.

The sixth chapter provides conclusions regarding how Third Army adapted to generate operational-level information advantage and infers lessons for present-day information forces. Specifically, the study concludes that the three organizational factors of urgency, robust feedback loops, and organizational expertise facilitated the process of adaptation in a combat environment. This led to measurable increases in operational-level military effectiveness of Third Army. The study further concludes that Third Army's experience from March to September 1944 has particular significance for US Army information forces in the 2020s.

Significance of the Study

As the US Army considers how to combat a peer enemy across all domains, the Army must understand the drivers of military effectiveness in information forces. Given the technical sophistication of information forces and the close relationship between information forces and advances in information technology, there is a natural inclination to view military effectiveness as deriving directly from material factors. Consequently, there is a particular emphasis on technological "invention" over non-material solutions and adaptation.

This work suggests that military cultural has as much relevance to the generation of operational-level information advantage as material factors. Of course, the retention of a technological edge is critical to gaining and maintaining an advantage. Yet, the 2018 National Defense Strategy observes, "success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting."[23] Military culture, or "the sum collection of beliefs, values, attitudes, and learned behavior of a group of people,"[24] significantly impacts how military organizations assimilate new technologies and integrate new capabilities into their current structure. Military culture also affects the rapidity with which military organizations can adapt themselves to new technology's challenges and promises. Finally, military culture also largely determines how efficiently military organizations make use of limited

[23] US Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America* (Washington, DC: The Pentagon, 2018), 10.

[24] Peter Mansoor and Williamson Murray, *The Culture of Military Organizations* (New York: Cambridge University Press, 2019), 17.

resources. A positive military culture is even more necessary in information forces than traditional forces, given the fast pace of information technology change.

Similarly, while the US Army recognizes the importance of experimentation in developing new concepts and capabilities, there remains a gap in understanding how military cultural factors play a decisive role in the success or failure of experiments in conflict or competition below the threshold of armed conflict. The Joint Concept for Operating in the Information Environment of 2018 notes that: "The Joint Force must experiment with organizational structure to maximize its ability to gain an Information Advantage. Additionally, the Joint Force must experiment with tactics, techniques, and procedures designed to sustain or change the perceptions, attitudes, and other elements that drive desired behaviors of relevant actors."[25]

Lieutenant General Stephen Fogarty, Commander of US Army Cyber Command (ARCYBER), notes that "as the entire Army experiments to develop capabilities that enable [Multi Domain Operations (MDO)] new, innovative formations will emerge."[26] If properly captured and analyzed, this feedback can encourage the emergence of valuable concepts that generate information advantage and, ultimately, security for the US in the future. This study suggests that cultural factors largely determine whether such experiments yield valuable insights and whether organizations leverage them to generate new concepts.

---

[25] Joint Chiefs of Staff (JCS), *Joint Concept for Integrated Campaigning* (Washington, DC: Government Publishing Directorate, 2018), 20.

[26] Stephen G. Fogarty and Bryan N. Sparling, "Enabling the Army in an Era of Information Warfare," *Cyber Defense Review* (Summer 2020): 23.

The example of Third Army in France suggests that military cultural factors are the primary driver of positive adaptation and increased military effectiveness. Patton's visionary leadership and ability to inject urgency for change into Third Army broke down resistance to new concepts. Third Army's well-developed feedback loops allowed it to gather insights from operational experiments, and a diverse set of experts leveraged these insights to create innovative solutions. By encouraging a culture that promotes adaptation, the US Army can posture itself to efficiently exploit new technologies to generate operational-level information advantage in the coming decades.

CHAPTER 2

LITERATURE REVIEW

TOWARD A THEORY OF ADAPTATION AND INFORMATION ADVANTAGE

> You had the feeling that Third Army was going in only one direction—forward.
> —Colonel Brenton G. Wallace, *Patton and His Third Army*

Introduction

This review will present a theoretical framework for how military cultural factors enable information forces to adapt, increase their military effectiveness, and generate information advantage. The study will first establish a working definition of operational-level information advantage. Second, the study will distinguish between the model of peacetime innovation and adaptation in combat. Third, to facilitate discussion of increases or decreases in military effectiveness, the study will propose a set of parameters for evaluating the operational level military effectiveness of information forces. Fourth, the study will describe "positive adaptation," its relationship with "negative adaptation," and the theoretical impediments to positive adaptation. Fifth, the study will examine three critical factors of military culture, urgency, feedback loops, and diverse expertise and their relationship with positive adaptation. In total, this chapter will establish the applicability of the modified adaptation model to the question of change within information forces in combat and hypothesize that specific cultural attributes within organizations increase the probability that positive adaptation will occur.

Information Advantage

Operational level information advantage is an inherently competitive activity that enables one side to gain and maintain the initiative while effectively balancing risk. Information advantage helps the commander efficiently link military actions in space and time across a campaign. Information advantage allows commanders at the operational level to anticipate decisions, continuously "forcing the enemy or adversary to react rather than initiate."[27] The continuous anticipation of events and possible decisions has a cumulative effect causing the enemy to continuously lag further behind in their reaction to events, making their decisions progressively less militarily effective from engagement to engagement. In particular, information advantage activities allow the commander to apply power against enemy capabilities or sources of strength such as command and control or intelligence simultaneously and depth, disintegrating enemy combat power. Information advantage activities also extend the operational reach of a military organization, "the distance and duration across which a joint force can successfully employ military capabilities."[28] Commanders must balance the need to affect the enemy in depth and maintain the initiative with their formation's operational reach and the risk of overextension. Enemy capabilities, geography, or other environmental conditions serve to constrain operational reach. Information advantage activities can mitigate the tyranny of distance, defeat adversary or enemy attempts to desynchronize friendly action, and extend the effects of friendly action in both time and space. In short, information

[27] Joint Chiefs of Staff (JCS), Joint Publication (JP) 5-0, *Joint Planning* (Washington, DC: Government Publishing Directorate, 2020), IV-40.

[28] Ibid., IV-34.

advantage at the operational level is inextricably tied to the concepts of initiative, anticipation, and reach.

Given that information advantage is a competitive activity, the critical question is how best to organize available capabilities and employ them within information advantage activities in an integrated fashion. Furthermore, because the operational environment can and does change, the most efficient organizations and processes for leveraging capabilities through information advantage activities can and must change over time. Therefore, to optimize generating information advantage, it is necessary to understand how military organizations change over time

Innovation and Adaptation

Two primary models describe how military organizations change over time, innovation during peacetime and adaptation during conflict. These models are not entirely mutually exclusive and sometimes can occur in parallel. Yet, different factors drive these fundamentally distinct processes. In peacetime innovation, organizations draw on lessons they believe they have learned from previous conflicts and forecast future war dynamics. They then design and deliver capabilities that they believe meet those future challenges and test these capabilities using measures they believe replicate future conditions. During wartime adaptation, organizations deploy such capabilities as they have, receive feedback from the enemy regarding their effectiveness, analyze that feedback, design capabilities and concepts that they believe counter the enemy, and deliver solutions to the field they think will increase effectiveness. Simultaneously the enemy follows the same process, resulting in complex adaptation.

Innovation in Peace

In times of peace, militaries focus on forecasting future conditions and develop capabilities that they assess will be effective in those conditions. At its core, the peacetime innovation model holds that militaries rely upon past experiences and a concept of future war to develop and field new formations, capabilities, and doctrine that they assess will meet future requirements. Barry Posen explains that during peace, militaries must "identify an enemy, if only for planning purposes," and "identify the military capabilities of any particular enemy."[29] They must also identify "technological opportunities both for the adversary and for oneself."[30] They operate this process in the context of what most theorists agree is an environment of change resistance.

Military theorists differ on the exact mechanism that drives peacetime innovation, but all agree that direct contact with the enemy is not one of the driving factors. Instead, assumptions about potential adversaries, not actual contact with the enemy, underpin the process of peacetime innovation. It is rooted in the past but represents hypotheses about future combat. It is a top-down process, led either by a coalition of senior military leaders, civilians, or radical military reformers acting to coopt powerful actors.[31]

---

[29] Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, NY: Cornell University Press, 2014), 30.

[30] Ibid.

[31] Jon T. Hoffman, *A History of Innovation U.S. Army Adaptation in War and Peace* (Washington, DC: Center of Military History, 2009), 156.

Adaptation in War

The other primary model of military change is that of "adaptation in war." Adaptation represents a process by which an entity changes itself (its organization, processes, and structure) to become better suited to the challenges it faces.[32] It can also represent how an organization takes ongoing transformation initiatives and puts them to good practical use in an actual situation.[33] The model for "adaptation in war" describes how military organizations receive direct performance feedback from the enemy. Military organizations then process this feedback, utilize it to generate new capabilities, deliver those capabilities to the battlefield, and then continue to conduct combat operations. Adaptation is essentially a "bottom-up" process, originating at the point of contact between one's forces and those of the enemy rather than a top-down process. It focuses on the near-term rather than future conflicts. Similarly, while the initial array of forces may have been designed based on lessons supposedly learned from previous wars, current conditions rather than conditions in previous conflicts primarily drive adaptation once the war begins.

Williamson Murray lays out a general process by which military organizations adapt in war, beginning with performance feedback. Organizations then orient themselves on the problem, analyze it, develop potential solutions, implement those solutions, and adopt them. Often this process includes experiments to gauge the effectiveness of new concepts. One example of this process is how the German Army translated experimental

---

[32] Alberts, "The Agility Advantage," 218.

[33] Jim Lacey and Kevin Woods, "Adapt or Die," *US Naval Institute Proceedings* 133, no. 8 (August 2007): 19–20.

storm troop unit performance from 1916 to 1917 into the new doctrine by January 1918.[34] The General Staff received feedback from the units, developed new concepts for employing the tactic at scale, guided additional experiments in battles during 1917, and repeated the process. With Field Marshal Ludendorff's support, this process culminated in January 1918 with the publishing of a new doctrine, "The Attack in Position Warfare."[35]

Murray's model is quite like the process of organizational learning outlined by Richard Downie and applied by John Nagl to trace doctrinal change by the British Army in Malaya. Downie's model describes how feedback or experiences in the field can reveal organizational performance gaps. Given the right circumstances, organizations then choose to search for alternatives to the status quo. Assuming the organization achieves consensus on a recommended change, the organization transmits the change across the organization, behavior in the field changes, more feedback is received, and the cycle repeats.[36]

Applicability of Models of Change to Information Advantage

Information advantage is competitive, involving direct contact with the enemy or other target populations, and is also relative to desired ends. Consequently, the same model that applies to other military organizations in conflict should apply to information

---

[34] Williamson Murray, *Experimental Units: The Historical Record* (Alexandria, VA: Institute for Defense Analysis, 2002), 7.

[35] Ibid.

[36] Richard Downie, *Learning from Conflict: The U.S. Military in Vietnam, El Salvador, and the Drug War* (Westport, CT: Praeger, 1998), 34.

advantage and information forces. There is also no reason to assume that simply because information advantage activities do not always involve physical contact with the enemy, a process like peacetime innovation is more applicable than wartime adaptation. There are distinct differences between information forces and other military organizations and specific differences between combat performance feedback received by elements performing information advantage activities and those conducting combat operations in the physical dimension. As will be discussed further, this results in "attenuation" of feedback and divergence of actual results from the perfect results described in the adaptation model. Despite this, the adaptation model is the most applicable descriptor of how change occurs in information forces over time.

Positive Adaptation, Stagnation, and Negative Adaptation

The adaptation model does not guarantee that adaptation will occur or that new concepts or attributes will increase military effectiveness. Historical examples clearly show that adaptation often does not happen, as armed forces continue to employ the same methods throughout a conflict. Similarly, historical examples show that military organizations regularly respond to the enemy's feedback and implement ineffective or, in some cases, counterproductive solutions. Thus, one can infer that theoretically, there are impediments to adaptation that interrupt the adaption model's process under perfect conditions. Given that the enemy feedback to the information forces can be attenuated, a more precise definition of "positive adaptation" is necessary.

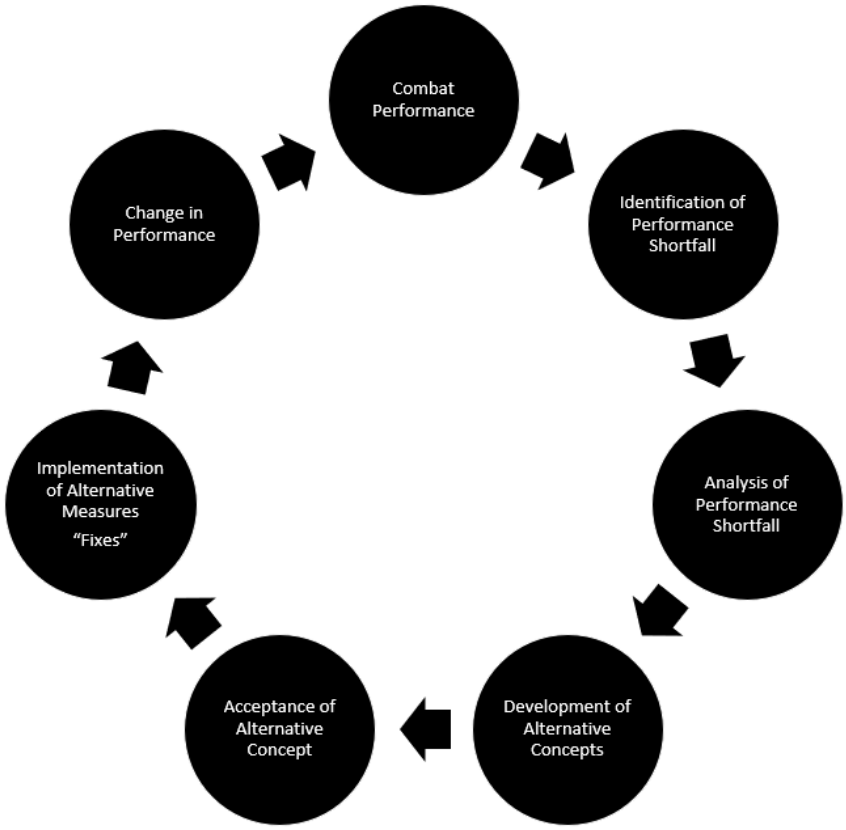

Figure 3. Model of Adaptation in Combat

Source: Created by the Author.

Military Effectiveness and Positive Adaptation

Positive adaptations are alterations to a military organization that increase its military effectiveness. Allen Millet, Williamson Murray, and Kenneth Watman define "military effectiveness" as the "process by which armed forces convert resources into fighting power, [the ability to destroy the enemy while limiting the damage that he can inflict in return]. A fully effective military derives maximum combat power from the

resources physically and politically available."[37] Thus, positive adaptations are learned behaviors, material changes, or organizing concepts that increase the organization's efficiency at completing its tasks. Applied to the information forces, the concept of "military effectiveness" represents the organization's efficiency in converting its available resources into information advantage through information advantage activities.[38]

Millet, Murray, and Watman describe several parameters that define military effectiveness at the operational level. One of the factors is the degree to which "the military organization's operational methods are integrated," and "to what degree organizations attempt to combine combat arms to take full advantage of their strengths while covering their weaknesses."[39] One can apply this concept directly to the contest for information advantage. Militarily effective organizations integrate available resources cohesively and logically into information advantage activities. They also have processes and structures that allow them to incorporate information advantage activities into operations across other domains to gain and maintain the initiative, anticipate decisions, and extend their operational reach while simultaneously denying the enemy the same. Militarily effective organizations, in other words, can translate information into cognitive effects, producing a state of information advantage. They then have the processes to

---

[37] Allan R. Millet, Williamson Murray, and Kenneth H. Watman, "The Effectiveness of Military Organizations," in *Military Effectiveness,* eds. Allan R. Millet and Williamson Murray (Cambridge, MA: Cambridge University Press, 2010), 13.

[38] ARCYBER, "Operational Art for an Information Age Army," 6.

[39] Millet, Murray, and Watman, "Effectiveness of Military Organizations," 13.

exploit that advantage to make gains in other dimensions and translate them into opportunities in the information dimension.

Similarly, Millet, Murray, and Watman identify the importance of supporting activities to an organization's effectiveness. They note that militarily effective organizations integrate supporting activities into their operational concepts and "have the capability to support their operational practices with the required intelligence, supply, communications, medical, and transportation systems."[40] Integration of supporting activities is equally critical to the generation of information advantage. Without external support, organizations cannot leverage their capabilities effectively. Information forces at the operational level primarily require dedicated intelligence support to analyze enemy emissions and captured communications systems. They also need a physical platform that provides access to intended target audiences. Like all military organizations, information forces require logistical, transportation, and communications support. Unlike other traditional military organizations, though, information forces need specialized support such as special cryptographic materials and bulk communications services.

Millet, Murray, and Watman further argue that effective military organizations have operational concepts consistent with available technology. They highlight how military organizations have historically tended not to exploit available technology fully.[41] They ascribe some of this failure to sociological reasons, which they argue is a strong indicator of military ineffectiveness at the operational level. Their definition can also

[40] Millet, Murray, and Watman, "Effectiveness of Military Organizations," 16.

[41] Ibid., 15.

refer to utilizing operational concepts that outstrip the capabilities of available technology. Thus, creating operational concepts that rely upon a misunderstanding of current technological capabilities can indicate military ineffectiveness at the operational level. Given the close relationship between technology and particularly communications technology and information forces, these organizations are more likely to overestimate technological potential than fail to adopt new technologies. Thus, militarily effective information forces must possess operational concepts that fully exploit the available technology but do not outstrip the available technology's actual capabilities.

Millet, Murray, and Watman finally highlight the importance of organizational flexibility in operational level effectiveness. Specifically, they emphasize the importance of organizations' ability to move "both intellectually and physically in either anticipated or unanticipated directions."[42] Flexibility allows organizations to rapidly reorient themselves on targets of opportunity, seize the initiative, and exploit in the physical domain. This parameter also implies a high level of self-awareness and confidence to make well-informed decisions rapidly. These concepts suggest that at the operational level, militarily effective information forces are delegated the relevant authorities to seize the initiative and rapidly exploit opportunities. It also implies that coordination mechanisms should not adversely impact the information forces' ability to reorient themselves rapidly on new targets. Finally, it means that information forces have the resources to acquire new capabilities quickly and the authority to reorganize and shift their efforts without an extended approval process.

[42] Millet, Murray, and Watman, "Effectiveness of Military Organizations," 15.

Thus, Millet, Murray, and Watman's definitions of military effectiveness suggest several overarching concepts that define the parameters of militarily effective information forces at the operational level. By extension, positive adaptations increase military effectiveness by bringing an organization more in line with these parameters. First, highly militarily effective operational level information forces organize themselves and have concepts that optimally integrate all information resources as part of information advantage activities. Second, they integrate support functions to enable the organization's core capabilities both at the operational and tactical levels. Third, these organizations exploit all available technology and develop appropriate operational employment concepts that match the technology's demonstrated capabilities. Finally, they have the mobility and flexibility necessary to reorient themselves on new threats or opportunities. Therefore, operational level information forces are militarily effective to the degree to which they exist within these four parameters. Information forces that are in line with these parameters are more likely to accomplish their assigned tasks.

Table 2. Parameters of Militarily Effective Information Forces

Parameter 1	Integration of resources as part of information advantage activities
Parameter 2	Integration of support functions to support information advantage activities
Parameter 3	Consistency between Operational Concepts and Available Technology
Parameter 4	Organizational Mobility and Flexibility (Physical/Intellectual)

Source: Allan R. Millet, Williamson Murray, and Kenneth H. Watman, "The Effectiveness of Military Organizations," in *Military Effectiveness,* eds. Allan R. Millet and Williamson Murray (Cambridge, MA: Cambridge University Press, 2010), 13.

Changes in military effectiveness do not occur in a vacuum. An enemy can adapt and improve their military effectiveness while friendly organizations do the same, creating a cycle of "complex adaptation." Murray defines "complex adaptation" as the process of change in an environment where "both sides adapt on a continuous basis to the very changing conditions of the battlefield."[43] Murray cites the example of the second half of World War I as an example of complex adaptation, in which both sides grappled with how to overcome the "riddle of the trenches" simultaneously.

While military effectiveness can confer an advantage, it does not guarantee dominance. Overwhelming quantitative advantages can offset qualitative organizational advantages. Changes in the operational environment or technology may render some organization elements less efficient than they were in the past.

Figure 4. Equation for Calculating Total Fighting Power

Source: Allan R. Millet, Williamson Murray, and Kenneth H. Watman, "The Effectiveness of Military Organizations," in *Military Effectiveness,* eds. Allan R. Millet and Williamson Murray (Cambridge, MA: Cambridge University Press, 2010), 13.

[43] Williamson Murray, *Military Adaptation in War: With Fear of Change* (Cambridge, MA: Cambridge University Press, 2011), 118.

Consequently, the relative total fighting power can change over time, resulting in a theoretical demand for organizational improvement. Like complex adaptation, this makes adaptation dynamic and drives a cycle in which organizations continuously need to change.

Stagnation

Given the continuous need for change to ensure maximum fighting power in the context of complex adaptation, it is paradoxical that military organizations are remarkably change-resistant. Two broad factors decisively contribute to operational level stagnation. The first is the inability to assimilate performance data from the tactical level. The second is a natural "change resistance" within military organizations.

Murray notes that operational level leaders are naturally detached to a certain extent from the conditions on the battlefield and their units' actual performance. Thus, operational level leaders can persist in applying outdated or irrelevant paradigms, unaware that conditions have changed.[44] Even when performance data collection mechanisms are in place, they can be either poorly designed or underutilized. This detachment can have the same dampening effect, resulting in stagnation.

Within information forces, some barriers to assessment include "the failure to establish objectives that are measurable, the failure to collect baseline data against which one can compare 'post-test' data, and the failure to plan adequately for the collection of

[44] Murray, *Military Adaptation in War*, 85.

assessment data, including the use of intelligence assets."[45] Combat provides extensive feedback, but not all of it is equally relevant or even quantifiable. Consequently, information forces must develop precise information requirements and standards for analysis. Without a coherent data capture framework, organizations cannot ingest bottom-up feedback. Similarly, JP 3-13 notes that "it may be difficult or impossible to directly relate the behavior change to an individual act or group of actions. Also, the logistics of data capture are not simple. Contingencies and operations in uncertain or hostile environments present unique challenges in terms of operational tempo or access."[46]

Feedback from the field becomes "attenuated" by the difficulty in establishing causality. Given that one of the purposes of information advantage activities is to influence actors' perceptions, the efficacy of information advantage activities is, to a certain degree, unknowable. Only the targeted actor definitively knows their perception of the environment. Consequently, when attempting to measure information advantage activities' effectiveness, one can only base assessments on the actor's behaviors. Even if one assumes that one successfully altered the actor's perception, it does not necessarily follow that the alteration caused the changes in the actor's behavior. The difficulty in establishing causality is also apparent in efforts to measure the effects of enhanced situational understanding. Increased situational understanding, while critical in enabling timely and rational decisions, does not guarantee them. Also, the distance between senior

[45] Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-13*, Information Operations* (Washington, DC: Government Publishing Directorate, 2014), VI-10.

[46] Ibid.

leaders and often highly technical information advantage activities further complicates an organization's ability to establish causality.

Table 3. Data Collection and Analysis Factors Contributing to Stagnation or Negative Adaptation

Collection/Analysis Factors Contributing to Stagnation/Negative Adaptation
Failure to Plan for Data Collection
Failure to Collect Baseline Data
Failure to Establish Measurable Standards
Difficulty in Establishing Causality
Operational Tempo/Access
Rapidly Changing Conditions

Source: Joint Chiefs of Staff, Joint Publication 3-13*, Information Operations* (Washington, DC: Government Publishing Directorate, 2014), VI-10.

Organizations may still be prone to stagnation due to organizational change resistance, regardless of whether they have established performance data collection mechanisms. While there are multiple explanations for why military organizations are change-resistant, two significant causes deal with individuals' influence and collective influence within organizations. Adam Jungdahl and Julia MacDonald advance an argument that "gatekeepers" within an organization "decide who has access to positions of power within the military bureaucracy within a particular issue area, and they can

regulate the flow of information and political influence to senior leaders."[47] In other words, key individuals within an organization can disrupt the process of integrating lessons from the field and developing solutions to address performance gaps by restricting the flow of that information. The decision to limit this information or disregard it could be due to cognitive bias or personal belief.

Another explanation for change resistance deals with the role of collective inertia. R. W. Kromer posits that organizations naturally prefer to continue doing what they are used to, "rather than change accepted patterns of organization or operation."[48] Even when the pressing need for change presents itself, organizational "inertia" argues against adopting radical change. Murray goes one step further, noting that rather than simply being change-resistant, bureaucratic institutions aim at "imposing order and form on a world that is inherently disorderly and ambiguous. They exist to act as a brake on significant changes that upset current patterns of behavior."[49] Bureaucratic institutions and functions are not designed to hinder "progress" specifically. Instead, they reduce deviation from accepted parameters to ensure the whole's greater efficiency. Consequently, collective inertia and, in some ways, collective change hostility is inherent within all bureaucratic functions and organizations.

---

[47] Adam M. Jungdahl and Julia M. Macdonald, "Innovation Inhibitors in War: Overcoming Obstacles in the Pursuit of Military Effectiveness," *Journal of Strategic Studies* 38, no. 4 (2015): 474.

[48] R. W. Kromer, *The Bureaucracy Does its Thing: Institutional Constraints on the US-GVN Performance in Vietnam* (Santa Monica, CA: RAND Corporation, August 1972), ix.

[49] Murray, *Military Adaptation in War*, 19.

Instituting organizational change can be difficult and almost certainly entails some risk, particularly in combat. Even if an organization observes that it is not maximizing its military effectiveness, the risk inherent in changing proven methods in combat argues against making changes. Organizations are also naturally more inclined to improve performance within the current construct than change that construct. Kromer further asserts that "the more hierarchical and disciplined they are—military organizations are almost archetypes—the greater the built-in institutional obstacles to change except slowly and incrementally."[50] Even more than businesses or even other governmental organizations, military organizations have a chain of command and natural deference for authority. Authority is vested in those who have succeeded within the current construct. Therefore, military organizations tend toward inertia, resulting in stagnation, even if they face a changing environment.

Stagnation, therefore, is not only possible but highly likely in military organizations. The difficulties associated with assimilating combat performance, the role of gatekeepers, perceptions of the risk associated with change, and the natural inertia of large organizations mitigate against the adaptation model's perfect functioning. Without forces to counteract these barriers to adaptation, change is less likely to occur.

Negative Adaptation

Similar to the phenomenon of stagnation is that of "negative adaptation." Organizations may recognize the need to change but make changes in counterproductive ways for a variety of reasons. Some of these reasons could include dominant subgroups'

[50] Kromer, *The Bureaucracy Does Its Thing*, 65.

interests, using imperfect information to generate new concepts, relying on a flawed analysis of good quality information, poorly designing solutions to the problem, or poorly implementing high-quality solutions.

Organizational politics theory argues that military organizations are not unitary but consist of coalitions of groups, some of which are more dominant than others. Theo Farrell proposes that "dominant group interests become embedded in organizations, and from that dominant position such groups are well placed to extend their networks into the policy environment to build coalitions in support of their interests."[51] Where the interests of the military organization as a whole and the interests of its dominant groups diverge, the military organization is inclined to pursue the dominant group's interests. This divergence can and does lead to negative adaptation. While this is most likely to be observed at the institutional level, it also holds direct relevance at the operational level.

Organizations may be open to change and relatively unbiased in their methods but adapt in counterproductive ways. Poor-quality information obtained from the field or poor-quality analysis of that information can lead to organizations misidentifying problems. In addition to stagnation, the same barriers to assessment can also result in negative adaptation. Poorly designed metrics for measuring performance and effectiveness can cause organizations to make changes that address problems that do not exist or are ancillary to the organization's core function. Even if the problem is understood correctly, negative adaptation can result from the adoption of poorly designed solutions or the poor implementation of well-designed solutions.

---

[51] Theo Farrell, "Figuring Out Fighting Organizations: The New Organizational Analysis in Strategic Studies," *Journal of Strategic Studies* 19, no. 1 (1996): 126.

Adaptation, therefore, is not a foregone conclusion in conflict as bureaucratic inertia, organizational politics, and other impediments can stymie change or even foster maladaptive change. Positive adaptation is not guaranteed as suggested under the perfect conditions model and is probably less likely in information forces in any circumstances. Consequently, cultural factors must counteract these impediments for positive adaptation to occur.

Three Factors that Encourage Positive Adaptation in Information Forces

Organizational urgency, robust feedback loops, and the presence of diverse expertise enable information forces to overcome resistance and adopt positive adaptations. These factors allow organizations to decisively orient on performance gaps, rapidly develop solutions, and objectively test them. While applicable across all organizations, these three factors are particularly relevant to adaptation in information forces. Because of the attenuation in feedback received from the enemy, the complexity in measuring performance, and the often-high technical barriers to entry within information forces, these three factors are even more decisively important to fostering adaptation. An examination of the historical record shows that Patton understood the importance of building a military culture centered on these three factors.

Urgency

Urgency is the perceived need for change within an organization. The creation of "urgency" within an organization usually begins with a vision for change that articulates the consequences for inaction and the potential benefits of change. This vision also describes the organization's unique attributes that make it possible for the organization to

exploit a window of opportunity.[52] Organizations that experience a crisis, organizational failure, or physical danger experience a greater general sense of urgency and dissatisfaction with the status quo. Yet, only when leaders link these experiences with a shared vision for change does this urgency significantly contribute to adaptation.

To a certain extent, in maneuver units at the tactical level, there exists a particular natural "urgency" that results from close combat with the enemy. However, this psychological urgency does not necessarily exist within organizations at the operational or strategic level or information forces removed from close combat. Consequently, it is incumbent upon leaders to create that sense of urgency to encourage adaptation.

Dr. John Kotter's model for encouraging organizational transformation shows that senior leadership is essential in creating organizational urgency. Kotter argues that "change, by definition, requires creating a new system which in turn always demands leadership."[53] Yet, organizational urgency is not entirely synonymous with good leadership. Kromer notes in his case study that "Vietnam shows how even highly qualified and experienced leaders, many of whom saw the need for adaptive change, were often frustrated in their attempts to get it."[54] Technical competence, tactical knowledge, and even strong leadership do not necessarily generate the urgency to overcome barriers

---

[52] John Kotter, *8 Steps to Accelerate Change in Your Organization* (Self-Published, 2018), 10.

[53] John Kotter, "Leading Change: Why Transformation Efforts Fail," *Harvard Business Review* (May-June 1995): 3, accessed 17 October 2020, https://hbr.org/1995/05/leading-change-why-transformation-efforts-fail-2.

[54] Kromer, *The Bureaucracy Does Its Thing*, 155.

to positive adaptation. It is even possible that senior leaders' successful battlefield performance can be uncorrelated with the creation of urgency.

Leadership that is intellectually curious, engaged, and aggressively change-minded is necessary to overcome bureaucratic inertia and convince powerful subgroups to accept change for the sake of increased organizational health. Kotter observes that a "frank discussion of potentially unpleasant facts"[55] usually precedes successful organizational change. A willingness to be "unbound" to a certain extent by precedent combined with the intellectual honesty to be self-critical is essential. It allows the leader to face reality honestly and aggressively attack organizational shortfalls. Similarly, a leader must have the courage, humility, and tact to identify and candidly discuss shortfalls with relevant parties.

Finally, urgency is a product of a leader's ability to articulate a vision and build a coalition dedicated to that vision. Kotter argues that leaders must focus their organization on a "window of opportunity that is open today but may close tomorrow" and provide a vision that appeals to the organization's members' heads and hearts, encouraging them to "volunteer" for change.[56] Thus, the leader's vision is a crucial driver in forming a coalition working for change. Given that the leader cannot gather and analyze information from the bottom up or generate solutions and implement fixes without assistance, this coalition is essential to successful adaptation.

---

[55] Kotter, "Leading Change: Why Transformation Efforts Fail," 4.

[56] Kotter, *8 Steps to Accelerate Change in Your Organization*, 10.

Patton discovered similar lessons regarding the importance of creating urgency through his lifelong study of military affairs. In 1915 Patton read the book *The Crowd: A Study of the Popular Mind* by Gustave Le Bon and noted in the margins, "the individual [leader] may dream greatly or otherwise, but he must infect the crowd with the idea [in order] to carry it out."[57] Patton understood that to create change, leaders must offer a vision that "infects" followers with an idea. It was not enough to simply possess a vision for the future or even develop an approach for accomplishing it. He recognized that a leader must engage the organization emotionally and intellectually, enlisting members of the organization in the project of change. Patton would draw on this lesson in designing his approach to encouraging change within Third Army in 1944.

Robust Feedback Loops

Well-established and clearly defined methods for performance data collection, analysis, and dissemination are necessary for organizations to learn from experiences. David Garvin suggests four key factors that are critical to institutionalizing robust feedback mechanisms within an organization. First, the organization must encourage a systematic approach to problem-solving, pushing "beyond obvious symptoms to assess underlying causes, often collecting evidence when conventional wisdom says it is unnecessary."[58] Second, the organization must be open to experimentation and the

---

[57] Roger H. Nye, *The Patton Mind: The Professional Development of an Extraordinary Leader* (Garden City Park, NY: Avery Publishing Group, 1993), 36.

[58] David A. Garvin, "Performance Measurement: Building a Learning Organization," *Harvard Business Review* (July-August, 1993): 6, accessed 17 October 2020, https://hbr.org/1993/07/building-a-learning-organization#:~:text=Learning%

"systematic searching for and testing of knowledge."[59] Third, the organization must learn from past experiences, systematically analyze them and develop lessons from sometimes complex information.[60] Finally, the organization must disseminate these lessons as broadly as possible across the organization in a manner that allows for rapid assimilation and follow on action.[61]

Kromer's work essentially confirms the importance of evaluation. Kromer argues strongly for "the need to place a higher premium on thorough evaluation and analysis of performance since even the best managers need analytical tools to design optimum responses and facilitate learning."[62] Even superior leaders who have created a sense of urgency require data upon which to base their adjustments. The lack of established feedback loops effectively severs the connection between the experiences on the front line with the expertise necessary to generate fixes and the organizational leadership needed to implement them.

Underlying all of this is a requirement for consciously developed and articulated measures of performance and effectiveness. Anthony Dibella, Janet Gould, and Edwin Nevis write that "effective experimentation requires a set of well-developed methods for measuring gaps between expected and actual performance, and for designing effective

---

20organizations%20are%20skilled%20%20efficiently%20throughout%20the%20organization.

[59] Garvin, "Performance Measurement: Building a Learning Organization," 7.

[60] Ibid., 14.

[61] Ibid.

[62] Kromer, *The Bureaucracy Does Its Thing*, 158.

action based on those results."[63] Simply ingesting data or even actively seeking out opportunities to increase the amount of performance data captured is insufficient. Organizations must have a clear understanding of what types of data are necessary to draw conclusions about operational performance. These data requirements may be different from organization to organization and may shift within that organization over time. Consequently, continual analysis of performance data requirements is necessary to create and maintain robust feedback loops.

In total, feedback loops are culturally-based processes and structures for gathering combat performance data from the field, filtering that information up the chain, analyzing the data, drawing conclusions, and conducting experimental field tests.[64] Feedback loops represent mechanisms intentionally emplaced within an organization to ensure that leaders are not isolated from the organization's actual performance. Operational level leaders are naturally separated from their organization's outputs. Similarly, the danger, confusion, and pace of combat combined with a lack of feedback loops can leave a leader unaware of actual combat performance and reliant only on anecdotal feedback. Finally, the attenuation of feedback in information forces, and the difficulties in establishing causality between information advantage activities and battlefield outcomes, make the presence of robust feedback loops even more essential for adaptation to occur.

---

[63] Edwin C. Nevis, Anthony J. DiBella, and Janet M. Gould, "Understanding Organizations as Learning Systems," *MIT Management Review* (January 1995), accessed 17 October 2020, https://sloanreview.mit.edu/article/understanding-organizations-as-learning-systems/.

[64] Murray, *Military Adaptation in War*, 2.

Patton was no stranger to the concept of performance feedback loops and the process of experimentation in combat. For example, during the Putative Expedition in Mexico, General Pershing confronted a young Lieutenant Patton for ordering a messenger flight during dangerous weather conditions. General Pershing chided Patton, "you have made a mistake. I would not have ordered such a dangerous flight, but I know you did what you thought was right, and I assume the full responsibility."[65] This moment had a lasting impact on Patton. It underscored to him the importance of underwriting the decisions of subordinates. It also shaped his understanding of how organizational and personal growth involves experimentation, risk-taking, and often failure.

Similarly, Patton understood the importance of data collection and had firsthand experience conducting organizational experiments and testing. As the first officer assigned to the Tank Corps, an instructor, and commander in World War I, Patton led the development of American thought on the organization, operation, and employment of tank units in combat.[66] During the inter-war years, Patton continued to remain involved in experimentation and analysis of new trends in mechanization, particularly as Head of the Plans and Training Division within the Office of the Chief of Cavalry from May 1928

[65] George S. Patton Jr., "Personal Glimpses of General Pershing," in *Military Essays and Articles,* ed. Charles M. Province (San Diego, CA: The George S. Patton Jr. Historical Society, 2002), 289, accessed 8 May 2021. http://www.pattonhq.com/pdffiles/vintagetext.pdf

[66] Martin Blumenson, *The Patton Papers: 1940-1945, Volume II* (Boston, MA: Houghton Mifflin, 1974), 7.

to September 1931.[67] The example of his hero General Pershing combined with his various inter-war positions and combat experiences, informed his approach to creating a performance feedback-oriented culture in 1944.

Diverse Expertise

The presence of diverse expertise can prevent groupthink and facilitate the development of innovative solutions. An organization with diverse membership can draw upon different knowledge bases, experiences, and ways of problem-solving. Correlation between a greater diversity of skillsets or experiences and positive outcomes makes intuitive sense, even accounting for the potential of organizational conflict resulting from differences between group members.

Some research studies indicate that diversity is not simply correlated with positive outcomes but causes positive effects through productive organizational tension. Groups are prone to the "fluency heuristic: we prefer information that is processed more easily, or fluently, judging it to be truer or more beautiful."[68] Thus, hearing from diverse points of view is often not only "uncomfortable" but requires greater engagement with the views to comprehend them. Psychological research shows that this difficulty in assimilating unfamiliar information or viewpoints sparks creative thinking and innovation. In their

---

[67] Robert Stewart Cameron, *Mobility, Shock and Firepower: The Emergence of the U.S. Army's Armor Branch, 1917-1945* (Washington, DC: Center of Military History, 2008), 38.

[68] David Rock, Heidi Grant, and Jacqui Grey, "Diverse Teams Feel Less Comfortable–and That's Why They Perform Better," *Harvard Business Review* (September 2016), accessed 24 October 2020, https://hbr.org/2016/09/diverse-teams-feel-less-comfortable-and-thats-why-they-perform-better.

1961 work, L. R. Hoffman and N. R. F. Maier indicated that diversity in personality and outlook strongly correlated with superior task solutions even when tasks were designed to elicit conflict within team members.[69] Michael Aamodt and Wilson Kimbrough documented a similar phenomenon in undergraduates in the 1980s.[70] The work of these and other researchers strongly suggests that "diverse teams are more likely to constantly reexamine facts and remain objective,"[71] and that "diversity enhances the breadth of perspective, cognitive resources, and overall problem-solving capacity of the group."[72]

Kromer's work reinforces this point and suggests that the lack of diverse expertise contributed to the inability of the US military to change its methods during the Vietnam War. He argues that most middle-level senior officers and officials were picked for their roles "on the basis of normal institutional criteria or even the convenience of the institution rather than because they were regarded as particularly qualified for the job."[73] In other words, organizational bias toward specific attributes tended to insulate the

---

[69] L. R. Hoffman and N.R.F. Maier, "Quality and Acceptance of Problem Solutions by Members of Homogeneous and Heterogeneous Groups," *The Journal of Abnormal and Social Psychology* 62, no. 2 (1961): 401–407.

[70] Michael G. Aamodt and Wilson W. Kimbrough, "Effect of Group Heterogeneity on Quality of Task Solutions," *Psychological Reports* 50, no. 1 (February 1982): 171–174.

[71] David Rock and Heidi Grant, "Why Diverse Teams Are Smarter," *Harvard Business Review* (November 2016), accessed 24 October 2020, https://hbr.org/2016/11/why-diverse-teams-are-smarter.

[72] Donald C. Hambrick, Theresa Seung Cho, and Ming-Jer Chen, "The Influence of Top Management Team Heterogeneity on Firms' Competitive Moves," *Administrative Science Quarterly* 41, no. 4 (December 1996): 659–684.

[73] Kromer, *The Bureaucracy Does Its Thing*, 155.

organization from diverse viewpoints. The lack of diverse perspectives contributed to general inertia and a lower problem-solving capacity within the group.

Diverse experience and inter-disciplinary expertise thus are critical factors in overcoming change resistance and enabling adaptation. Organizations that have diverse experts in positions of power at every level are less likely to suffer from the "gatekeeper" phenomenon. Cultivating diverse views mitigates institutional bias because diverse viewpoints challenge status-quo thinking and actively encourage members to engage creatively with the problem at hand. Diverse professional background within group leadership could, under some circumstances, also reduce some of the effects of organizational politics. As previously mentioned, intellectual honesty is essential when measuring organizational performance and effectiveness. Diversity encourages the intellectually honest and open inquiry necessary to reach conclusions and is vital in developing new methods to address the performance gap. Given the particular difficulties associated with measuring performance and developing effective solutions, diverse expertise is essential within information forces.

Patton's self-development during the interwar years almost certainly influenced his approach to diversity of thought. Immediately following the conclusion of World War I, Patton devoted himself to reflecting upon and articulating his experiences from the conflict. As a student of history, Patton was intensely interested in the human and interpersonal elements of warfare.[74] In his unpublished 1919 book, *War as She Is*, Patton noted the tendency of staff sections to become engrossed in their particular function and

[74] Nowowiejski, "Concepts of Information Warfare in Practice," 11.

"fail to consider their bearing on the whole." Patton argued that only through cross-section engagement would "all of the tribulations…become known, and through the chief, to the commanding general."[75] Patton saw the potential danger of groupthink and how an interdisciplinary approach could mitigate it. He noted how dialog could shed light on organizational shortfalls and how creative friction could produce innovative solutions. Over the next two decades, Patton would synthesize his distinctive approach to organizational change. This approach would draw upon his lifelong study of leadership and human psychology and incorporate his deep understanding of the importance of diverse expertise.

Summary

This chapter defined operational-level information advantage, articulated the model by which information forces change over time, explored barriers to positive adaptation, and outlined three cultural factors that enable positive adaptation. The adaptation model in combat is more applicable to how information forces change over time than the innovation in peacetime model. Yet, examining historical and theoretical literature shows that certain factors impede the emergence of traits that increase military effectiveness and may cause the emergence of maladaptive characteristics. Three factors are critical to promoting the adaptation of militarily effective features; urgency, robust feedback loops, and diverse expertise. Third Army's experience from March to September 1944 demonstrates how these military cultural factors encouraged adaptation.

---

[75] George S. Patton Jr., "War as She Is," in *Military Essays and Articles,* ed. Charles M. Province (San Diego, CA: The George S. Patton Jr. Historical Society, 2002), 379, accessed 8 May 2021. http://www.pattonhq.com/pdffiles/vintagetext.pdf

These adaptations made Third Army demonstrably more militarily effective, allowing it to generate operational-level information advantage against a peer enemy in a high tempo campaign.

CHAPTER 3

FORMING THE LUCKY CULTURE: SPRING 1944

> Things are shaping up well, but I wish we had more of the killer instinct in our men.
>
> —Lieutenant General George S. Patton Jr., *The Patton Papers*

Introduction

On 27 January 1944, General George S. Patton traveled to Greenock, Scotland, to meet the Third Army's first elements arriving in Europe. He greeted them by saying, "I am your new commander. I'm glad to see you. I hope it's mutual. There's a lot of work to be done, and there's little time to do it."[76] While it was unclear in early 1944 precisely what role Third Army would play in the invasion of fortress Europe, Patton already planned to make the battle for France and Third Army his own. He would imbue in his soldiers a desire for efficiency and a taste for victory and encourage aggressive action informed by professional expertise. He would create an Army that was as flexible in its methods as it was mobile on the battlefield. Third Army would be competitive, take risks, and seek to maximize every advantage while presenting the enemy with no opportunity to recover. The process of adapting Third Army from a new organization into the mighty armored fist that it became took months. But the urgency for change imparted by Patton, the robust methods of performance feedback, and the diverse expertise across Third Army made it possible.

---

[76] Carlo D'Este, *Patton: A Genius for War* (New York: Harper Collins, 1995), 571.

Patton Visualizes the Battle for France

In March 1944 Third Army established its headquarters in Knutsford and the nearby town of Peover in the English Midlands, south of Manchester.[77] Through his intensive study of the military art and experiences in the Mediterranean, Patton had "developed an instinctive understanding of the operational art," and particularly the process of visualization.[78] By the time Patton arrived at Knutsford, he had a clear vision for how he intended to prosecute the Battle for France. Patton directed his intelligence officer (G-2), Colonel Oscar Koch, to begin intelligence preparation for an offensive towards Metz. At the time, allied plans tasked Third Army with seizing the Brittany peninsula to the west, and staff estimates projected Allied forces would not reach the Metz area until 330 days after landing in France.[79] Much of Third Army's staff had not yet arrived in England, and the D-Day landings in Normandy were months away, but already Patton visualized a bold thrust across France and Germany.[80] As a commander, Patton expected his subordinate commanders to exercise independent judgment and tactical daring to sustain the offensive's momentum. He also had confidence in armor's ability to disrupt enemy rear areas and sustain itself deep in enemy territory.[81] As a

---

[77] D'Este, *Patton: A Genius for War*, 572.

[78] Steven L. Chadwick, "Lieutenant General Patton's Seventh Army in Sicily 1943: The Maturation of an American Operational Artist" (Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2014), 4.

[79] Williams, "Moving Information," 18.

[80] Ibid.

[81] Blumenson, *Breakout and Pursuit*, 348.

cavalryman, he put his faith in the old cavalry motto "in mobility lies our strength."[82] In short, Patton did not visualize the battle for France as a systematic reduction of German positions. Instead, he saw it as a sweeping high-tempo offensive focused on objectives deep in the enemy rear area that balanced risk to gain and maintain the initiative and take advantage of windows of opportunity as they presented themselves.

Patton Visualizes Obstacles to Operationalizing His Approach

A series of problems stood between Patton and his vision of a sweep to the German border. First, given the preparation of the German defenses, how could Third Army gain the initial space necessary to maneuver and breakout? Second, assuming a breakout occurred, Third Army would be stretched across scores, perhaps hundreds of miles. How could Third Army sustain its momentum and reorient on new opportunities or threats if elements lacked direct contact with one another? Patton's experiences in Africa and Sicily indicated the vital importance of always knowing the location of all one's forces, but reports from the front were often late or inaccurate.[83] Third Army operations section (G-3) estimated that the standard time required to process and route routine information from a front line unit to the Army command post was roughly 10 to 12 hours.[84] Part of the difficulty was due to the limitations of tactical communications

---

[82] Oscar W. Koch, *G-2: Intelligence for Patton* (Atglen, PA: Schiffer Military History, 1999), 151.

[83] Robert Willoughby Williams as told to Lyman C. Anderson, "Third Army Reconnaissance," *Cavalry Journal* (January-February 1945): 21.

[84] Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, G-3* (Regenburg, Germany, May 1945), 10, Combined Arms Research Library, World War II Operational Documents.

systems. Still, intermediate commanders' failure to speed information up the chain contributed to the problem as well.[85] Finally, given the enemy's ability to trade space for time, how could Third Army prevent the German Army from reorganizing, disrupting Third Army's offensive, and regaining the initiative? His solution to all of these problems was a coherent vision of information advantage and how it could enable operational maneuver.

Patton Visualizes Information Advantage

As early as 1943, Patton developed a concept for leveraging information advantage to first gain and then maintain the initiative:

> First – surprise; find out what the enemy intends to do and do it first.
> Second – rock the enemy back on his heels –
> Keep him rocking – never give him a chance to get his balance or build up.
> Third – relentless pursuit – a l'outrance as the French say – beyond the limit.
> Fourth – mop him up.[86]

Reflecting his appreciation for the value of quality intelligence, Patton viewed intelligence as providing an initial advantage to "do it first." His concept also suggests that he viewed intelligence not only as having a value in giving indications or warning of enemy activity but as a means to gain the initiative and pursue operational-level maneuver. Throughout his command, Patton treated intelligence as "big business,"[87] receiving multiple intelligence briefings per day and populating his inner circle of

---

[85] Williams, "Moving Information," 18.

[86] Carlo D'Este, *Bitter Victory: The Battle for Sicily, 1943* (New York: E. P. Dutton, 1988), 140.

[87] Koch, *G-2: Intelligence for Patton*, 157.

advisors with a preponderance of intelligence officers. This level of engagement with intelligence and intelligence staff was distinctive among senior commanders in the European Theater.[88]

Similarly, his enjoinder to "rock him back on his heels" suggests an understanding that he could attack an enemy's cognitive processes. By denying him information, providing false information, or reducing the time available for the enemy to make decisions, he could get "inside the enemy's decision cycle."[89] Colonel Koch described Patton's formula as:

> applying the tactical concept that it would take a certain minimum of time for a large enemy force to react. By progressively following up his first action by a second in less than that minimum, he would catch his enemy in the act of maneuvering to react to the first and so on ad infinitum. This would continue as long as the situation was in his control.[90]

Understanding the critical relationship between speed and the initiative, Patton recognized that if he could inject friction, misinformation, delays, or indecision into the enemy decision-making process, he would continually keep the enemy reactive.

This approach did not run counter to early 1940s US Army doctrine, as much as it considerably elevated the importance of speed. FM 100-5 acknowledged that "superior mobility and speed of execution may be determining factors in achieving surprise." Yet, it went on to propose that "the best guarantee of success in the attack is effective cooperation between the troops in the attack echelon, the supporting artillery, and any

---

[88] Robert S. Allen, *Lucky Forward: The History of Patton's Third U.S. Army* (New York: Vanguard Press, 1947), 68.

[89] Nowowiejski, "Concepts of Information Warfare in Practice," 16.

[90] Koch, *G-2: Intelligence for Patton*, 151.

supporting combat aviation."[91] Patton certainly concurred with the criticality of coordinating and massing fires. Where his methodology departed from traditional Army doctrine was in the great emphasis he placed on speed of decision making and execution.

Patton's emphasis on not allowing the enemy to "build up" or "get his balance" also reflects an understanding that the enemy is also seeking situational understanding and the information necessary to mass combat power at decisive points in space and time. By protecting one's information and ensuring an advantage in situational awareness, one could prevent the enemy from developing his situational understanding and regaining the initiative. Patton understood this need for information security in granular detail and conceptualized it in terms of a time-based competition for information advantage in which the winner gained or maintained the initiative. For example, after the war, he reflected, "the decision as to whether to use clear or code, radio or wire communications is very easily reached on the following basis: if the period of action is shorter than the period of reaction, use clear; otherwise, use code."[92] Put differently, Patton recognized that information security procedures could keep him within the enemy's decision-making cycle when high tempo on its own could not.

Similarly, he saw common situational understanding as a related means to keep the enemy from regaining his balance. Common situational understanding rests on the rapid and assured transmission of information. In the summer of 1944, Patton provided a letter of instruction to all Division and Corps commanders emphasizing that "information

---

[91] US War Department, Field Manual 100-5 (1941), 109.

[92] George S. Patton Jr., *War as I Knew It* (Boston, MA: Houghton Mifflin, 1947), 351.

is like eggs, the fresher, the better. Keep troops informed. Use every means before and after combat to tell troops what they are going to do and what they have done."[93] Both Patton's assessment of communication security and his emphasis on rapid transmission of information show his intimate understanding of the relationship between information and time. Information was only valuable if one possessed time to orient oneself, decide, and act on the information gained.

While Patton certainly meant "pursuit" as a type of offensive operations, the importance Patton placed on information suggests that he saw information activities as a means to demoralize, confuse, and further disintegrate enemy formations, allowing his forces to "mop them up." If anything, Patton had a deeper appreciation for the human side of war than most of his peers. He understood that typically armed forces resist only as long as they believe they can defeat the enemy. He sought to inspire confidence in his soldiers and appreciated the value of degrading confidence in the enemy.[94] Therefore, Patton sought to present the enemy with multiple dilemmas and confound enemy expectations in the physical dimension, in coordination with actions taken to affect the enemy cognitively. These actions would produce a "shock" effect, allowing him to "mop them up."

Thus, Patton possessed a clear, cohesive, and comprehensive vision of information advantage and how it could enable him to fight a war of maneuver in France. Patton viewed intelligence, particularly strategic intelligence, as a tool that could provide

---

[93] Allen, *Lucky Forward*, 36.

[94] D'Este, *Patton: A Genius for War*, 462.

an initial information advantage if operationalized aggressively. This intelligence, combined with superior situational understanding and assured decision-making processes, would allow him to make the first move and dictate the rest of the campaign's tempo to the enemy. He saw the value in attacking enemy sources of information and decision-making processes to disrupt and delay enemy decision-making. He also saw how protecting friendly information would allow him to keep control, even as the enemy attempted to "catch up" by fighting for information. For Patton, information was competitive, and the prize was time, time that he could use to exploit tactical successes and achieve operational results.

Patton's vision of information advantage was rooted in his deep understanding of military history and his North Africa and Sicily experiences. Colonel Koch described him as the consummate "military analyst," possessing a retentive memory to store anything and everything with a military application.[95] In the interwar years, Patton had devoted his time and effort to the "arduous, systematic program of preparation to lead soldiers in battle."[96] Patton's methodology was also rooted in a comprehensive understanding of the US Army doctrine of the period. Yet, he departed from his peers in his ability to think operationally and recognize speed's importance in maintaining the initiative across a campaign. Consequently, in 1944 Patton and his core staff possessed a clear vision of generating information advantage at the operational level and how information advantage could enable maneuver.

---

[95] Koch, *G-2: Intelligence for Patton,* 151.

[96] Nowowiejski, "Concepts of Information Warfare in Practice," 11.

Patton Assembles His Team of Diverse Experts

To operationalize his information advantage concept, Patton turned to his expert staff. Following his departure from Sicily, Patton brought several of his core staff officers from the Seventh US Army and replaced most of the original senior staff of Third Army. The staff was a diverse set of individuals, but universally they were experienced and remarkably intelligent if, to some degree, like their commanding general, somewhat on the outs with Army leadership. These included Chief of Staff Brigadier General Hobart Gay, a cavalryman who later transferred to Quartermaster Corps. He was replaced as Chief of Staff by Major General Hugh Gaffey, an artillery officer who later transferred to Armor. One of Patton's principal aides, Colonel Al Stiller, had served as a Sergeant in the Tank Corps during World War I.[97] Colonel Koch, G-2, a cavalryman who transferred to intelligence, "was regarded by many as having the 'most penetrating mind in the US Army's intelligence community.'"[98] Like Colonel Koch, the G-3, Colonel Halley Maddox was a cavalryman. Third Army's signal officer, Colonel Elton Hammond, was a career signal officer who was viewed as highly effective.[99] Colonel Brenton Wallace, a G-3 officer, described them as "a group of individualists. No two were alike."[100] This

[97] Mark K. Snakenberg, "Born Lucky: The Institutional Sources Behind the Third Untied States Army Headquarters' Procedures in Northwest Europe, 1944-45" (Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2014), 21.

[98] D'Este, *Patton: A Genius for War*, 572.

[99] Ibid.

[100] Brenton G. Wallace, *Patton and His Third Army* (Harrisburg, PA: Military Service, 1946), 18.

exceptional group of officers served as his "privy council." Together and with Patton, they enjoyed a remarkable degree of trust, candor, and creative license.[101] While united in their loyalty to Patton and their shared North Africa and Sicily experiences, this group was remarkably diverse.

Patton replaced most of the senior Third Army staff with his veterans from Seventh Army, but most of Third Army's staff remained unchanged. Up to this point Third Army had served as a training headquarters validating army-level doctrine. Third Army had been responsible for managing over 750,000 soldiers spread across the southern US, and therefore had some familiarity with the types of challenges Patton's vision for the battle for France might entail. Their experience as trainers and evaluators also armed them with proficiency in the latest US Army doctrine and best practices. While most of the section chiefs were regular Army officers, most Third Army staff were "civilian;" officers who had joined the Army during its rapid expansion over the past three years.[102] Almost all the executive officers and sub-section officers fell into this category and came from a great variety of different professional and educational backgrounds.

Still, others had risen through the enlisted ranks, earning their commissions as the Army rapidly expanded for war. One of these sub-section officers was Major Charles W. Flint, a "young, trigger smart expert" who served as the SIS chief.[103] Major Flint initially

---

[101] Melvin C. Helfers, *My Personal Experience with High Level Intelligence* (The Citadel Archives and Museum, Charleston, SC, November 1974), 8.

[102] Snakenberg, "Born Lucky," 24.

[103] Allen, *Lucky Forward*, 56.

enlisted in the US Army Signal Corps in 1931, eventually commissioning as a Signal officer in 1938.[104] While he had limited combat experience, Major Flint brought to Third Army a first-rate intellect and a unique perspective gained from over a decade of hands-on Signal Corps experience. Despite their short Army careers or humble origins, Patton highly respected these "pick and shovel workers" like Major Flint.[105]

Thus, in early March 1944, Patton, in effect, had two staffs. One consisted exclusively of regular army officers and had extensive combat experience in the Mediterranean and North Africa. The other was majority "civilian" and possessed experience training and administering large complex formations across vast areas. In addressing this newly combined staff, Patton said, "we now have two staffs merging into one, each with its own procedures. By working harmoniously and intelligently together, a third staff will be developed with a third procedure, which should be better than either of the two."[106] Patton recognized and embraced the diversity of his staff. He promoted adaptation by forcing the two staffs and all their diverse members to interact and develop new solutions to operational problems. He also demonstrated that he expected the new Third Army team to integrate diverse points of view through his words and actions.

Patton's influence and the urgency for change that he imparted into the staff were critical in making this positive adaptation possible. The Third Army staff, and most of the

---

[104] US War Department, The Adjutant General's Office, *Official Army Register: Volume I, United States Army Active and Retired Lists* (Washington, DC: Government Printing Office, 1949), 176.

[105] Allen, *Lucky Forward*, 48.

[106] Ibid., 19.

soldiers in Third Army at large, felt that they were a valued "part of his team: that he was not a remote presence, issuing cold and emotionless life-and-death dictates but one of them; that he shared and understood their life and dangers."[107] Colonel Wallace noted that Third Army prized results over all else and "if you knew your job you were allowed to perform it in your own way and were never told how to do a thing. . . . The rest was up to you."[108] Patton's lifelong study of military affairs had shown him the value of a well-functioning staff and how cultivating personal bonds of trust with the staff could make them agents of the commander's vision.

Patton's Headquarters Feedback Mechanisms

From the first, Patton worked to build a culture that focused on improving performance. He established both formal and informal structures for capturing performance feedback. He also encouraged experimentation and inquiry. Underpinning all these structures and processes was an open-minded culture that prized self-criticism and growth. In total, Patton set the tone for organizational learning within Third Army by creating robust feedback loops.

Upon assuming command, Patton immediately put in place informal feedback mechanisms. One of Patton's first actions was to mandate that one officer from each staff section of Third Army and its subordinate corps was to visit line units daily and report up any vital information to the Chief of Staff immediately upon returning. The Commanding

---

[107] Allen, *Lucky Forward*, 31.

[108] D'Este, *Patton: A Genius for War*, 575.

General or Chief of Staff were also required to do so as well.[109] This requirement led to the creation of vital personal relationships and understanding between combat units and Army-level staff, which was uncommon in most US Armies.[110] The reverse was also standard. In line with his instructions to keep Third Army's soldiers informed, Patton welcomed front-line troops around the headquarters. Colonel Allen, Deputy G-2, remarked that "groups of tankers and doughboys, with hand grenades dangling from their lapels and the reek of battle still fresh and pungent on them, were a common sight in the War Room. That was never seen at any other Army Headquarters."[111] Patton's emphasis on maintaining direct connectivity between his staff and the actual battlefield realities ensured that he was not isolated from combat performance. These traits allowed Third Army to identify performance gaps or trends that required further analysis. The direct connection between senior staff or commanders and the problems on the ground meant that they could apply additional urgency to resolve performance shortfalls.

Formalized performance feedback also began almost immediately as well. For example, understanding that Patton intended to plan not just for Third Army's initial entry onto the continent but potentially a series of operations taking Third Army to the German border, the G-2 section began holding planning sessions. Following these sessions, the section produced memoranda concerning progress and problems still unresolved and submitted these memoranda to the Chief of Staff. The G-2 presented the

---

[109] Allen, *Lucky Forward*, 34.

[110] Ibid., 59.

[111] Ibid., 60.

first of these reports on 4 April, just 12 days after the headquarters arrived in the United Kingdom.[112] The formal and informal feedback mechanisms and the emphasis on capturing performance data helped Third Army close some of the gaps between the Army and frontline realities.

Patton also built a culture from the top down that encouraged experimentation and underwrote the failures that accompanied it. While Patton demanded the highest performance and had no tolerance for the incompetent or lazy, he understood that professional and organizational growth often entailed setbacks. This recognition set him apart from other US Army senior leaders at the time, like General Bradley. In July 1944, Patton noted that "Collins and Bradley are too prone to cut off heads. This will make division commanders lose their confidence. A man should not be damned for an initial failure with a new division. Had I done this with Eddy of the 9th Division in Africa, the army would have lost a potential corps commander."[113] Patton's style set the tone within Third Army and encouraged disciplined initiative and risk-taking. This tone was critical to encouraging experimentation and organizational growth. All Third Army leaders understood that well-considered good-faith efforts, executed aggressively, would not earn the commander's ire.

Unsurprisingly, Third Army headquarters was remarkably flexible, self-critical, and open-minded. Patton encouraged "frank and open discussion before he made a

---

[112] Koch, *G-2: Intelligence for Patton*, 71.

[113] Daniel Bolger, "Zero Defects: Command Climate in First Army, 1944-1945," *Military Review* 71, no. 5 (May 1991): 61.

decision."[114] He also was quite open to new suggestions or ideas regardless of their source. He recognized that innovative concepts and ideas could often come from those who directly experienced the problem at hand. Thus, it is unsurprising that, in contrast to other American general officers at the time, Patton regularly received briefings by enlisted men.[115] The reason behind this openness and flexibility was Patton's obsession with efficiency. He and his core group of staff officers wanted to build Third Army into the most efficient fighting machine. According to Colonel Wallace, this "spirit permeated the whole organization. You had the feeling that Third Army was going in only one direction—forward."[116] Patton promoted both formal and informal feedback, encouraged experimentation, tolerated failure, and fostered an environment of open inquiry and self-criticism. This environment encouraged learning and primed Third Army for rapid adaptation in the summer of 1944.

Conclusions

Through the spring of 1944, Patton and his coalition worked tirelessly to form the "Lucky" culture, the first step to actualizing Patton's vision for the battle in France. Unlike some of his contemporaries, Patton had an intuitive grasp of the operational art and recognized the centrality of decision-making speed and execution speed to campaigning. He also understood that to gain the initiative, anticipate decisions, extend his operational reach, and "keep the enemy rocking," he needed to generate information

---

[114] D'Este, *Patton: A Genius for War*, 577.

[115] Allen, *Lucky Forward*, 27.

[116] Wallace, *Patton and His Third Army*, 17.

advantage. Yet Third Army in the spring of 1944 was untested and lacked the forces, staff structures, and processes necessary to create that advantage in a high-tempo mobile campaign. Consequently, Third Army needed to adapt, and Patton focused on forming a culture that embraced and encouraged change.

Patton formed the foundation of a military culture that promoted adaptation by creating organizational urgency, establishing robust feedback loops, and welcoming diverse expertise. Patton's clear, direct, and personal leadership style allowed him to articulate a vision for change that resonated on intellectual and emotional levels. His reputation as an innovator also helped him to present himself as an agent for change. This reputation enabled him to form a coalition dedicated to actualizing his vision and created a sense of urgency for change within Third Army. Patton also created an environment that encouraged experimentation, promoted self-criticism, and did not punish reasonable efforts to improve the organization. He and his staff also put in place well-designed methods for gathering informal and formal performance feedback across the Army. These efforts created a system of feedback loops within Third Army that enabled organizational learning. Finally, Patton encouraged the consideration of multiple points of view. He actively promoted diversity of thought, believing that diverse expertise and creative friction could spark new ideas and make groups more than the sum of their parts. Within this context, Third Army's experts worked to build unique formations and restructured Third Army's staff and staff processes to generate information advantage in the summer of 1944.

CHAPTER 4

BUILDING THE INFORMATION FORCES: MARCH-JULY 1944

> Every single man in the Army plays a vital role. Every man has his job to do and must do it.
>
> —Lieutenant General George S. Patton Jr., *The Patton Papers*

Introduction

Over the spring and early summer of 1944, Third Army adapted its forces, processes, and staff structures to actualize Patton's vision for information advantage and better align with realities on the continent. First, Third Army needed to protect friendly information. This meant aligning staff elements and processes to better secure Third Army's communications from the enemy. Second, Third Army needed to attack enemy decision-making processes and deny the enemy the use of information. To do this Third Army needed to develop an integrated structure for leveraging capabilities like deception. Finally, and most importantly, Third Army needed to create forces and information pathways to enable rapid friendly decision making. Third Army had only a few months to find creative ways to align its capabilities to efficiently conduct information advantage activities in an integrated and comprehensive fashion. However, the unique military culture within Third Army enabled it to repurpose existing forces, develop new arrangements of functional responsibilities, and invent new processes to generate information advantage.

Protecting Friendly Information and Denying The Enemy Information: The Signal Intelligence Service

Since Allied plans retained Third Army as an exploitation force in France, the first order of business was to develop ways to protect friendly information. A large part of this effort was the responsibility of Major Flint and the Third Army SIS. Doctrinally, the SIS was responsible for "the performance of certain signal intelligence activities . . . the supervision of signal security, and for the preparation and issue of certain cryptographic and other equipment used by the command."[117] The SIS originally consisted of five officers, including Flint, and eleven enlisted personnel. Yet, the SIS would rapidly expand as it took on a progressively larger mission related to communications security, intelligence collection, and military deception.

Within 24 hours of Third Army's activation in England, the SIS began communications security monitoring of Thrid Army radio networks. Lacking a dedicated organization for monitoring, SIS directed the army-level 118th Radio Intelligence (RI) Company to use four receivers for communications security monitoring and instructed each Corps-level Signal Service Company (SSC) to maintain two receivers for monitoring.[118] According to FM 11-22, these radio intelligence companies were tasked with:

---

[117] US War Department, Field Manual 11-35, *Signal Corps Intelligence* (Washington, DC: Government Printing Office, 1942), 2, https://digitalcommons.unl.edu/dodmilintel/113/.

[118] Third United States Army, Signal Intelligence Service, "Third Army Radio Intelligence History in Campaign of Western Europe," SRH-042, Records of the National Security Agency, National Archives Record Group 1457, National Archives and Records Administration, College Park, MD, 24. Hereafter referred to as SRH-042.

1. Obtaining signal intelligence by intercepting enemy radio transmissions, and finding positions of enemy radio stations.

2. Obtaining information as to signal security by intercepting friendly radio transmissions

3. Obtaining information as to unauthorized radio stations by intercepting radio transmissions and finding positions of such stations located in areas controlled by friendly forces.[119]

The 118th RI Company activated in April 1942 at Fort Sam Houston, Texas.[120] Like most radio intercept and signal service companies, the 118th RI Company consisted almost entirely of "civilian," non-regular army, soldiers from across the country. The War Department specifically manned these units with more highly educated soldiers, particularly ones with a technical background. Thus, many of the men of the 118th RI Company were trained civilian radio operators who had studied at schools like Coyne in Chicago, Illinois, De Vry in Kansas City, Missouri, and National Schools in Los Angeles, California.[121] Others were recent college graduates or had dropped out of undergraduate studies to volunteer.[122] Reflecting the diversity of the US, many came from immigrant

---

[119] US War Department, Field Manual 11-20, *Signal Corps Field Manual: Organizations and Operations in the Corps, Army, Theater of Operations, and GHQ Signal Operations in the Corps and Army* (Washington, DC: Government Printing Office, 1940), 45, https://digitalcommons.unl.edu/usarmyfieldmanuals/1/.

[120] SRH-042, 6.

[121] John W. DeGrote, "The 118th Signal Radio Intelligence Company, 1942-1946, Third US Army, World War II," (Marshall Foundation Library and Archives, Lexington, VA, n.d.), 8.

[122] Seymour Schenkel, interview by Kurt Piehler and Rebecca Karcher, Rutgers Oral History Archives of World War II, March 12 1998), 25, https://oralhistory.rutgers.edu/interviewees/30-interview-html-text/240-schenkel-seymour.

families and were fluent in German, French, and other languages.[123] Almost universally, they were a highly intelligent and motivated group.[124] Under the command of Captain Clarence Helland, the 118th RI Company arrived in England in January 1944. In April, the 118th RI Company was assigned to the Third Army and began monitoring both friendly and German traffic near Dartford in Kent.[125] While the 118th RI Company was inexperienced, it certainly possessed a diverse set of talented personnel.

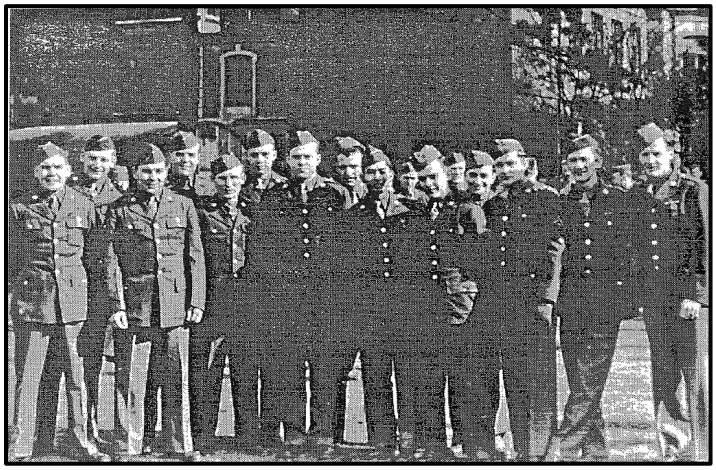

Figure 5. Soldiers of the 118th RI Company, Dartford, Kent, May 1944

Source: John W. DeGrote, "The 118th Signal Radio Intelligence Company, 1942-1946, Third US Army, World War II," (Marshall Foundation Library and Archives, Lexington, VA, n.d.), 24.

The Signal Service companies, consisting of eight officers and one hundred twenty-one enlisted men, were assigned to support corps with radio intelligence. At the

[123] DeGrote, "The 118th Signal Radio Intelligence Company," 8.

[124] Schenkel interview, 45.

[125] SRH-228, 2:6.

direction of SIS, they provided communications security monitoring for their assigned corps. While the SSC mission was identical to that of the Army-level RI company, they divided their effort with the Signal Service companies concerning themselves primarily with lower-echelon enemy communication systems. 3253rd SSC was assigned to XV Corps, 3254th SSC to VIII Corps, 3255th SSC to XII Corps, and 3256th SSC to XX Corps.[126] Most began their communications security monitoring mission by mid-April.

Since the 118th RI Company and the Signal Service companies were designed primarily to conduct radio intelligence missions, they received minimal training on communications security monitoring in the United States. The companies also lacked practical experience in conducting actual radio intelligence missions, so the SIS tasked them with security monitoring to improve their technical proficiency with intercept equipment. Over the spring and summer, the SIS assisted the companies in training for the mission in France and refined the communications security and radio intelligence procedures.[127]

In addition to security monitoring, SIS progressively took on additional information security functions within Third Army. SIS worked alongside counterintelligence to identify any attempts at wiretapping.[128] Similarly, starting in April, SIS took the lead on procuring medium-grade cryptographic systems. Captain Devine and

[126] SRH-042, 8.

[127] Ibid., 24.

[128] Ibid., 2:4.

Lieutenant Dalton began distributing these systems beginning in May and started work on special codes and ciphers for the Headquarters.[129]

Starting in the spring, SIS also assumed direct supervision of the Code Room, a subordinate office of the Third Army Message Control Center. Overall, the Message Control Center was responsible for "coordinating the transmission of outgoing orders, reports, and other messages with the available signal agencies, and expediting the delivery of incoming messages." Within the Message Control Center, the Code Room was responsible for "cryptographing and decryptographing of messages."[130] While in England, the SIS stipulated that all messages sent by teletype be encoded, even though Supreme Headquarters Allied Expeditionary Force (SHAEF) did not require it. This decision was in line with Patton's emphasis on using code if the enemy had time to react. This decision would also pay dividends later as it provided code clerks with the experience necessary to deal with heavy code traffic demands in France in August.[131]

---

[129] SRH-228, 2:7.

[130] US War Department, Field Manual 100-5 (1941), 36; SRH-228, 2:7.

[131] SRH-228, 2:7.

Figure 6. Third Army Soldiers (Probably Code Room Personnel) Practicing Code, Unspecified Location Probably 1944

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Signal* (Regenburg, Germany, May 1945), 31, Combined Arms Research Library, World War II Operational Documents.

SIS also took the lead on the transmissions portion of Third Army's military deception activities in England. From April to June 1944, SHAEF executed a complex military deception plan code-named Fortitude-South (part of the larger Bodyguard deception plan) to deceive the Germans into believing that the allied invasion of Europe would occur at the Pas de Calais. This assault would be led by Patton and spearheaded by the fictional First US Army Group.[132] To increase the verifiability of this narrative, SHAEF designed several deception operations to convince German intelligence. One of these was Operation Quicksilver II, the "W.T. [Wireless Transmission] Plan." This plan intended to mimic the day-to-day radio signature of the fictional First US Army Group as

[132] Michael J. Donovan, "Strategic Deception: Operation Fortitude" (Strategy Research Project, US Army War College, Carlisle, PA, 2002), 9.

it supposedly prepared for the invasion near the Pas de Calais.[133] Elements of the US Army's 3103rd Signal Services Battalion and the British Army No. 5 Wireless Group dispersed throughout southeast England to transmit fictitious scripted radio traffic.[134] Scripted transmissions included everything from readiness reports to unit movements and even personnel actions. All these transmissions employed weak codes and encryption to ensure they were broken.[135]

The SIS entirely managed Third Army's participation in Quicksilver II, and throughout May and June, controlled the opening and closing of Third Army Radio nets to confuse German traffic analysis.[136] As Third Army prepared to embark for the continent, operational plans codified the SIS' role in denying the enemy the use of information. In particular, plans specified that "radio counter-measures (deception and jamming) will not be employed by troops of Third US Army unless specifically directed by the Signal Officer, Third US Army."[137] As the Signal section's executive agent, the

---

[133] Eric Hresko, "Quicksilver IV: The Real Operation Fortitude" (Monograph, School of Advanced Air and Space Studies, US Air Force Command and General Staff College, Maxwell Air Force Base, AL, 2010), 22.

[134] Scott C. Farquahar, "Deceive, Divert, and Delay: Operation FORTITUDE in Support of D-Day," in *Weaving the Tangled Web: Military Deception in Large-Scale Combat Operations,* ed. Christopher M. Rein (Fort Leavenworth, KS: Army University Press, 2018), 144-145.

[135] Donovan, "Strategic Deception," 11.

[136] SRH-228, 2:6.

[137] Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 561, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212

SIS would be primarily responsible for synchronizing radio countermeasures and integrating these effects into Third Army operations for the remainder of the war.[138]

Over the summer, SIS gradually assumed responsibility for additional ancillary information forces. On 28 April, SIS received Det ZY of the 21st Mobile Weather Squadron, and in May, the Signal Section assigned the SIS a small photographic detachment from its Captured Documents Department to the SIS. This detachment's mission was to photograph captured German documents and devices with cryptologic value to enable radio intelligence collection.[139]

By May, the SIS had expanded significantly. First, it was protecting friendly information through communications security monitoring and distribution of cryptographic materials. Second, it was enabling decision-making through the provision of combat information and intelligence. Finally, it was disrupting enemy decision-making through radio deception. While it did not execute the function in England, the SIS was also responsible for denying the enemy the use of information through jamming. These activities were clearly in line with Patton's vision of information advantage: protecting friendly information to prevent the enemy from acting first or regaining their balance. Yet, what SIS could not do was provide Patton with the information about the friendly situation and enable him to make faster and better decisions; to synchronize his forces during high tempo operations using superior understanding.

---

[138] Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Signal* (Regenburg, Germany, May 1945), 4, Combined Arms Research Library, World War II Operational Documents.

[139] SRH-228, 2:15.

Enabling Decision Making: The Army Information Service

Patton and Colonel Hammond, his handpicked Signal Officer, saw part of the solution to his problem of maintaining situational understanding and enabling decision-making in a high tempo operation in the Signal Information and Monitoring (SIAM) companies (also referred to as Staff Information and Monitoring companies). US Army SIAM companies were themselves an American adaptation of the British "Phantom" patrols. During the Battle for France in 1940, the British Expeditionary Force faced significant difficulties in maintaining situational awareness of the location and activities of its forces in combat. During the dynamic and fast-paced campaign, information that passed through normal command channels often was overcome by events by the time it reached the British Expeditionary Force Headquarters. So, the British Expeditionary Force adapted the structure and processes of the "Hopkinson Mission," a small air-ground liaison team, to create the General Headquarters Liaison Regiment.[140] These "Phantom" liaison patrols, also referred to as "J" Service, served with British Eighth Army in Tunisia. There they monitored lower echelon radio networks for communications security infractions and information of value, then passed that information directly to Army headquarters bypassing normal channels.[141]

Patton first observed "J" Services' utility in Africa in 1942 and had his first practical experience with the concept in the summer of 1943. In the leadup to Operation

[140] John S. D. Eisenhower, "The Army Tactical Information Services," *Military Review* 29, no. 5 (August 1949): 33.

[141] George F. Howe, *American Signal Intelligence in Northwest Africa and Western Europe* (Fort Meade, MD: Center for Cryptologic History, 2010), 66.

Husky, Allied Force Headquarters provided two British officers to provide "J" Service for Patton's Seventh Army.[142] This team served Seventh Army well during the dash across Sicily. While skeptical of the British and British intelligence, Seventh Army's experience with "J" Service contributed to Patton's understanding of how to enhance situational awareness by employing information forces.

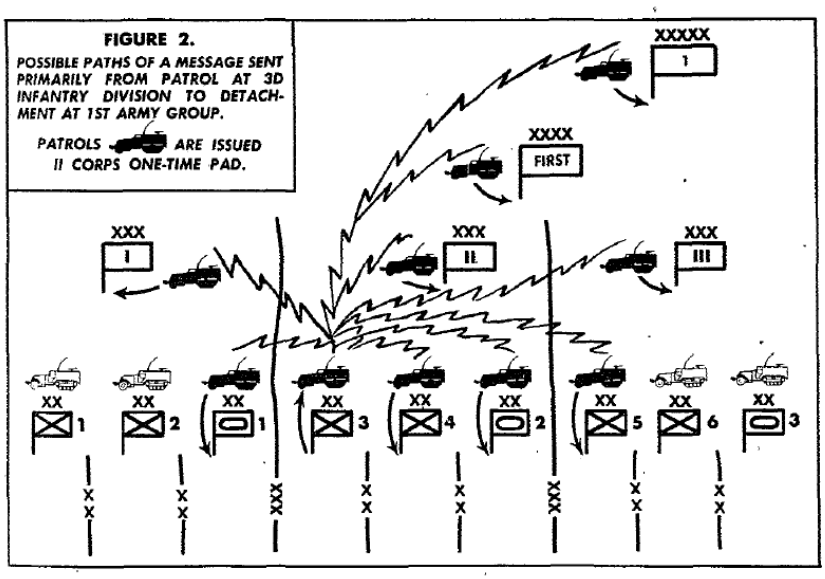

Figure 7. Example SIAM Communications Structure

Source: John S. D. Eisenhower, "The Army Tactical Information Services," *Military Review* 29, no. 5 (August 1949): 34.

In April 1943, General Lowell Rooks, Allied Force Headquarters G-3, directed the formation of a provisional "American Staff Information Intercept Organization"

[142] Howe, *American Signal Intelligence in Northwest Africa and Western Europe,* 66.

under Fifth US Army.[143] This company would perform the same function of monitoring communications security and speeding combat information to Army headquarters while performing a secondary function of providing situational awareness to adjacent units through the broadcast of information.[144] In the summer of 1943, Fifth Army, then training in North Africa, stood up the 6689th Staff Information and Monitoring Company (Provisional)[145] and began training on British "J" Service methods.[146] When eventually deployed to Italy in the Fall of 1943, the 6689th focused primarily on monitoring radio networks for information of value and communications security violations and retransmitting information they passively gathered.[147] However, Fifth Army began experimenting with adding liaison officers at the division level to supplement the information gained from radio intercept.[148] While this effort remained secondary to the primary SIAM task of radio monitoring, these experiments with liaison in the fall of 1943 likely influenced Third Army's approach the following year.

---

[143] Howe, *American Signals Intelligence in Northwest Africa and Western Europe*, 66.

[144] Eisenhower, "The Army Tactical Information Services," 34.

[145] Howe, *American Signals Intelligence in Northwest Africa and Western Europe*, 85.

[146] SRH-228, 2:2.

[147] Howe, *American Signals Intelligence in Northwest Africa and Western Europe*, 85.

[148] Walter B. Potter, "SIAM–Signal Information and Monitoring," *Military Review* 25, no. 2 (May 1945): 28.

The reports of Fifth Army's success with the provisional SIAM company in Italy in late 1943 and Patton's own experience with "J" Service in Sicily likely contributed to his decision to develop a SIAM company tailored to Third Army's requirements in France. Patton, ever the student of history, was almost certainly well familiar with the "directed telescope" concept, in which commanders used liaisons as their eyes and ears across the battlefield.[149] Thus, Patton likely viewed Fifth Army's experiments with division-level SIAM liaison officers with great interest. Patton understood the potential of the "J" Service and SIAM systems to enhance situational understanding and increase decision-making and execution speed.

Seeking to improve on Fifth Army's system, in early 1944, Colonel Hammond tasked Major Flint and the SIS with generating recommendations for such an organization that could enable common situational understanding, rapid decision making, and Army-wide synchronization.[150] Lieutenant Carpenter, one of the SIS officers, visited the British Phantom regiment for two days researching British organization and methods.[151] Based on these lessons from the British and 6689th SIAM Company in Italy, Major Flint developed a proposed table of organization and equipment for a SIAM company and submitted it to SHAEF in April.[152]

---

[149] Nowowiejski, "Concepts of Information Warfare in Practice," 19.

[150] Third United States Army, *After Action Report: Volume II, Staff Section Reports, Signal,* 5.

[151] SRH-228, 2:2.

[152] Ibid.

By spring, the War Department, convinced of the merits of the SIAM concept, intended for each of the US Armies in the European Theater to receive a SIAM company before deploying to France. Yet, despite Colonel Hammond and Major Flint's best efforts to accelerate the process of designing and procuring one, it became apparent that Third Army would likely not receive its company for some months and would almost certainly deploy to France without one.[153] Recognizing the critical capability gap that would exist if the army deployed without a SIAM, Third Army decided to modify a cavalry group into a SIAM. Drawing on their research into the British "J" Service and Fifth Army, the SIS worked with Third Army G-2 and G-3 to generate a basic concept to employ a cavalry group as an information service.[154] In one of the first significant departures from the original SIAM construct, Third Army elected to retain the communications security monitoring mission with the 118th RI Company and Corps Signal Service companies under SIS supervision. Third Army initially identified the 2nd Cavalry Group for the mission but eventually selected the Fighting 6th.[155]

In the spring of 1944, the 6th Cavalry Group (Mechanized), under the command of Colonel Edward M. "Joe" Fickett, was stationed near Armagh, Northern Ireland, assigned to XV Corps.[156] As was typical for a mechanized cavalry group in World War

---

[153] Howe, *American Signals Intelligence in Northwest Africa and Western Europe*, 122.

[154] SRH-228, 2:3.

[155] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[156] Williams, "Moving Information," 18.

II, 6th Cavalry Group consisted of a headquarters element and two non-organic cavalry squadrons. Lieutenant Colonel Tom Matlock commanded the 6th Cavalry Squadron, and Lieutenant Colonel Walter Day commanded the 28th Cavalry Squadron. The squadrons consisted of three reconnaissance troops, a light tank company, and an assault gun company. The reconnaissance troops were comprised of three platoons organized as an Armored Car section with three M8 Greyhound armored cars and a Scout section with six Jeeps.[157] All told, a squadron had 31 officers, two warrant officers, and 721 enlisted men.[158]

The 6th Cavalry Group had arrived in Northern Ireland in 1942, earmarked for Operation Torch, but due to insufficient shipping, the group had not participated in Mediterranean Theater operations.[159] Instead, they had spent the last two years training, conducting countless field and command post exercises.[160] Colonel Fickett was a veteran cavalryman commissioned in 1917.[161] His experience had given him a particular vision, and he emphasized to the 6th Cavalry Group that "good communications is the guts and

---

[157] George Forty, *The Armies of George S. Patton* (New York: Arms and Armor Press, 1996), 78.

[158] William Stuart Nance, "Patton's Iron Cavalry–The Impact of Mechanized Cavalry on Third Army" (Master of Arts Thesis, University of North Texas, Denton, TX, May 2011), 26.

[159] James H. Polk III, *World War II Letters and Notes of Colonel James H. Polk 1944-1945* (Oakland, CA: Red Anvil Press, 2005), 64.

[160] Ellsworth B. Crowley, *The Fighting Sixth: History of the 6th Cavalry Regiment, 1861-1960* (Dallas, TX: Military Publications, 1961).

[161] US War Department, The Adjutant General's Office, *Official Army Register* (Washington, DC: Government Printing Office, 1947), 358.

essence of cavalry reconnaissance and if every soldier in the group were a qualified [radio] operator there still wouldn't be enough."[162] Accordingly, the 6th Cavalry Group trained extensively on radio operation, and by the summer of 1944, the group was widely regarded as possessing some of the best radio operators in the theater.[163] The Group maintained a minimum of three operators per radio, trained not only in radiotelephone procedures but capable of operating code at upwards of 20 to 30 words per minute.[164] All told, the well-equipped, exceptionally well-led, and communications savvy 6th Cavalry Group was the solution to Patton's SIAM problem.

Figure 8. Commanders of the Sixth Cavalry Group (Mechanized) During World War II Left: Colonel Edward M. "Joe" Fickett (July 1942-June 1944, September 1944-July 1945). Right: Lieutenant Colonel James H. Polk (July-August 1944)

Source: Ellsworth B. Crowley, *The Fighting Sixth: History of the 6th Cavalry Regiment, 1861-1960* (Dallas, TX: Military Publications, 1961).

---

[162] Robert D. Sweeney, "How Patton Kept Tabs on His Third Army," *Armored Cavalry Journal* (March-April 1949): 53.

[163] Polk, *World War II Letters and Notes of Colonel James H. Polk*, 64.

[164] Sweeney, "How Patton Kept Tabs on His Third Army," 53.

Third Army's AIS was born in May 1944. As would be the case throughout the campaign, events progressed quickly. The 6th Cavalry Group transformed into an information service, deployed to the continent, and went into combat in less than 80 days. Between 11 and 13 May 1944, the 6th Cavalry Group moved from Northern Ireland to Glouchester County in southwestern England, where it collocated with Third Army Headquarters.[165] Then on 16 May, Patton "directed Sixth Cavalry Group to establish a channel, both physical and technical under Army control to make and report frontline G-2 and G-3 information direct to the Army Advance Command Post, bypassing normal communications channels."[166]

On 18 May, Third Army relieved 6th Cavalry Group of assignment to XV Corps and assigned it to Headquarters, Third Army. On 20 May, Patton briefed Colonel Fickett and his staff on the 6th Cavalry Group's new mission.[167] Patton expressed his belief that both time and detail were lost in transmitting messages back to Army Headquarters through normal channels.[168] The AIS would enable enhanced situational understanding at the operational level, by operating a "rapid communications channel, bypassing normal command channels, under Army control, direct from front line units to the Army Command post," monitoring "friendly battalion, regiment, division, and reconnaissance unit radio nets," and running a "system of patrols of combat posts and observation pots of

---

[165] Williams, "Moving Information," 18.

[166] Third United States Army, *After Action Report: Volume I, The Operations*, 5.

[167] Williams, "Moving Information," 18.

[168] Crowley, *The Fighting Sixth.*

battalions and regiments," while maintaining "periodic contact with division G-2 and G-3 to exchange information."[169]

The AIS would directly report reconnaissance and intelligence information to the G-2 and friendly force information to the G-3.[170] On behalf of the Signal section, the SIS would exercise technical direction of the AIS and provide guidance on methods of procedure, employment, and coordination.[171] Yet, Patton made it clear that Colonel Fickett and the AIS were ultimately responsible directly to the Army commander for the mission's success.[172] The AIS was crucial to Patton's information advantage approach and was the critical capability that would allow him to have superior situational understanding and ultimately make decisions faster than his enemy. Consequently, Patton was deeply involved in the creation and success of the AIS, but as was his style, he did not dictate precisely how Colonel Fickett was to transform 6th Cavalry Group. Instead, having articulated his vision, he allowed Colonel Fickett and his expert staff to generate options.

Colonel Fickett and the Group Operations Officer, Major Thomas H. Stewart, III wasted no time generating a plan to transform the group into an information force. Per Patton's directive, only one of the two squadrons within the 6th Cavalry Group would

---

[169] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[170] Williams, "Moving Information," 18.

[171] Third United States Army, *After Action Report: Volume I, The Operations*, 603.

[172] Sweeney, "How Patton Kept Tabs on His Third Army," 51.

serve as the AIS at a time.[173] Group Headquarters would maintain overall responsibility for the AIS mission. The squadrons would alternate between serving as an Army-level reconnaissance element and as a force provider for the AIS patrols.[174] Colonel Fickett and Major Stewart determined that a minimum of 13 self-sustaining detachments were necessary to accomplish the mission. Nine platoon-sized "information detachments" would be assigned to the division level, and four small supplementary detachments, consisting of troop headquarters, would be assigned to the corps.[175] To increase the speed with which messages were relayed to the AIS Headquarters, the original plan placed each detachment directly under the Group Headquarters. The troop headquarters served as nothing more than another detachment. Each detachment would be responsible for itself and communicate directly with the AIS command post.[176]

The plan called for the divisional information detachments to consist of two officers and forty enlisted men. Detachments were further subdivided into a "command and monitoring" section and a "patrol and liaison" section, each led by a lieutenant. The monitoring section would consist of a message center, three monitor stations, a communications link to the rear, a command post, and a security detail. This section was tasked with monitoring radio traffic within the assigned division and transmitting relevant

---

[173] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[174] Williams as told to Anderson, "Third Army Reconnaissance," 21.

[175] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[176] Ibid.

combat information within the division to the AIS headquarters. The patrol and liaison section was tasked with moving with forward elements and providing back timely information regarding the forward line of troops and the overall combat situation.[177] Given that these detachments could be assigned to various types of divisions, with different task organizations operating in a variety of roles, Colonel Fickett and Major Stewart ensured the organizations were as inherently flexible as possible.[178]

It became quickly apparent that the table of organization and equipment for the Group was insufficient to support its newly assigned role. The AIS required additional motorcycles, jeeps, and long-range communications equipment. So, Colonel Fickett and Major Stewart coordinated with Major Flint, and the SIS requested new equipment from HQ European Theater of Operations based on the SIAM table of organization and equipment recommended in the spring.[179] SIS also coordinated the procurement of the cryptographic systems necessary to ensure the AIS's communication security.[180]

Colonel Fickett and Major Stewart also developed a training plan to transform the Cavalry Group's operations into those of an information service. The first phase consisted of officer training, which would orient the officers to the AIS construct, educate them on armored and infantry division operations, and train them on radio and wire communications. Colonel Fickett and Major Stewart planned for the second phase to

---

[177] Sweeney, "How Patton Kept Tabs on His Third Army," 52.

[178] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[179] Williams as told to Anderson, "Third Army Reconnaissance," 21.

[180] SRH-228, 2:3.

consist of a communications exercise at reduced distances to test the AIS construct and adjust the provisional organization and manning. Finally, they planned for the training to culminate with a pair of two-day field exercises. One squadron would serve as the AIS, and the other squadron would role-play as a variety of regimental through corps headquarters.[181]

On 12 June, Patton approved the AIS plan, code-named "Unicorn," and immediately, Colonel Fickett began the intensive training program, which lasted the rest of the month.[182] The first phase of the training occurred as planned, but the communications exercise was largely a failure because the requested communications equipment had not yet arrived, and Third Army was under strict radio silence orders. Because of these deficiencies, 6th Cavalry Group canceled the third-phase field exercise.[183] Undeterred, though, the 6th Cavalry Group continued to train on the AIS/SIAM concept and radio procedures for the new system with the SIS's assistance. At the behest of SIS, the 301st Signal Operations Battalion conducted a three-week special course in June that trained wire crews, wire chiefs, teletype operators, and switchboard operators for the new AIS.[184]

---

[181] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[182] Crowley, *The Fighting Sixth.*

[183] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[184] Ibid.

To establish connectivity between the Third Army Headquarters and the information detachments in the field, Major Flint worked closely with Colonel Fickett and Major Stewart to create processes and a facility for receiving the information. Major Flint procured a van and equipped it with communications equipment and two teletypewriters to serve as both the SIS headquarters and an AIS information center.[185] This information hub would process and route signal intercepts and communications security violations to the G-2 and Signal officer from the 118th RI Company and the Corps-level Signal Service companies. It would also process and route combat information and intelligence from the AIS patrols to the G-2 and G-3.[186] Finally, in late June, just days before Third Army was scheduled to embark for Normandy, the AIS received its requested equipment, including motorcycles, jeeps, wire communications equipment, and the vital SCR 399 radios.[187] The SCR 399 AM radio and the similar SCR 299 were the Army's primary long-haul communication devices. It could range 2,300 miles when operated as a radiotelegraph or shorter ranges as a radiotelephone.[188] Colonel Fickett and Major Flint viewed the AIS' ability to communicate across the length of Third Army's anticipated area of operations as dependent upon these sets' functioning.

---

[185] Howe, *American Signals Intelligence in Northwest Africa and Western Europe*, 126.

[186] SRH-228, 2:10.

[187] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 10.

[188] Laurie G. Moe Buckhout, "Signal Security in the Ardennes Offensive 1944-1945" (Master's Thesis, Command and General Staff College, Fort Leavenworth, KS, 1997), 39.

Figure 9. Third Army Communications Van (Similar to the One Employed by the AIS and SIS), Unspecified Location in Europe 1944 or 1945

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Signal* (Regenburg, Germany, May 1945), 30, Combined Arms Research Library, World War II Operational Documents.

With the close connection between the AIS, the SIS, the G-2 and G-3 sections established, Third Army possessed an effective staff structure for integrating capabilities and managing information advantage activities. The AIS combined multiple missions to enable decision-making by providing the commander with assured access to the most relevant real-time information. Given that the AIS was the brainchild of Patton and Colonel Hammond, and an organization in part designed by Major Flint, it complimented the SIS's functions. The SIS protected friendly information through security monitoring, providing cryptographic materials, and the operation of the Code Room. Together the AIS and SIS enhanced and assured Patton's operational-level decision making.

Overcoming Change Resistance and Locking in Gains

There was significant resistance at first to the AIS construct within the 6th Cavalry Group, subordinate Corps and Divisions within Third Army, and even the Third Army staff. Unsurprisingly, members of the 6th Cavalry Group saw themselves as cavalrymen first, part of the "Fighting Sixth," a unit with a combat history that stretched back to 1861.[189] Both officers and enlisted men were disappointed that they would be performing informational roles instead of combat roles.[190] Even Lieutenant Colonel James H. Polk, who assumed temporary command in July after Colonel Fickett suffered an injury in June, expressed some dissatisfaction with the arrangement, noting that, "we are not out of the war nor are we in the front lines. Elements are in and out. . . . Not a lot of glory."[191] There was an initial sense within the Group that employing a fully manned, well-equipped, and highly trained formation as an information force was a "waste" of a cavalry group.[192] Yet, the AIS's later performance and the level of ingenuity that its members showed in executing the mission suggests that Patton and his coalition did win over the majority to their information advantage vision.

In April or May, Patton began giving his famous speech to groups of assembled troops stressing in his words, "fighting and killing."[193] While there was no one set script

[189] Williams, "Moving Information," 18.

[190] Polk, *World War II Letters and Notes of Colonel James H. Polk*, 70.

[191] Ibid., 78.

[192] Crowley, *The Fighting Sixth.*

[193] Blumenson, *The Patton Papers*, 456.

for the address, they usually contained a section highlighting that "every single man in the Army plays a vital role. Every man has his job to do and must do it."[194] Patton would then give examples of the critical role played by soldiers in non-combat roles. There is no record of exactly which version of the speech Patton delivered to the 6th Cavalry Group in Armagh in April 1944. Yet, it reportedly conformed to the profanity-laced standards of his later more widely reported speeches and was well received by the enlisted soldiers of the Group. Patton's speech to the 6th Cavalry Group and his close interaction with the Group's senior officers may have imparted to the Group the urgency of their task and the need for the Group to serve as an information force. Patton's leadership style appealed to the soldiers on an emotional level, and his ability to translate operational level requirements into calls for individual action almost certainly helped overcome the resistance of the Group's cavalrymen to performing a "non-combat" role.

Within the Corps and Division staffs there was an initial tendency to view the AIS with suspicion. Some Corps and Division Staff officers believed Third Army headquarters dispatched the AIS patrols to monitor and report on officer performance.[195] Furthermore, given that AIS platoon leaders would be working with regimental and divisional commanders and AIS troop commanders would be working with Corps commanders, there was undoubtedly an initial reluctance on the line commanders' part to cooperate with the liaison officers and support the new system. To overcome this resistance, Patton personally "signed letters addressed to each corps and division

---

[194] Blumenson, *The Patton Papers*, 457.

[195] Polk, *World War II Letters and Notes of Colonel James H. Polk*, 64.

commander explaining the Army Information Service and introducing the 6th Cavalry representative concerned."[196] Again, Patton's targeted intervention worked to overcome organizational resistance.

Even within portions of the Third Army staff, there was resistance to the new AIS construct. One of the possible explanations offered by Brigadier General Robert Williams, a junior officer in 6th Cavalry Group at the time, was that elements of the staff remained skeptical of the value of unevaluated information passed outside of traditional vertical command channels.[197] Unfamiliar with the new concept, elements of the staff may have seen the new AIS as at best a complication and at worst a threat to their staff functions. Another explanation is that despite the universally high regard in which Patton was held, some staff elements simply were skeptical of the need for change itself.[198] Organizational inertia almost certainly played a role in leaving some portions of the staff uncertain as to whether a cavalry group could successfully function in this manner. Thus, when in mid-August, a report arrived through regular channels at Third Army headquarters suggesting that Allied forces had captured Brest, but this event remained unreported by the AIS, the skeptics on staff had the "proof" they needed that the concept was flawed. The AIS Commander personally radioed down to the AIS patrol with the VIII Corps' lead elements near Brest and ascertained that the city remained in German hands. This fact was later confirmed through normal command channels, thereby

[196] Williams, "Moving Information," 19.

[197] Ibid.

[198] Ibid.

demonstrating the reliability and accuracy of the AIS.[199] Demonstrable successes like these in August, combined with Patton's intervention in June and July, went a long way to convince the skeptics and overcome resistance to the radical new concept.

For Third Army to generate an information advantage over the Germans in France, the AIS had to work. In no small part, Patton's vision for a war of aggressive maneuver across France hinged on his ability to maintain superior situational understanding. Resistance to the untested and unproven AIS concept, while natural, threatened Patton's operational approach. Thus, at critical points, Patton and his coalition intervened to overcome organizational resistance. They understood how to creatively change the dynamic, generate emotional and intellectual support for the new construct, demonstrate the value of changes, and reassure those skeptical of change. Having created a sense of urgency, once Third Army overcame initial resistance to the AIS, the pace of further adaptation accelerated in France.

The new construct's resiliency experienced its first significant test on 30 June 1944, when Colonel Fickett was seriously injured in a car accident in England. He would be in recovery for almost six weeks.[200] Colonel W. W. Cornog took acting command of the 6th Cavalry Group and moved the Group to France between 9 and 10 July.[201] Because of the need to maintain the secrecy surrounding Third Army's presence on the continent, radio silence remained in effect, and the AIS had no opportunity to conduct

---

[199] Williams, "Moving Information," 19.

[200] Crowley, *The Fighting Sixth.*

[201] Ibid.

training on the new radio equipment received at the end of June.[202] In late July, Lieutenant Colonel Polk replaced Colonel Cornog, assuming command of the AIS and 6th Cavalry Group "on the run." While an experienced cavalryman, Lieutenant Colonel Polk came to the AIS from the 106th Cavalry Group (Mechanized) and had no familiarity with the AIS construct.[203] Thus on the eve of Third Army's activation, the AIS had a new commander and new equipment with which it had never trained.

Yet the work of Colonel Fickett, Major Stewart, Colonel Hammond, Major Flint, and others to operationalize Patton's vision and create an adaptive, resilient, and effective organization had worked. The members of the AIS understood the mission and its importance to Patton's information advantage approach. The AIS members were well-trained professionals, many of whom had been active participants in operationalizing the information service concept and transforming 6th Cavalry Group over the past months. At its core, the AIS was a flexible organization capable of adapting to changing conditions. Thus, while no one knew the AIS construct better than Colonel Fickett, his direct leadership was ultimately less important than the adaptive and performance-oriented culture that he and Patton had built in the 6th Cavalry Group.

Conclusions

From March through July, Patton and his staff drew on the lessons from the Mediterranean and exercises in the US to build information forces that could compete in

---

[202] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 12.

[203] Polk, *World War II Letters and Notes of Colonel James H. Polk*, 64.

France. The expansion of SIS's responsibilities reflected an understanding by Third Army leadership of the importance of protecting friendly information and denying the enemy the use of information. Operation Fortitude and Quicksilver II presented misleading information, and served to unbalance the enemy. Securing friendly information promised to ensure he never regained his balance. The creation of the AIS reflected Third Army and Patton's recognition of the need for up-to-date and relevant friendly force information to "keep the enemy rocking." Patton's coalition designed the AIS specifically to increase situational awareness and enable speedy decision-making and execution. The close relationship between the SIS and the AIS reflected Patton and his staff's view that these elements while performing different activities existed within the same overall framework and ultimately supported the same goal of generating information advantage.

While not yet battle-proven, the changes increased Third Army's military effectiveness in the lead-up to operations on the continent. From March to July, Third Army made great strides in integrating capabilities coherently as part of information forces. The SIS progressively assumed greater responsibility from both the G-2 and Signal sections for identifying, securing, obscuring, and defending friendly information and information systems from compromise. The SIS also assumed some responsibility for denying enemy information use, leading Third Army's participation in radio deception operations. The creation of the AIS was also intended to enhance understanding and assure processes for decision-making. As of July, though, the project of integrating all available capabilities into these activities remained incomplete.

The close relationship between the AIS, SIS, G-2, and G-3 meant that, to a large extent, information, intelligence, cryptologic, logistical, and other support functions were well integrated. While taxing on the SIS, its role in procuring and distributing cryptographic materials and systems across Third Army streamlined the process and put the responsibility of this support function in the hands of a trusted and interested agent. On the other hand, the relative lack of integration of strategic intelligence support into the system represented one area where support functions were not well integrated. Similarly, the lack of an organic relationship between the Signal Service companies, the 118th RI Company, and the SIS represented another way in which support functions were not entirely integrated.

The creation of the AIS represented a remarkable alignment between operational concepts and available technology. Third Army planned to offset shortfalls in communications and information technology with liaison and human initiative. The AIS's primary function would be to bridge the communications and information processing gap, speeding information to the army commander, and facilitating situational awareness and rapid decision making. Third Army's unique adaptation of the SIAM construct was a tacit acknowledgment of the limitations placed on Third Army by technology and a strategy to overcome an intermittently connected and bandwidth-limited environment.

Finally, and perhaps most importantly, Third Army's information forces were extraordinarily mobile and flexible because they were built upon a cavalry group and expeditionary RI company. They were innately organizationally flexible because that was

how Colonel Fickett and others had designed them.[204] Third Army's information forces entered combat with established systems and processes but recognized that virtually all constructs were subject to change based on conditions in France. Patton, Colonel Fickett, and others intuitively understood that the nature of the conflict in France would change based not only on mission requirements but on how the Germans reacted. The only way for Third Army to gain and retain an advantage was to build formations that could adapt to such changing conditions.

The sweeping changes to how Third Army managed information over only a few months, and the resulting increase in effectiveness, were not the result of random chance. At numerous points during the preceding months, inertia, institutional biases, and other obstacles threatened to impede progress. It was only Patton and his coalition's urgency, the presence of feedback loops, and the work of a diverse set of experts that made the changes in Third Army possible.

Patton's vision for information advantage created organizational urgency and drove adaptation in Third Army over the spring and summer of 1944. Patton certainly positioned himself as an agent of change, writing before entering the theater that "new ideas are what are winning this war."[205] Patton described his vision for combat in France and clearly articulated how information advantage could help achieve this. He also identified performance gaps and identified how by having "each man do his job," Third Army could reach its end state. Notably, he engaged the hearts of Third Army soldiers as

---

[204] Williams as told to Anderson, "Third Army Reconnaissance," 21.

[205] Blumenson, *The Patton Papers*, 30-31.

well as their minds. He created a small "privy council" of those who shared his vision and employed them aggressively to help drive change. These senior staff officers further extended the coalition, drawing in subordinate leaders like Colonel Fickett and Major Flint, empowering them as change agents. Critically, Patton never lost touch with the progress he was trying to achieve in Third Army. At vital points, Patton and his coalition intervened to overcome resistance to the new concepts and organizations.

From the outset, Patton built a Third Army culture that emphasized performance feedback and the maximization of efficiency above all else. Patton recognized the potential for senior staff and commanders to become insulated from the actual performance of units. Consequently, even before Third Army deployed to France, Patton established informal feedback loops by encouraging staff at the Army and Corps level to visit front-line units to gather feedback. These interactions created bonds of trust and facilitated the bottom-up flow of information. In addition to these informal structures, Third Army possessed well-developed and purpose-built mechanisms for feedback. The decision to dispatch one of the SIS Lieutenants to visit the British "J" Service headquarters to gather lessons learned about information service performance is an illustrative example. Finally, Third Army showed a willingness to experiment with new concepts, collect performance data, and adjust. The AIS, for instance, was built specifically to be flexible, assuming that, pending the results of battlefield experiments with the construct, the organization would undergo alterations to maximize performance.

Perhaps the most critical factor contributing to the dynamism within Third Army in the spring and summer of 1944 was its diverse expertise. The combination of the original Third Army staff with Patton's Seventh Army veterans created a new third staff

that was forward-looking, flexible, and willing to experiment. Regular army officers with years of experience in the peacetime Army served alongside "civilian" officers with only a few years of military service. Original Third Army staff brought with them the experience of observing, coaching, and training numerous units in the US. The formerly-Seventh Army senior staff brought with them hard-earned combat experience in North Africa and Sicily.

At the unit level, the SIS and 118th RI Company represented the United States' diversity and talent. Recruited from across the country for their unique language and radio operations skills, these organizations brought together diverse perspectives, backgrounds, and talents as part of an adaptive organization. The primarily "civilian" SIS worked closely to train and equip the mainly regular army 6th Cavalry Group, helping transform the group into an information service. The cavalrymen themselves were unique in that Colonel Fickett had prioritized radio proficiency. The creation of such a singular and well-adapted organization as the AIS can in part be explained by the combination of the diverse expertise of Major Flint and his civilian signaleers in the SIS and Colonel Fickett and his radio-trained regular army cavalrymen in the 6th Cavalry Group.

When Third Army became operational on 1 August, it did so with a clear vision of how it wanted to fight and a clear conception of how information advantage could make that possible. Over the summer, Third Army made great strides in integrating its capabilities as part of information forces. Third Army likewise aligned its support functions to enable the generation of information advantage. Concepts were consistent with available technology, and forces and processes were flexible enough to adjust to realities on the continent. The culture Patton and his coalition built in the spring of 1944

enabled Third Army to digest lessons learned by Allied Forces in Europe and develop new and innovative solutions to the problems it expected to face in France. Thus, when Third Army embarked for the Cotentin peninsula in July 1944, it was ready to rock the Germans back on their heels and adjust to whatever came next.

CHAPTER 5

INFORMATION ADVANTAGE IN ACTION: AUGUST 1944

> Remember, men, you don't know I'm here. . . . I'm not supposed to be commanding this Army, I'm not supposed even to be in England. The first bastards to find out will be the Goddamn Germans. I want them to look up and howl, "ACH, IT'S THE GODDAMN THIRD ARMY AND THAT SON-OF-A-BITCH PATTON AGAIN!"
>
> —Lieutenant General George S. Patton Jr., *The Patton Papers*

Exploiting Cobra

When Third Army activated at 1200 on 1 August 1944, it had already effectively been in operation for a week. In no small way, First Army's breakout in Operation Cobra was due to Patton's leadership and Major General Middleton's VIII Corps. The days and weeks following 1 August would demonstrate the effectiveness of Patton's information advantage approach. August would also witness how Patton's urgent demand for efficiency, the robust feedback mechanisms in Third Army, and the diverse expertise across all echelons enabled rapid adaptation to the conditions on the continent.

Operation Cobra began on 25 July with the limited objective of breaking through German lines and seizing the town of Coutances. First Army's plan tasked VIII Corps with fixing German elements to the west while VII Corps attacked from north-east to south-west towards Coutances. At General Bradley's direction, Middleton's VIII Corps led with its infantry divisions and made little progress against the Germans north of Coutances. Though he had no official role with First Army, Patton convinced General Bradley and Middleton to lead with the 4th Armored Division under Major General John

Wood and 6th Armored Division under Major General Robert Grow.[206] While VII Corps fixed elements of the German 7th Army, VIII Corps punched through the German left flank past the initial Cobra limit of advance, Coutances, and towards Avranches, a key node on the routes running south out of the peninsula. Because Third Army remained inactive, on 28 July, General Bradley appointed Patton as Deputy Commander of First Army responsible for VIII Corps. The corps would pass to Third Army control once Third Army was activated.[207] By 1 August, VIII Corps had seized Avranches and was moving south. General Bradley viewed Avranches as the endpoint of the operation and the staging ground for subsequent operations, which would systematically reduce German positions in Brittany to the West after a pause to reorganize and plan.[208] On the other hand, Patton viewed Avranches as the jumping-off point for a grander exploitation to the East.

Sensing the opportunity to exploit the breakthrough on the Cotentin peninsula and turn the battle for France into a more extensive pursuit, Patton decided to push both XV and XX Corps, 200,000 men and 40,000 vehicles, in column through the narrow corridor at Avranches. This decision risked both corps being destroyed in detail if the German 7th Army recognized what was occurring and rapidly oriented on Third Army's exposed flank. At Patton's direction, upon arriving in France in July, Third Army placed a significant premium on security to conceal its presence. Telephone security was a high

---

[206] James Kelly Morningstar, *Patton's Way: A Radical Theory of War* (Annapolis, MD: Naval Institute Press, 2017), 185.

[207] Ibid., 187.

[208] Ibid., 177.

priority, and total radio silence was enforced.[209] When Third Army, callsign "Lucky," went operational on 1 August, it lifted the radio silence restrictions, but the emphasis on denying the enemy insight into Third Army operations remained. Thus, while the operation entailed risk, Third Army possessed an initial advantage.

Even unopposed and undetected, pushing so many elements through such a small "straw" risked delays, and each delay provided the Germans' decision-making cycle an opportunity to catch up. Furthermore, elements passing through the corridor needed to emerge as combined arms formations ready to continue the exploitation. General Bradley noted that this movement was "flat impossible . . . but out the other end of the straw came divisions, intact and ready to fight."[210] It is highly likely that the AIS provided Patton with the situational awareness and assured communications he needed to manage this "impossible" movement effectively. Even before Third Army and the AIS went operational on 1 August, AIS officers had visited First Army units to observe and orient themselves with operations in France. By 1 August, the AIS had already positioned its information detachments with their assigned Divisions.[211] Thus, probably in part due to the work of AIS, during this high-risk movement, Patton had a significantly better understanding of his environment than the German 7th Army. This understanding, in turn, allowed him to take prudent risks. He also possessed uninterrupted decision-making processes and a secure way to communicate his decisions to his subordinates. This

---

[209] Third United States Army, *After Action Report: Volume I, The Operations*, 18.

[210] Morningstar, *Patton's Way*, 193.

[211] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 12.

capability and his excellent relationship with his staff, particularly Generals Gaffey and Gay, enabled him to make rapid decisions, move two corps through the narrow corridor, maintain the initiative, and continue generating information advantage over his enemy.[212]

By 5 August Third Army's aggressive maneuver had disorganized German forces across Third Army's area of operations, and the only organized German defense existed near St. Malo.[213] VIII Corps' 4th Armored Division proceeded towards Vannes at the mouth of the Quiberon Bay, threatening to cut Brittany off from the rest of France. 6th Armored Division spearheaded VIII Corps' moved toward Brest. XV Corps' 90th Infantry Division secured Mayenne, 79th Division concentrated near Laval, and 5th Armored Division prepared to cross the Mayenne River near Chateau Gontier.[214] XX Corps' 5th and 35th Infantry Divisions and 2d French Armored Division positioned themselves to cross the Selune River near Vitre, securing crossings over the Mayenne river between Chateau Gontier and the Loire River. From there, XX Corps was poised to sweep east, protecting the southern flank of Third Army.[215] By itself Third Army was now presenting the Germans with multiple dilemmas, threatening Brittany with isolation,

---

[212] John Nelson Rickard, *Patton at Bay: The Lorraine Campaign, 1944* (Lincoln, NE: Potomac Books, 2004), 11.

[213] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 29.

[214] Ibid.

[215] Headquarters XX Corps, *The Campaigns of Normandy and France XX Corps Operational Report 1 August–1 September 1944* (Headquarters XX Corps, 12 November 1945), 7, accessed 16 February 2021, http://xxcorps.org/files/aug_sept_aars.pdf.

the envelopment of forces in Normandy, the seizure of Paris, and a drive to the unprotected German border.[216]

Particularly characteristic of Patton's operations during August was his continued involvement in military deception to achieve economy of force. In the first days of August, Third Army took part in Tactical Operation B, a military deception operation to convince the Germans that the main allied axis of advance was towards Brittany. German double agents working for the XX Committee provided false reports to the Abwehr, and elements of the 23rd Special Troops presented the signature of additional Third Army units moving into Brittany.[217] While Tactical Operation B was a SHAEF plan rather than a Third Army plan, Patton's continued involvement in military deception operations throughout 1944 is noteworthy. At a minimum, it is clear from Third Army's participation in Operation Fortitude, Tactical Operation B, and further examples later in the year that Patton saw the utility of deception as a way to achieve economy of force.

Gaining the Initiative: Ultra

Patton's information advantage approach was remarkably effective in the first few days of August. Communications security, the continued deception regarding Patton's fictional First US Army Group, Third Army's superior situational awareness, and adequate intelligence combined with the rapidity of its advance through the Avranches corridor left the Germans at a substantial information disadvantage. OB West

---

[216] Morningstar, *Patton's Way*, 181.

[217] Jonathan Gawne, *Ghosts of the ETO: American Tactical Deception Units in the European Theater* (Havertown, PA: Casemate, 2002), 309.

Commander, Field Marshal Von Kluge, and his staff were almost entirely ignorant of Third Army's activities and how large a force Patton had moved through the Avranches corridor. The German 7th Army only gained its first real insight into Third Army's operations and its efforts to exploit the breakthrough on 5 August when they began receiving reports of 90th Division at Mayenne, 70th Division at Laval, and mechanized cavalry elements near the Loire. The shock of Third Army's rapid advance and uncertainty regarding its reach further impacted German morale.[218] Patton's information advantage approach was beginning to come together. Yet, to this point, Patton had not known what the enemy would do and done it first. Third Army still was not well and truly inside the German decision-making cycle. The missing component to Patton's information advantage approach was special intelligence. This all began to change between 6 and 8 August.

Starting on 20 July, Third Army began receiving Ultra traffic via the British Special Liaison Unit collocated with Third Army Headquarters.[219] The British Special Liaison Unit provided these messages to Major, later Lieutenant Colonel Melvin C. Helfers, the Third Army Special Intelligence Officer whose responsibility was to provide Top Secret Ultra briefs to the Commander and cleared staff. Major Helfers was unique among the Special Intelligence Officers within the 12th Army Group. He was proficient in German, a Regular Army Infantry officer, and a 1937 graduate of the Citadel.[220] In

[218] Morningstar, *Patton's Way*, 199.

[219] Helfers, *My Personal Experience with High Level Intelligence*, 6.

[220] Ibid., 1.

contrast, most Special Intelligence Officers were "civilian" officers, primarily lawyers, and almost none came from a combat arms background.[221] Initially, Colonel Koch and Patton put little stock in Ultra, and Major Helfers only provided information to Patton and the other cleared staff (General Gaffey, Colonel Harkins, Colonel Maddox, and Colonel Allen) indirectly via Colonel Koch.[222] Colonel Koch himself admitted that this skepticism of Ultra in early August was due to the poor experience that he and Patton had with British intelligence and specifically with the British Special Liaison troops in Africa and Sicily.[223]

On the night of 6 August, Major Helfers provided Patton and Colonel Koch with Ultra intercepts from the first week of August indicating that Hitler had ordered all armored units withdrawn from around Caen and assembled in a designated area to set up an attack Mortain. Hitler's plan called for German forces in Normandy to seize Mortain, cut the one American supply route from Normandy to Northern France at Avranches, and destroy all allied forces south of the Mortain-Avranches area. Third Army Headquarters at the time was south of Mortain.[224] Patton initially believed the veracity of Helfer's Ultra information but assessed that it described a bluff to cover a more significant withdrawal.[225] Nevertheless, in response to the warning, Patton did halt the 80th Infantry

---

[221] Helfers, *My Personal Experience with High Level Intelligence*, 10.

[222] Ibid., 6-7.

[223] Ibid., 8.

[224] Ibid.

[225] Patton, *War as I Knew It*, 102.

Division, French 2nd Armored Division, and the 35th Infantry Division in the vicinity of St. Hilaire, where they could contain a German breakout towards Avranches if the attack materialized.[226] Patton's information advantage, in this case, enabled him to assess German intent, anticipate subsequent decisions, and place forces where they would be in a position to act on the enemy.

On 7 August, Field Marshal von Kluge launched a counterattack toward Avranches, spearheaded by the XLVII Panzer Corps, commanded by General Funck. As the Ultra intercepts indicated, this counterattack's purpose was to cut the lines of communication between the Cotentin peninsula and Brittany, splitting Third Army from First Army and permitting the subsequent destruction of the Third Army's twelve divisions located south of Avranches.[227] Three Panzer divisions formed the initial echelon of the counterattack force, pushing westward from the Mortain area toward an initial objective along the Brecey-St. Hilaire road. A second echelon consisting of the 1st SS Panzer Division would exploit the anticipated breakthrough and capture Avranches.[228] First Army's VII Corps, particularly the 30th Infantry Division, bore the brunt of this attack, blunting the German drive toward Mortain.[229]

Armed with the understanding of where Field Marshal von Kluge had massed German armor, Patton was able to direct XV Corps under Major General Haislip to

---

[226] Blumenson, *The Patton Papers*, 503.

[227] Blumenson, *Breakout and Pursuit*, 457.

[228] Ibid., 461.

[229] Peter R. Mansoor, *The GI Offensive In Europe: The Triumph of American Infantry Divisions, 1941-1945* (Lawrence, KS: University Press of Kansas, 1999), 169.

proceed southeast along the German flank toward Le Mans. On 9 August, he ordered XV Corps to change its axis of advance from west-east to attack south-north to capture Alencon.[230] With the attack towards Avranches defeated by First Army, XV Corps' hook to the north imperiled the German salient near Mortain. Threatened with encirclement, on 13 to 14 August, the German XLVII Panzer Corps began attempting to extricate itself from the closing Falaise pocket. Unfortunately, the Allies would ultimately fail to seal the pocket and prevent the German 7th Army from escaping.

One of the reasons General Bradley provided for not extending XV Corps to Falaise and completely encircling the German 7th Army was his fear that XV Corps would be unable to contain "19 stampeding German Divisions."[231] Yet, the withdrawal forced the German elements to abandon their wire and telephone communications and rely primarily on radio communications, providing SIS and the 118th RI Company numerous opportunities to generate tactical signal intelligence, exploit the initial success and "keep the Germans rocking." On 14 August, with the Lucky forward command post and 118th RI Company near Le Mans, the 118th RI Company began intercepting numerous field code transmissions associated with armored formations. The 118th RI Company decrypted the communications, indicating that an armored unit was attempting to penetrate Third Army's enveloping lines. The 118th RI Company's direction finders

---

[230] Headquarters Seventh US Army, *XV Corps After Action Reports 31 July 1944–9 May 1945*, Combined Arms Research Library, World War II Operational Documents, 22 August 1945, 14, accessed 16 February 2021, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/4318/.

[231] Morningstar, *Patton's Way*, 206.

were able to provide the location of the formation.[232] In response, XV Corps blocked approximately 50 armored vehicles moving southeast from the Foret d'Ecouves, and over the next day, the 79th Infantry Division destroyed the remaining isolated German armor elements.[233] Strategic intelligence set the conditions for tactical success on the ground, subsequently creating conditions to exploit enemy information systems, resulting in further success.

Figure 10. 118th RI Company's "Able" Direction Finding Unit Setting up Direction Finding Equipment near Avranches, 6 August 1944

Source: John W. DeGrote, "The 118th Signal Radio Intelligence Company, 1942-1946, Third US Army, World War II," (Marshall Foundation Library and Archives, Lexington, VA), 56.

[232] DeGrote, "The 118th Signal Radio Intelligence Company," 64.

[233] Headquarters Seventh US Army, *XV Corps After Action Reports 31 July 1944–9 May 1945*, 16.

The success of the 118th RI Company occurred despite a significant setback just days before. On 9 August, during Third Army's effort to envelop the German 7th Army, the Company Commander, Captain Helland, and the motorpool Platoon Leader, Lieutenant Young, were seriously injured in a jeep accident and had to be evacuated to England.[234] The Intelligence Platoon Leader, Lieutenant Goulette, died in the same accident. First Lieutenant George Lieberberg, the company executive officer, took command, and First Lieutenant Frank Fischer became the Intelligence Platoon Leader. Much in the same way that the 6th Cavalry Group was able to overcome the loss of Colonel Fickett, the performance of the 118th RI Company did not suffer in the wake of Captain Helland's departure. The deep bench of diverse expertise across the signals intelligence community at the Army level almost certainly worked to mitigate the effects of losing three company leaders. Third Army's commitment to Patton and his vision also likely helped the company absorb the shock, reorganize, and continue its mission.

Over Patton's continued objections, XV Corps never was permitted to close the Argentan-Falaise gap. Similarly, when on 17 August, Patton recommended Third Army turn north-east and trap the German 7th Army west of the Seine, General Bradley refused. General Bradley remained focused more on gaining territory rather than staying inside the enemy decision-making cycle, keeping him off balance and unable to regain the initiative.[235] Only Patton recognized how information advantage is situationally dependent, often fleeting, and must be operationalized to gain and maintain the initiative

---

[234] DeGrote, "The 118th Signal Radio Intelligence Company," 58.

[235] Murray and Millet, *A War to Be Won,* 432.

and achieve operational outcomes. Ultimately over 50,000 men of the German 7th Army escaped the Falaise pocket.[236] Despite this failure, Third Army killed or captured over 135,000 German troops.[237] Colonel Allen attributed Third Army's success in the first weeks of August to the "effective functioning of command. Intelligence warned the commanders about the impending attack, and commanders acted promptly and aggressively to meet it."[238]

Third Army's successes in reversing and exploiting the German Mortain counterattack likely demonstrated to the staff the utility of integrating strategic and tactical capabilities to generate operational advantage. On 14 August, Third Army detached the 3254th SSC from XIII Corps in Brittany and reassigned the company as an Army asset.[239] This decision possibly reflected a growing appreciation for the role played by tactical signals intelligence in pursuit, and its lack of effectiveness against fixed targets with secure wire networks, like the garrisons at St. Malo and Brest in Brittany. Patton also obviously saw the utility of Ultra and how it fit with his information advantage approach. Patton informed Major Helfers directly that he wanted to have Ultra briefs every morning. If Helfers received any items of great importance, Patton or Brigadier General Gaffey was to be awakened at "any time day or night."[240] From then

---

[236] Mansoor, *The GI Offensive in Europe*, 172.

[237] Allen, *Lucky Forward*, 208.

[238] Ibid.

[239] SRH-228, 2:232.

[240] Helfers, *My Personal Experience with High Level Intelligence*, 8.

on, Patton rarely missed an Ultra brief, and in the event he was unable to attend, he saw to it that he received an update at some point throughout the day.[241] Patton was also unique in that he was the only numbered Army general who received his daily Ultra brief directly from his Special Intelligence Officer instead of having Ultra highlights briefed to him by his G-2 or another cleared staff officer.[242]

Soon Third Army was looking for ways to utilize Ultra intelligence even more aggressively than it had even been intended. The traffic volume and the demands for Ultra analysis and briefings meant that Major Helfers soon needed assistance. Accordingly, 12th Army Group dispatched Major Warrack Wallace to assist him from 16 August until the advance began to slow in mid-September.[243] While remaining security conscious,[244] starting in August and lasting for the remainder of the campaign, Third Army aggressively operationalized Ultra, often going beyond how other commands employed usually employed it.[245]

---

[241] Warrack Wallace, "Report on Assignment with Third United States Army 15 August–18 September 1944," File SRH-108, Records of the National Security Agency, National Archives and Records Administration, College Park, MD, 3. Hereafter referred to as SRH-108.

[242] Helfers, *My Personal Experience with High Level Intelligence*, 10.

[243] SRH-108, 1.

[244] Alfred McCormack, "Reports by U.S. Army ULTRA Representatives with Army Field Commands in the European Theatre of Operations," File SRH 023, Records of the National Security Agency, National Archives and Records Administration, College Park, MD, 26. Hereafter referred to as SRH-023.

[245] SRH-108, 3-4.

Major Wallace noted that Ultra "often is said to be primarily of strategic value and only useful tactically in a static situation. Perhaps its prime value is strategic, but Patton's use of Ultra in his historic drive across France is a fitting thesis for a tactical epic."[246] Patton's use of Ultra was unique in that he successfully operationalized strategic capabilities for tactical effects, thereby enabling operational-level maneuver. Where others may have seen the value of Ultra in indications and warnings, Patton saw the potential of Ultra to facilitate a greater understanding of the Germans across their entire operational depth. Instead of simply leveraging Ultra to prepare for German counterattacks or understand for the forces directly facing him, he used it to sequence his actions and weight his efforts to apply sustained pressure against places where the German Army was weakest. The awareness provided by Ultra allowed Patton to assume risk in guarding his flanks, and Patton himself remarked that Ultra "saved him the services of two divisions in the Third Army drive across France toward Germany in August and September."[247] If anything, 12th Army Group constrained Patton in his ability to operationalize Ultra to assume prudent risk and concentrate his forces on objectives. He continually engaged General Bradley about relieving 35th Infantry Division of its responsibility for covering the Army Group's Flank along the Loire, noting that he had "studied the 'black market' dope [almost certainly Ultra] intently and could see no hazards there [south of the Loire]."[248]

---

[246] SRH-108, 4.

[247] Helfers, *My Personal Experience with High Level Intelligence*, 10.

[248] Morningstar, *Patton's Way*, 219.

When asked for feedback on Ultra in early September, Patton and Colonel Koch noted that their only complaint with the Ultra system was that they wanted more information of general significance, not just strategic warning.[249] They saw the value of Ultra lying in how it contributed to their overall visualization of dynamics across the theater. Because Patton had insight into what the enemy was going to do, he could do it first. Maneuver then facilitated intelligence collection in a virtuous cycle, "since a retreating army must rely solely on radio communication, there was an abundance of German radio activity, and especially among the desired Panzer divisions."[250] Because he had a unique insight into enemy intentions, he could effectively assume greater risks with his flanks and strike harder and faster. He also had greater insight into his friendly force situation due to the AIS, and he could prevent the enemy from clawing back insight into Third Army thanks to the SIS's communications security work. Combined, he continued to generate a distinct information advantage over the enemy, staying inside the German decision cycle.

Third Army's ability to capitalize on Ultra operationally but not become overly reliant on it for warning is in no small part due to Patton's genius. He grasped how to gain an advantage by leveraging this unique capability. Yet, it took Major Helfers' unique skill set and talent to overcome the initial skepticism of Ultra in Third Army.[251] Helfer's expertise as both a regular army infantryman and a trained intelligence

---

[249] SRH-108, 6.

[250] DeGrote, "The 118th Signal Radio Intelligence Company," 59.

[251] SRH-108, 6.

professional helped him not only convince Third Army of the utility of Ultra but also integrate Ultra into Patton's information advantage approach. Contrary to his public persona, once convinced of its utility, Patton easily integrated Ultra into his information advantage concept. For him and Third Army, efficiency was what mattered above all else.

Integrating Additional Capabilities as Part of Information Advantage Activities

Third Army took additional steps to integrate its capabilities to conduct information advantage activities during the August pursuit. On 16 August, G-2 assumed responsibility for the Psychological Warfare branch and its coordinating role with the Psychological Warfare liaisons at the Corps level.[252] The branch was responsible for combat propaganda directed at enemy forces and "first phase consolidation work," or information operations directed at civilians. It operated a radio station, distributed friendly propaganda through various means, and monitored enemy propaganda radio.[253] Incorporating the branch into the G-2 was a significant departure from 12th Army Group and First Army, which retained their Psychological Warfare branches as part of a special staff section apart from the G-2.[254]

---

[252] Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, G-2* (Regenburg, Germany, May 1945), 15, Combined Arms Research Library, World War II Operational Documents.

[253] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-2*, 16.

[254] General Board of the United States Forces European Theater, "Study No. 131, Psychological Warfare," 20.

This change brought like functions together in ways that complimented one another and increased efficiency. All types of radio monitoring were now integrated under the joint control of the G-2 and SIS. Similarly, responsibility for the majority of Third Army's capabilities to attack enemy decision-making was consolidated under the same G-2 and SIS structure. Furthermore, the increased integration of SIS, G-2, and Psychological Warfare Branch brought the branch into closer contact with the AIS. The European Theater Board cited access to tactical information through information services like the AIS as "paramount importance" to the success of psychological operations.[255] The ability to attack and manipulate the enemy cognitively was only made possible through a deep understanding of enemy intentions provided through intelligence.

As Third Army remained on the offense, the number of captured enemy documents and cryptographic materials increased significantly. The SIS' captured materials photographic detachment exploited these materials and provided the 118th RI Company with insight into German codes and ciphers. The 118th RI Company, in turn, distributed this information to the Signal Service companies collecting at the front. By mid-August, the SIS delegated control of the captured materials photographic detachment directly to the 118th RI Company.[256] These adjustments allowed Third Army to attack enemy information and generate operational insights more efficiently.

Security requirements, arising from the nature of the high tempo fight in France, and the need for efficiency encouraged Third Army to further consolidate its

---

[255] General Board of the United States Forces European Theater, "Study No. 131, Psychological Warfare," 20.

[256] SRH-228, 2:21.

cryptographic and signal monitoring functions over the first 30 days on the continent as well. Third Army brought the SIS Code and Cipher section up to the Lucky Forward command post from the Rear command post to increase the efficiency of distributing cryptographic materials.[257] To ensure efficient and effective net monitoring within Third Army, SIS also tasked the 118th RI Company to coordinate monitoring between the Corps Signal Service companies.[258] Finally, on 23 August, SIS assumed responsibility for the Third Army Message Control Center; it was only responsible for the Code Room to that point.[259] US Army doctrine held that

> the purpose of the message center is to speed the transmission of authentic messages by:
>
> (1) Providing a designated point to which messages and messengers may be directed.
>
> (2) Keeping informed of the current effectiveness of each available means of signal communication.
>
> (3) Properly distributing message traffic to the available effective means of signal communication.
>
> (4) Eliminating unnecessary delays in transmission.
>
> (5) Operating an efficient messenger service."[260]

---

[257] SRH-228, 2:21.

[258] Ibid.

[259] Third United States Army, *After Action Report: Volume II, Staff Section Reports, Signal*, 9.

[260] US War Department, Field Manual 24-5, *Basic Field Manual: Signal Communication* (Washington, DC: Government Printing Office, 1942), 13, https://www.ibiblio.org/hyperwar/USA/ref/FM/PDFs/FM24-5.PDF.

By placing the Army Message Control Center under the SIS, Third Army aligned like functions to increase efficiency and execution speed. The SIS was now responsible for monitoring which enemy communications paths were open and which friendly ones were as well. It was responsible for assuring the security and rapid transmittal of priority friendly information while simultaneously exploiting enemy communications. Both functions enabled friendly decision-making by assuring the security of friendly decision-making processes and ensuring timely, relevant, and comprehensive information flowed to decision-makers. The SIS was also best postured to attack enemy decision-making processes, denying information to and deceiving the enemy by coordinating radio countermeasures throughout Third Army. With all these functions integrated under one organization, Patton had the speed of decision-making and speed of execution necessary to generate information advantage. This arrangement went further than other Armies in the European Theater of Operations, which for the most part only arranged for close collaboration between the Message Center and the cryptologic security team.[261] The unique decision to place the Message Control Center under the SIS arose from Patton's vision for information advantage and the dynamic military culture built in Third Army.

Adapting the AIS into an "Information Hunter"

The initial days of August challenged the nascent AIS. Unfamiliarity with the new radios and physical failures in some of the equipment made communications difficult.

[261] General Board of the United States Forces European Theater, "Study No. 111, Signal Corps Operations" (Report of the General Board United States Forces, European Theater, November 1945), 34, accessed 19 January 2021, https://carlcgsc.libguides.com /c.php?g=1005839.

Moreover, following the breakout at Avranches and the crumbling of German resistance after the Mortain offensive, the rapid exploitation increased the distance between Third Army units. At times motorcycle couriers, run by the AIS, were the only reliable means of communication with some divisions, particularly the 4th and 6th Armored Divisions speeding west through Brittany.[262] Furthermore, by 6 August, the requirement for information detachments had increased from thirteen to fifteen detachments. The increasing traffic from the detachments and the need to process even more traffic from two additional detachments threatened to overwhelm the minimally manned and equipped AIS headquarters.

By 15 August, less than two weeks following its initial breakout near Avranches, Third Army had advanced nearly 400 miles from Brest to the Seine River. It was responsible for the roughly north-south frontage from Argentan in Normandy to Orleans on the Loire.[263] Third Army had seized multiple positions along the Seine River and was threatening to encircle Paris, effectively making it impossible for the Germans to organize an effective defensive line. XX Corps' 8th Armored Division had reached Chartres southwest of Paris, forcing Hitler to reposition elements of Army Group G from the south to face Third Army. XII Corps had seized Orleans south of Paris, and XV Corps was advancing east of Dreux to the west of Paris. The variety of operations being conducted by mid-August also wildly varied. VIII Corps in Brittany was involved in reducing fixed positions. Elements of XII Corps were blocking the German 7th German

[262] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 15.

[263] Morningstar, *Patton's Way*, 210.

Army's escape from the Falaise pocket, while elements of XX Corps and XV Corps were driving east in a combination pursuit toward the Seine and toward the German frontier. The distances involved in Third Army's operations towards the middle to end of August put significant strain on the AIS' ability to communicate with its far-flung detachments. Communications across such distances were challenging to maintain, as the subordinate corps were too far for effective ground wave communication but too close for 24-hour sky wave communications.[264] Lucky Forward itself was also moving forward approximately every five days to keep up with the advance, further complicating communications.[265]

Thus, in mid-August, the AIS faced the challenge of supporting these expanding requirements, in a battlespace that itself was enlarging by the hour, given limited manpower and communications technology that had proven itself to be unreliable in the field. The utmost flexibility built into the AIS and the ingenuity of the cavalrymen of the 6th Cavalry Group made it possible to rapidly identify performance shortfalls and make adjustments to the experimental AIS system by mid-month. This flexibility allowed the AIS to better align its processes and organization with the realities of combat in France and Patton's requirements for information.

First, given the shortfalls in communication technology, the AIS developed new ways of getting the messages through. AIS radio personnel generally had three to four

---

[264] George Raynor Thompson and Dixie R. Harris, *The Signal Corps: The Outcome (Mid-1943 Through 1945)* (Washington, DC: US Army Center of Military History, 1991), 119.

[265] DeGrote, "The 118th Signal Radio Intelligence Company," 59.

years of radio experience, and the emphasis placed on communications proficiency by Colonel Fickett was invaluable to the AIS.[266] Yet, where radio communications were impossible, the AIS began running motorcycle messenger and courier services.[267] The AIS also stood up advanced signal centers wherever the distance between the Army and Corps command posts exceeded sixty miles. These centers relayed messages both by radio and courier and provided AIS headquarters with a central distribution point for information.[268] These changes were very successful, and in addition to passing information up to Army headquarters, the AIS also served to ensure lateral and downward communications and situational awareness. For example, the Third Army G-2 regularly used the AIS to pass intelligence information to lower echelons, noting that "when no other means was available, the AIS could get the information through."[269]

[266] Williams as told to Anderson, "Third Army Reconnaissance," 22.

[267] Ibid.

[268] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 15.

[269] Ibid., 13.

Figure 11. Army Information Service Motorcycle Messenger, 1944

Source: Robert W. Williams, "Moving Information: The Third Imperative," *ARMY* 25, no. 4 (April 1975): 20.

Second, to address the stress placed on the AIS headquarters by the increased number of detachments and ensure it could continue to maintain situational awareness, the AIS made several changes beginning on 15 August. The AIS changed its radio procedures to have divisional information detachments report to the supplementary detachments at corps. The corps level detachments would then assemble information and relay it to the AIS headquarters. The AIS decentralized operational control of the information detachments to the troop headquarters as well.[270] Finally, the AIS increased the number of personnel in the joint AIS-SIS operations van from one officer and one enlisted man to two officers and three enlisted men.[271]

[270] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 15.

[271] SRH-228, 2:22.

Third, by 15 August, the AIS abandoned friendly radio monitoring and retransmission entirely.[272] This change represented another significant break from the original SIAM concept. Already the AIS was quite different from other American SIAMs in that it did not conduct the communications security monitoring mission. From March on, security monitoring in Third Army had been the responsibility of the SIS. Standard British Phantom patrols and American SIAMs were built around the primary mission of monitoring and retransmitting information of value. Liaison was at most a secondary function. The AIS decision to discontinue the monitoring of friendly radio networks entirely and to focus exclusively on liaison was a major departure from the core SIAM concept. Part of the reason for this decision can be found in Patton's and other Third Army officers' conclusions in the European Theater of Operations General Board after the war. Patton chaired the board dealing with the question of SIAMs and "information services" and concluded that "information obtained by monitoring is incomplete and sometimes unreliable and must be confirmed by information obtained from other sources. Monitoring isn't a satisfactory means of obtaining tactical information."[273] By mid-August, analysis of performance feedback at the Army level enabled the AIS and Third Army to quickly recognize that monitoring was not producing useful information and was often misleading. Instead, they concluded that information gained directly from liaison,

---

[272] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 15.

[273] General Board of the United States Forces European Theater, "Study No. 18, Army Tactical Information Service" (Report of the General Board United States Forces, European Theater, November 1945), 2, accessed 19 January 2021, https://carlcgsc.libguides.com/c.php?g=1005839.

particularly with staff at the Division level, yielded the most reliable information with an acceptable time delay. Instead of being simply passive, the AIS saw this as an active process. Understanding Patton's information requirements at the Army level, AIS headquarters could direct the search for information at lower echelons and guide liaison and patrol activities.[274]

Confident in their analysis and seeking to maximize efficiency and improve performance, the AIS promptly reorganized its divisional information detachments. The AIS disbanded the monitoring sections and folded them into the patrol and liaison section, with some personnel reassigned to man the expanded corps level detachments.[275] Later they found even this was too large a presence at the division level. Towards the end of August, the AIS reorganized the divisional information detachments into standard reconnaissance platoons.[276]

These mid-month changes across Third Army served to extend its operational reach. Despite losing the 2d French Armored Division to participate in the liberation of Paris and orders to keep the 6th Armored Division in Brittany, Third Army was still able to seize crossings over the Seine on 21 August before the Germans could react. XII and XX Corps repulsed local German counterattacks against the Seine bridgehead at Sens, Montreau, and Melun, and Third Army proceeded to drive east towards the Metz area and

---

[274] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 15.

[275] Ibid.

[276] Williams as told to Anderson, "Third Army Reconnaissance," 21.

the still unmanned Siegfried line beyond.[277] In August's waning days, logistical shortfalls, not information shortfalls, began to hamper Third Army's pursuit to the German border. Despite receiving progressively less fuel, on 26 August, XII Corps' armored spearhead, the 4th Armored Division, reached Troyes, 80 miles southeast of Paris, overrunning the German defenders, and on 27 August, XX Corps captured Nogent.[278]

By 29 August, Third Army's gasoline shortage became acute, and the advance effectively stalled until 3 September. Third Army was now only 70 miles from the German border, having advanced over 700 miles in the past month.[279] This reduction in tempo progressively robbed Third Army of the initiative.[280] Without the sustained pressure, the German decision-making cycle began to "catch up." As Third Army slowed and then halted in late August, Third Army could not employ all its capabilities, and its ability to generate an advantage over the German Army decreased. In early September, German Army Group G had time to begin planning counterattacks that would buy additional time to man the Siegfried line. The delay further benefited the Germans as the weather started to deteriorate. Lorraine's terrain also was more disadvantageous to armor, and the autumn weather conditions less optimal for tactical air support. Thus, when Third Army's offensive operations resumed on 5 September, they faced an enemy over which

---

[277] Morningstar, *Patton's Way*, 213.

[278] Ibid., 211.

[279] Ibid., 224.

[280] Allen, *Lucky Forward*, 137.

they had substantially less physical and information advantage. Perhaps the one bit of good news for Third Army's information forces in early September was Colonel Fickett's return. Recovered from his injuries sustained in June, he reassumed command of 6th Cavalry Group and the AIS on 5 September, just in time to lead the organization during the difficult Lorraine campaign.[281]

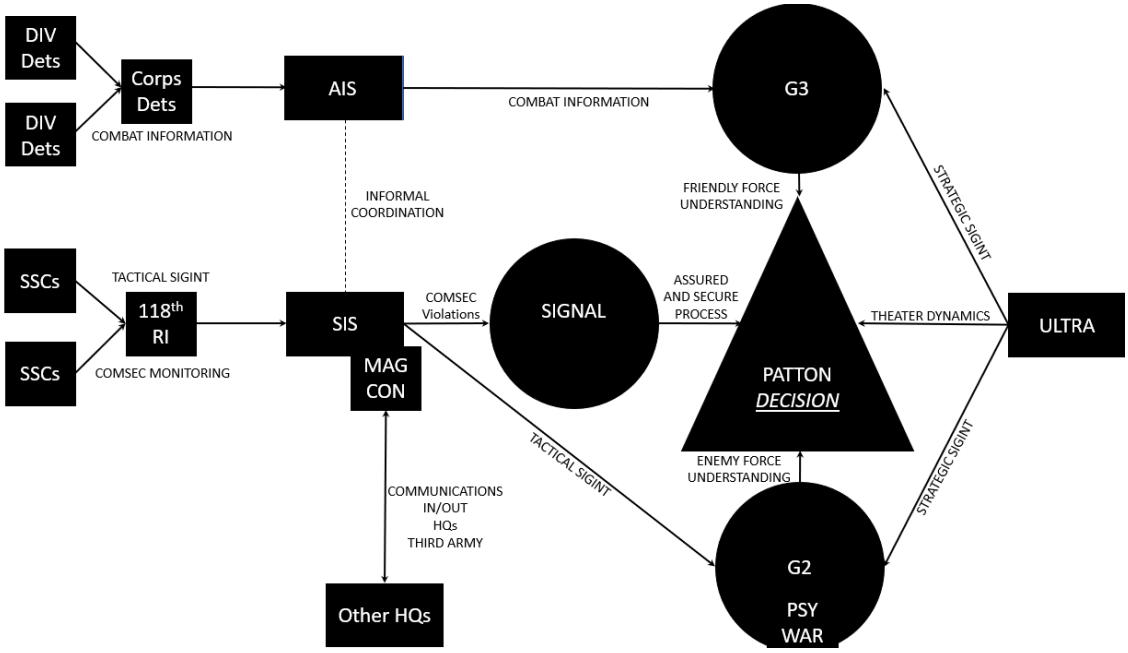

Figure 12. The Third Army Staff and Information Forces (late August 1944)

Source: Created by the Author.

Conclusion

Throughout August, Third Army adapted to align with Patton's information advantage approach and combat conditions in France. The integration of strategic

[281] Polk, *World War II Letters and Notes of Colonel James H. Polk*, 82.

intelligence, namely Ultra, enabled Third Army to know what the enemy was doing and "do it first." Third Army did not simply use Ultra for defensive warning, but offensively, allowing Patton to develop an operational approach that effectively balanced risk while maintaining his tempo. Maintaining the initiative forced dilemmas on the German 7th Army, resulting in the greater use of radio over wire transmission and new opportunities for Third Army to exploit German information.

The AIS adapted to enhance Third Army's situational understanding, moving away from simply monitoring information, to focus on acquiring information that could drive rapid decision-making. In August, the AIS adapted to become a "hunter" of information instead of simply a passive "gatherer" of information. Along with SIS, the AIS adapted to assure systems and processes for better decision making. For example, the AIS established new procedures to ensure information flowed from the front back to the Headquarters, and the SIS streamlined methods for ensuring information was secure from the enemy. Together these adaptations helped Third Army keep the "enemy rocking" and unable to get his "balance." Psychological operations and Third Army's aggressive pursuit allowed Third Army to exploit battlefield success and "mop them up," degrading German morale and encouraging surrender and desertion.

Third Army's adaptations were militarily effective because they aligned information resources within information forces, integrated supporting functions, ensured operational conceptional consistency with available technology, and emphasized organizational mobility and flexibility. Throughout August, Third Army took steps to integrate and synchronize its capabilities better. The SIS adapted to take on progressively more of the mission of protecting friendly information systems and processes. By

integrating the Message Control Center into its operations, the SIS gained responsibility not only for the physical encoding or encryption of information but the entire process of securing and delivering information to enable assured rapid and assured decision making by Third Army leaders. Third Army also adapted to integrate its efforts to attack enemy decision-making processes. By organizing the Psychological Operations branch under the G-2, Third Army better integrated psychological operations into the G-2, G-3, SIS, and AIS structure.

The continual use of maneuver to generate opportunities to exploit enemy information represents another kind of less formal capabilities integration. The insight provided by Ultra allowed Patton to achieve economy of force. Simultaneously, both aggressive offensive maneuver and military deception attacked German cognitive processes, resulting in the Germans' generally poor ability to mass combat power at points where they could have halted Third Army's advance. These information disadvantages compounded themselves. As the Germans continued to retreat, they were forced to abandon their secure communications and lost control of cryptographic materials, making their information systems and decision-making progressively more vulnerable to compromise and further disruption.

The changes in Third Army's operations in August also increased the integration of support functions into information advantage activities. First, the Psychological Warfare branch's integration aligned the branch directly with the support it needed to attack the enemy cognitively. The direct relationship with G-2 intelligence, radio monitoring from the SIS, and friendly force information from AIS enabled the Psychological Warfare branch to have more substantial success than it would have

otherwise. Second, the SIS's decision to bring the cryptographic logistics function forward from Lucky Rear improved the efficiency of Third Army's information assurance efforts. Finally, SIS's decision to organize the captured documents section directly under the 118th RI Company represented an efficient alignment of support. Placing the section under its authority reduced administrative overhead for the growing SIS while simultaneously aligning a support organization directly with its primary customer. These span of control decisions and others balanced the benefits of centralized control with the risk of overextension.

Throughout August, Third Army adapted to better align its approach to information advantage with available technology. Communication difficulties stemming from the limitations of the SCR-399 radio forced the AIS to develop alternate means to move information from the front to the Army commander rapidly. The establishment of messenger services and relays as backups for radio communications enabled the AIS to continue functioning even when other elements could not communicate. Third Army also recognized that a retreating German Army had the same communications difficulties, given that once forced from their pre-prepared positions and wire communications, they had to rely more on the less secure and reliable radio communications. This reliance on less secure communications opened new opportunities for Third Army to exploit German information further. Therefore, Third Army employed aggressive offense in the physical domain, opening access into enemy communications that would otherwise be inaccessible given the limitations of available intelligence collection technology. Third Army also updated its methods to take advantage of the sophistication of allied decryption capabilities. Whereas Patton's had a limited appreciation for Ultra before the

Mortain offensive, after the success of Ultra in the early days of August, he began to make extensive use of the Allies' technological advantage. In total, by the end of August, Third Army was better organized and conceptually oriented to exploit and offset the limitations of available information technology.

Throughout August, Third Army capitalized on the flexible and mobile organizational structures created during the preceding months. Lucky Forward, the AIS, and the SIS were continuously on the move during the race across France, and organizationally Third Army's information forces represented the definition of flexibility. After only one week in combat, Patton restructured Third Army's approach to Ultra. He and his staff displayed not only the intellectual flexibility to grasp new concepts and their potential, but the organizational flexibility to integrate this intelligence source in new and innovative ways.

After less than two weeks of combat, the Third Army analyzed combat performance and adjusted its experimental AIS construct, electing to entirely break with the established SIAM mission of radio monitoring to focus exclusively on directed liaison. The AIS, while in combat, also radically reorganized the composition of its detachments at the corps and division levels, added new detachments, reformed radio procedures, established radio and messenger relay stations, and altered the construct of its headquarters. Similarly, over the same two weeks, the G-2 section assumed responsibility for the Psychological Warfare branch, and within three weeks, the SIS took responsibility for the Army Message Control Center. These examples illustrate the flexibility of the Third Army staff and the creative ways they developed to integrate like functions and increase efficiency. Combat performance clearly shows that Third Army's information

forces became progressively more militarily effective over the month and contributed significantly to battlefield success during August's high tempo operations.

The rapidity of these changes and the marked increase in effectiveness they brought about was only possible because of the organizational urgency within Third Army, its robust feedback loops, and the work of diverse experts across the formation. Patton's vision for information advantage and his consistent desire for increased efficiency permeated Third Army. Patton believed that at the beginning of operations, not the end, "a group composed from the G-2 and G-3 should start the compilation of the After-Action Report."[282] Having established an open-minded and performance-oriented culture within Third Army in the preceding months, from the beginning of operations in France, Patton emphasized learning and continual improvement. Patton also overcame the remaining organizational resistance to some of the changes made in England. For instance, by early September, the members of the 6th Cavalry Group were committed to improving on and developing the AIS concept. The bottom-up refinement of the AIS concept strongly indicates that the members felt the urgency for change and understood the importance of the AIS's function. The 6th Cavalry Group would fight as a cavalry formation during the Battle of the Bulge. Still, almost all articles published by members of the 6th Cavalry Group after V-E Day focused on their time as part of the AIS in August and September.

The rapidity with which Third Army was able to adapt was only made possible by its robust feedback loops. The AIS, in particular employed well-developed measures of

[282] Patton, *War as I Knew It*, 364.

performance and effectiveness. In judging performance, they measured the speed of transmission or how fast they moved information from the front line to G-2 and G-3 operations rooms. They considered how accurate the information passed from various echelons to Army headquarters was. They examined how much information they were transmitting and how much they could not transmit due to lack of communications between the information detachments and AIS Headquarters. In measuring AIS operations' effectiveness, they examined to what degree information was driving decision-making and whether the AIS was gathering the right type of information. They also examined whether the AIS was feeding up and processing the correct information in time for it to be useful. The urgent drive for efficiency in Third Army propelled the AIS to seek improvement constantly. Patton was not one to change simply for change's sake. It was his personal belief that new commanders or commanders in new environments should "wait at least a week before they make any radical changes."[283] Yet, the employment of well-crafted evaluation metrics enabled the AIS to analyze performance gaps quickly and accurately. The expertise of the organization encouraged the development of feasible courses of action to correct the gaps. Specifically, according to the Third Army G-3 August After Action Report, "in organizing additional detachments, certain experiences of detachments already operating were taken into consideration."[284] Together, these factors enabled the AIS to adjust quickly and confidently while in combat to increase effectiveness, not simply react to performance shortfalls.

---

[283] Patton, *War as I Knew It*, 354.

[284] Third United States Army, *After Action Report: Volume II, Staff Section Reports, G-3*, 15.

Third Army required diverse expertise to judge performance feedback, analyze potential solutions, and generate militarily effective changes. The example of Major Helfers is illustrative of how an expert outsider's perspective was instrumental in facilitating change in operational concepts. As a career infantryman, filling a special intelligence role in an organization led by cavalrymen, he was ideally situated to challenge Third Army's perception of Ultra and ultimately help upend how Third Army utilized it at the operational level.

Third Army's diverse expertise can also explain the adaptation of the AIS. As one AIS member wrote after the war when describing the level of competence of the AIS personnel, "important and far-reaching decisions were made on what Sergeant Richard Roe or Private John Doe saw or heard and reported."[285] While obviously, this was useful in actual AIS operations, individual AIS members' competence had importance in adaptation. Third Army's willingness to accept bottom-up feedback from Colonel Fickett's expertly trained radio-operating enlisted cavalrymen enabled the dynamic changes in the AIS and higher military effectiveness of Third Army's information forces.

Throughout August, Third Army became progressively more effective at generating information advantage, enabling dramatic operational level success. Instead of just breaking through in Normandy, Third Army broke out, disintegrating German defenses and continually outpacing German attempts to establish new lines. Only logistical shortfalls, deteriorating weather conditions, and disagreements within the Allies prevented full exploitation, the destruction of the German 7th Army, and a push to the

[285] Williams as told to Anderson, "Third Army Reconnaissance," 22.

German border. Throughout, Third Army's information advantage approach enabled it to anticipate decisions, retain the initiative, manage risk, and extend its operational reach. This level of success can be ascribed to the unique military culture of Third Army, particularly its urgent approach to increasing efficiency, its well-established feedback loops, and its diverse expertise.

CHAPTER 6

CONCLUSIONS

> New ideas are what are winning this war.
> —Lieutenant General George S. Patton Jr., *The Patton Papers*

Introduction

Third Army succeeded in the breakout and pursuit across France because Patton succeeded in embedding a particular military culture that encouraged adaptation. Patton's leadership created a vision for information advantage and a sense of urgency within Third Army that compelled members on an emotional and intellectual level to seek improvement. Patton and his coalition set the tone within Third Army by creating robust formal and informal feedback loops and encouraging experimentation, self-criticism, and rigorous performance analysis. He also embraced diverse expertise, surrounding himself with diverse voices and promoting creative thought through constructive disagreement. This unique culture enabled Third Army to find new ways to integrate its capabilities and their supporting functions as part of information forces. It helped keep concepts in line with available technology and ensured that Third Army's information forces remained mobile and flexible. Third Army's military culture drove the process of adaptation, resulting in progressively higher military effectiveness and operational level information advantage in France, allowing Third Army to gain and maintain the initiative, anticipate decisions, and extend operational reach.

The historical case of Third Army demonstrates the relevance of the adaptation model to information forces, the criticality of urgency, feedback loops, and diverse expertise to driving adaptation, and the centrality of military culture to the effective

generation of operational-level information advantage. Despite the lack of direct physical contact with the enemy, the adaptation model remains applicable to information forces, assuming they possess the cultural attributes necessary to mitigate the attenuation of feedback. Urgency, defined as a vision for change combined with a perceived need for change, encourages information forces to overcome this attenuation by continually seeking ways to improve performance and align themselves with a future vision. Feedback loops, defined as an organizational emphasis on experimentation, self-criticism, intellectual honesty, well-crafted performance data collection measures, and rigorous analysis, also allow information forces to overcome the difficulty in assessing performance. Finally, diverse expertise, defined as an organizational emphasis on welcoming divergent backgrounds and perspectives, mitigates stagnation in information forces and promotes creative solutions to complex problems. Together these aspects of military culture are critical in increasing military effectiveness in information forces.

Military culture, therefore, largely determines an organization's ability to adapt to changed or changing circumstances in combat. As Peter Mansoor and Williamson Murray note, "explanations for the success or failures of militaries in both war and peace have traditionally focused on key factors such as technology, leadership, personnel, training, or a combination of all of these."[286] Yet, these factors on their own do not provide a complete explanation of military effectiveness or offer explanatory power for how organizations overcome inertia to adapt. This is not to say that technological advantage is irrelevant or that quantitative advantage in military materiel does not have a

[286] Peter and Murray, *The Culture of Military Organizations*, 17.

quality all its own. Similarly, it is impossible to divorce military effectiveness from the non-material factors such as training and leadership that dictate how proficient military organizations are in employing their material resources. Instead, the case of Third Army in 1944 suggests that military culture determines how well organizations respond to the challenge of change.

Given the pace of technological change in the 21st century, an adaptive military culture is even more relevant to maintaining military effectiveness. Trends suggest that technological innovation will continue to accelerate over the first half of the 21st century, and previously disparate human and material systems will converge with one another.[287] Rapid changes in technology and the convergence of existing technologies will create new and, in some cases, unforeseen challenges for military forces. These trends will continually challenge the ability of information forces to generate information advantage. Military technologies and concepts for organization and employment may become obsolete more quickly than they have in the past. Simultaneously, information forces may become progressively more critical to creating a window of superiority against an enemy.[288] Yet, as Mansoor and Murray note, "technology-centric forces must take care not to allow a culture focused on technological excellence to turn into one centered on

[287] United States Army Training and Doctrine Command (TRADOC), TRADOC Pamphlet 525-92, *The Operational Environment and the Changing Character of Warfare* (Fort Eustis, VA: TRADOC, 2019), 15.

[288] United States Army Training and Doctrine Command (TRADOC), TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations* (Fort Eustis, VA: TRADOC, 2018), C-10.

technological determinism."[289] Emphasis on the technical over the cultural promises to paradoxically leave organizations less capable of effectively leveraging emerging technology. Military culture in information forces will determine how quickly they can adapt to technological progress and the changes in the operational environment produced by convergence. Military culture will also primarily inform how effectively information forces respond to adversary adaptations. The experience of Third Army in 1944 suggests that information forces in the 21st century must possess a culture that emphasizes the pressing need for continual change and is self-critical, risk-tolerant, and willing to experiment. This culture must cultivate divergent and creative thinking by embracing and promoting diversity.

Urgency

Patton succeeded in driving adaptation within Third Army and generating information advantage by creating a sense of urgency. He accomplished this by articulating a vision for change, promulgating a vision for operational-level information advantage, and building a coalition dedicated to operationalizing his vision. By articulating a vision for change, commanders like Patton align themselves with the need for change and describe what they view as necessary for change to occur. The creation of urgency within information forces also requires a clear vision for how information advantage relates to overarching operational concepts. Finally, to operationalize the vision, the commander needs a coalition dedicated to it. Patton succeeded in visualizing

[289] Mansoor and Murray, *The Culture of Military Organizations*, 459.

and building a coalition and consequently created a strong sense of urgency within Third Army, thereby driving adaptation.

A Vision for Change

Patton's vision for change centered on creating a culture that encouraged flexibility and aggressive pursuit of efficiency. He aligned himself with change noting that, "new ideas are what are winning this war."[290] Yet Patton's vision for change was not simply a vision of technological superiority. While certainly open to new technology's promise, Patton placed human factors and military culture at the center. By articulating this vision, Patton also presented himself as a credible proponent for change.

The combat performance of Third Army in 1944 suggests that visions for change that focus on culture are critical to adaptation. Yet, Australian military thinker Michael Evans observes a dangerous tendency within modern Western military institutions to "view war through the narrow materialist lens of science and high-technology."[291] Technological change does alter the dynamics of combat, but cultural factors play a substantial role in how military organizations assimilate and employ technology. The effects of these cultural factors are rarely entirely straightforward. Strategic leaders must understand "complex cause-and-effect relationships and anticipate effects of their

[290] Blumenson, *The Patton Papers*, 30-31.

[291] Michael Evans, *The Role of Military History in the Education of Future Officers* (Canberra, Australia: Land Warfare Studies Center, July 1997), 5.

decisions throughout the organization."[292] Consequently, it is not enough for leaders to simply have a vision of technological progress. Patton's success in France suggests that operational-level leaders must develop and promulgate a vision for positive change that puts culture at the center.

A Vision for Operational Level Information Advantage

Patton also promulgated a vision for operational-level information advantage that complimented his approach to warfare. Patton's operational technique synthesized 1940's US Army doctrine with his philosophy that "speed was essential not only in the execution of a plan but also in its conception."[293] Patton's overarching approach emphasized mobility and continuous offensive action to attack the enemy where he was weakest. Patton visualized and articulated to Third Army how information advantage would allow him to outpace his enemy, enable mobility and continuous action.

Patton understood that it was impossible to possess perfect situational awareness or security. This belief reflected US Army doctrine at the time, which noted, "in campaign, exact conclusions concerning the enemy can seldom be drawn. To delay action in an emergency because of insufficient information shows a lack of energetic leadership and may result in lost opportunities."[294] Patton took this conclusion one step further,

---

[292] Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 6-22, *Army Leadership and the Profession* (Washington, DC: Government Publishing Directorate, July 2019), 10-8.

[293] John Nelson Rickard, *Advance and Destroy: Patton as Commander in the Bulge* (Lexington, KY: University Press of Kentucky, 2011), 5.

[294] US War Department, Field Manual 100-5 (1941), 26.

visualizing information advantage as a time-based competition for a fleeting relative advantage. Patton's methodology was decidedly opportunistic. His goal was to take his following action before the enemy could react to his first. This progressively made what the enemy saw and responded to less relevant to the actual situation. Patton could create further separation between himself and his enemy by attacking enemy decision-making processes, creating friction and delays. If Patton maintained the initiative, he could keep the enemy off balance and "rocking." If he could act faster and his decisions were more relevant to the current situation, he could maintain the initiative and exploit opportunities.

Patton's vision for information advantage reflected an understanding that information advantage is not a competition for objectively superior understanding but a competition to understand, decide, and act more quickly. Under ideal conditions, a commander's decisions should be informed by perfect understanding. However, "commanders realize that uncertainty and time preclude achieving perfect understanding before deciding and acting."[295] Patton did not need to have perfect situational awareness, perfect understanding of the operational environment, or perfect security for friendly information. Neither was it necessary for Third Army to be overwhelmingly successful in attacking enemy information, decision-making processes, or cognition. Patton's vision reflected his belief that what was required was superior speed in understanding, deciding, and acting. Third Army's experience suggests that a vision for information advantage

[295] Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces* (Washington, DC: Government Publishing Directorate, July 2019), 2-14.

should emphasize the speed and the time-based competition dynamic over objective measures of completeness of understanding or control.

Building a Coalition

To operationalize his vision, Patton created a coalition dedicated to change. Given the natural tendency within military organizations towards inertia, organizations must encourage active participation in the improvement project. Patton clearly understood this and created a culture that solicited subordinate leaders' commitment. At first, Patton's coalition consisted of senior staff brought over from Seventh Army, like General Gay, Colonel Koch, and others. The distinctive "Lucky" culture that Patton built encouraged others like Colonel Fickett, Lieutenant Colonel Helfers, and Major Flint to become proponents of change. Through these trusted agents, Patton overcame resistance to new concepts and convinced rank and file members to actively promote new ideas.

Feedback Loops

Third Army succeeded in generating operational-level information advantage because it built a culture that encouraged experimentation, self-critical and open analysis of past experiences, and the confident application of new solutions. Patton understood that the dynamics of war are constantly changing, so he encouraged problem-solving and active experimentation. Recognizing the difficulty of establishing clear cause-effect relationships in war, Patton encouraged Third Army to be open, self-critical, and deliberate in designing valuable metrics for measuring performance and effectiveness. Finally, armed with accurate analysis built on a solid understanding of the operational environment, Third Army encouraged the bold implementation of new solutions.

Patton understood that the operational environment is constantly in flux as military forces adapt to one another and the environment's conditions. Ever the student of history, Patton was undoubtedly familiar with Clausewitz's observation that commanders are challenged by "continual change [in war] and the need to respond to it."[296] The 1940's US Army doctrine echoed this sentiment noting that, "the situations that confront a commander in war are of infinite variety,"[297] and "changed conditions may call for a new decision at any time."[298] Moreover, Patton recognized that the conduct of war is suspended between human drives, and human participation changes not only the particulars of the war but the dynamics of combat itself as humans alter their methods to gain an advantage. Therefore, as ADP 6-0 asserts, war is "not a mechanical process that can be precisely controlled by machines, calculations, or processes."[299] Instead, organizations must continuously and honestly evaluate the environment as it changes and encourage experimentation and flexibility.

Encourage Experimentation

Third Army encouraged experimentation both while preparing to deploy in England and during the pursuit across France. Patton recognized that because the

---

[296] Carl von Clausewitz, *On War*, trans. Michael Howard, Peter Paret, and Bernard Brodie (Princeton, NJ: Princeton University Press, 1984), 147.

[297] US War Department, Field Manual 100-5 (1941), 24.

[298] US War Department, Field Manual 100-5, *Operations* (Washington, DC: Government Printing Office, 1944), 36, Combined Arms Research Library, Obsolete Military Manuals, accessed 14 April 2021, https://cgsc.contentdm.oclc.org /digital/collection/p4013coll9/id/973/rec/1.

[299] HQDA, ADP 6-0, 1-1.

problem was complex. The enemy was also changing and adjusting their methods to fight US forces in northern Europe. Therefore, simply gathering data about the situation was insufficient. Instead, he intuitively realized that it was necessary to experiment within and probe the system.[300] Thus he worked to create a culture that was willing to take certain risks and open to experimentation even in combat. Understanding that failure often accompanies learning, he tolerated failures that resulted in organizational learning and growth. He also demonstrated a willingness to take risks by deploying the untested experimental AIS construct directly into combat in August. Third Army's willingness to aggressively experiment, and potentially suffer setbacks, allowed it to identify ways to increase military effectiveness and generate information advantage.

Clearly Define Measures of Effectiveness and Performance

The pursuit of efficiency drove Patton to create a culture within Third Army that carefully examined performance. Human interaction places the operational environment in a constant state of flux. This dynamic makes "determining the relationship between cause and effect difficult and contributes to the friction and uncertainty inherent in military operations."[301] Third Army recognized the difficulty in establishing causality between information advantage activities and particular outcomes. Thus, Third Army's information forces, particularly the AIS, developed well-designed measures of

---

[300] David Snowden and Mary Boone, "A Leader's Framework for Decision Making," *Harvard Business Review* (November 2007): 5, accessed 14 January 2021, https://hbr.org/2007/11/a-leaders-framework-for-decision-making.

[301] Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Publishing Directorate, July 2019), 1-2.

performance and effectiveness. Patton also stressed the importance of conducting reviews continuously, as opposed to at the end of operations.

Consequently, The AIS created and continually refined its measures of evaluation. These measures went beyond the easily or superficially quantifiable to examine how well the AIS was enabling decision-making. Throughout the August pursuit, the AIS consistently measured how much information they were moving and whether that information contributed to enhanced decision-making. This self-critical examination led them to question the value of and ultimately abandon the traditionally central SIAM function of radio-monitoring.

Adaptable organizations like Third Army possess a culture devoted to accomplishing core mission sets and are not beholden to particular forms or functions. A culture that emphasizes openness and self-criticism allows organizations to objectively and systematically analyze performance data. It also encourages such an organization to continuously review measures of performance and effectiveness to ensure they remain relevant and are capturing useful performance feedback. Finally, such a culture enables organizations to confront organizational shortfalls and examine core organizational functions honestly. Ultimately, it allows organizations to determine whether or not previously established methods remain applicable to changed conditions.

Aggressively Implement Changes

Third Army succeeded in operationalizing its new concepts because it did not hesitate to implement changes aggressively. The AIS cut its monitoring mission, restructured its communications pathways, and reorganized its information detachments across multiple echelons within two weeks of beginning combat operations. The SIS

assumed responsibility for the entire Third Army Message Control Center within three weeks. Third Army did not make these decisions blindly or prematurely but based on a clear evaluation of combat performance derived from experimentation and robust data collection. These and other decisions incorporated the advice and careful consideration of diverse experts. Confident in its analysis, Third Army wasted no time in adjusting. This flexibility made Third Army's information forces more suitable for the environmental conditions and enabled them to generate information advantage consistently.

Diverse Expertise

Third Army succeeded in encouraging positive adaptation because Patton built a culture that welcomed individuals with diverse backgrounds, promoted an interdisciplinary approach to problem-solving, and incorporated the perspectives of non-"career-army" soldiers. Third Army's experience suggests that information forces are most successful when they actively promote diverse perspectives. The incorporation of diverse expertise fosters creative friction allowing organizations to develop innovative solutions to complex problem sets.

Diversity and Inclusion

For its time, Patton's Third Army was a diverse organization, and its information forces included a substantial number of new immigrants to the United States. These new immigrants not only brought with them useful cultural and language competencies but different perspectives. The inclusion of these men and their diverse perspectives facilitated creative problem-solving. In keeping with Army practices, Third Army did not incorporate women, people of color, or other minority groups. Yet, the Third Army

experience in 1944 suggests that successful information forces promote diversity and inclusion. Research strongly suggests that cultural, gender, and geographic diversity are strongly correlated with innovation.[302] Studies have shown that "both inherent (e.g., race, gender) and acquired (experience, cultural background)—is associated with business success."[303] To derive the maximum benefits from diverse backgrounds, organizations must embrace and see the value of diverse viewpoints. Research indicates that if leaders recognize that "debate and unfamiliarity that come with diversity is an important catalyst for creativity and deep thinking, they will invite it and celebrate it. And very likely, the organization and everyone in it will reap the rewards."[304] Consequently, it follows that future information forces must place a premium on recruiting talented members across the spectrum of gender, racial, ethnic, and cultural backgrounds. They must also ensure that the organization's culture promotes diverse viewpoints and the accompanying "creative friction."

Interdisciplinary Approach

Patton's Third Army approached problem-solving from an interdisciplinary perspective. When developing his information advantage approach, Patton encouraged the wide-ranging participation of experts from various professional backgrounds. For example, Major Flint, who led the SIS expansion and collaborated in the AIS

[302] Rock and Grant, "Why Diverse Teams are Smarter," 3.

[303] Rock, Grant, and Grey, "Diverse Teams Feel Less Comfortable–and That's Why They Perform Better."

[304] Ibid.

development, was a former enlisted signal soldier. His collaborators in adapting the 6th Cavalry Group into an information service were Colonel Fickett and Major Stewart, career Cavalry officers. They brought very different competencies and perspectives to the problem and together generated an unorthodox but remarkably successful solution.

Similarly, Major Helfers, the Third Army Ultra representative, was an Infantry officer-turned intelligence professional assigned to a staff led primarily by current or former cavalrymen. His outside perspective challenged norms and encouraged creative thought within Third Army. Finally, and most importantly, Patton created his Third Army staff from pieces of his old Seventh Army staff and the original Third Army staff. One staff had experience in large-scale combat operations in the Mediterranean. The other excelled at managing large organizations over wide areas. They brought different perspectives and competencies to the question of how to generate information advantage. They proved to be more successful together than either would have been separate.

Third Army's experience suggests that information forces must employ an interdisciplinary approach to problem-solving and develop organizational processes and a culture that incorporates experts from various fields. This includes incorporating individuals outside the traditional science, technology, and mathematics fields. Third Army's experience also suggests the value of incorporating military personnel from branches not traditionally associated with intelligence or information. The example of Major Helfers shows that service members "will need to be able to maneuver effectively

between communities while still maintaining upward mobility."[305] The creation of such career paths will encourage an interdisciplinary approach within information forces.

Non-Career Army Perspectives

Third Army drew upon the experience of both career Army as well as "civilian" officers. The vast majority of Third Army, even its Army-level staff, consisted of non-career Army soldiers. These soldiers brought with them perspectives gained from their civilian employment. They also were relatively unbound by traditional Army orthodoxy. What they lacked in experience, they made up for in dedication to the national project of victory over Fascism. Third Army excelled at bringing out the best in its "civilians" by integrating them with professional soldiers. Primarily "civilian" signal soldiers advised and trained the professional 6th Cavalry as it transitioned to an information role. 118th Radio Intercept Company owed its ingenuity as much to De Vry Technical School as it did to Army Signal Corps training. Together non-professional and career-Army soldiers complimented one another and delivered information advantage for Third Army.

Third Army's experience suggests the value of incorporating those with expertise outside the Army to promote creative approaches to information advantage. Creating systems to encourage interaction between short-term soldiers and careerists in such a way that equally values the input of both could spur adaptation. Exploring ways to design multi-component formations could have a similar effect. To generate information advantage in the future, organizations will need the diverse expertise inherent in

[305] William R. Gery, SeYoung Lee, and Jacob Ninas, "Information Warfare in an Information Age," *Joint Force Quarterly* 85 (2nd Quarter 2017): 29.

professional soldiers, reservists, and the civilian workforce. Creating a culture that welcomes the input of all and promotes synergy between them is critical to encouraging adaptation.

Enduring Implications

Third Army's performance suggests that successful military forces leverage the human element and carefully weigh span of control considerations in conducting information advantage activities. Improvements in information technology open new possibilities to generate information advantage, but the placement of humans at important positions is often critical. Integrating functions within organizations requires similarly thoughtful consideration of the span of control. As technology, the environment, and missions change, how these considerations apply also changes. Concerns of how to leverage the human factor and balance span of control changed even throughout the campaign in northern Europe. Encouraging flexibility allows organizations to determine how best to leverage the human element and maintain the balance needed to integrate capabilities without becoming too unwieldy or immobile to function in combat.

The Human Element

While the direct applicability of an information service modeled on Third Army's AIS is limited, there are some particular enduring lessons about the importance of the "human element" in generating information advantage. After World War II, the US Army abandoned the information service concept, primarily due to improvements in command-and-control systems. Yet even in the early Cold War, some officers examined the implication of trends such as enhanced mobility of ground forces, greater dispersion of

units, and the effects of new weapons. They concluded that these trends could make an information service necessary once more.[306] The AIS adapted to become an active information hunter in France. Understanding Patton's information requirements and possessing a streamlined method for acquiring and relaying information, the AIS always kept the Army commander up to date with the relevant and timely information necessary for decision-making. It also ensured that adjacent units had a shared situational understanding, permitting decentralized execution of a common approach. In communications degraded, intermittently connected, or low-bandwidth environments, commanders will struggle to acquire information that allows them to make informed decisions rapidly. Similarly, actual or potential compromise of information systems can cause commanders to lose confidence in their information or the integrity of their decision-making processes at critical moments in combat. Like Patton's AIS in 1944, the human element can mitigate some of this difficulty and enhance commanders' decision-making capabilities.

Span of Control in Coordinating Information Advantage Activities

Third Army experimented with organizing information forces and staff elements to ensure speed and efficiency in conducting information advantage activities. Third Army consolidated like functions within organizations as much as possible to ensure close coordination and rapid execution of decisions. Yet this was balanced by an appreciation for the risk of overextension in organizations with broad spans of control.

[306] Eisenhower, "The Army Tactical Information Services," 36.

The SIS gradually expanded from March to August 1944 as Third Army aligned additional responsibilities under it. In March, the SIS primarily concentrated on its core functions of exploiting enemy communications and ensuring communications security through radio monitoring and the provision of codes, ciphers, and cryptologic equipment. As early as May, though, the role expanded to include military deception in the electromagnetic spectrum and emissions control. It also took on an expanded information assurance mission assuming responsibility for additional counterintelligence and physical security functions. The SIS' responsibility for attacking enemy information systems grew as well when it began managing the exploitation of captured enemy cryptologic materials. In August Third Army placed the Army Message Control Center and all army messenger services under the SIS' control. This decision effectively made the SIS overall responsible for assuring Third Army's decision-making systems and processes. SIS monitored the friendly communications network to secure it from compromise. Simultaneously, it leveraged its situational awareness of the state of the network, and responsibility for maintaining portions of it, to speed the transmission of priority messages. The synergy between the SIS's security and network management functions enhanced Third Army's decision-making.

Similarly, its efforts to enable decision-making and protect friendly information complemented its efforts to attack enemy decision-making. The SIS was centrally positioned to balance emissions control requirements and electromagnetic deception, with the need to ensure information was flowing within Third Army. The SIS was well postured to advise Third Army on creating a misleading picture of its disposition through radio countermeasures while simultaneously ensuring situational understanding, the

transmission of priority messages, and speedy and assured decision making and execution. These new roles gave SIS the responsibility for deconflicting electromagnetic deception, electronic attack, and friendly spectrum use. Third Army progressively aligned like functions to increase the speed and efficiency of decision making and the speed of execution. By creating an organization to manage many like functions, Third Army increased reliability and efficiency and generated information advantage.

As the span of control increases at some point, organizations tend to become unwieldy and lose mobility. Consequently, organizations must balance the benefits of integration and centralized control with the necessity of dividing responsibilities across organizations and echelons to ensure efficiency and flexibility. For example, even though the SIS continued to expand, it remained subordinate to the Signal Section. Although a high degree of cooperation with the G-2 did exist, they did not combine all the various functions under one organization.[307] Consequently, the Psychological Warfare branch never came under the SIS' control, even though they did coordinate closely as well. Similarly, while the AIS and SIS performed complementary functions, were often collocated, and cooperated extensively, the AIS remained under the control of the G-3 and had no formal relationship with the SIS.

In addition to dividing responsibilities among organizations, Third Army also divided responsibility by echelon. Third Army experimented with where different functions needed to lie at echelon but tended to retain particular limited-resource support and security functions at the Army level. For example, the SIS managed the significant

[307] United States Third Army, *After Action Report: Volume II, Staff Section Reports, G-2*, 57.

logistic burden of obtaining and distributing cryptologic materials on behalf of the Corps. It also was responsible for communications-related physical security and counterintelligence. It also delegated responsibility for exploiting captured enemy cryptologic materials to the RI Company. Exquisite capabilities or ones that required extensive coordination, such as radio countermeasures, also remained Army-level responsibilities. Yet, Third Army federated responsibility for security monitoring and collection and analysis across the corps and Army. There is no indication that SIS or Third Army, in general, attempted to centrally control or coordinate all military deception efforts across the Army, with tactical deception again being under the purview of divisions and corps. Third Army correctly recognized that managing certain functions would outstrip the tactical corps' capabilities and that attempting to control certain functions at the Army level would decrease efficiency and flexibility. The number of changes in how the Third Army organized its information forces and approached information advantage activities suggests that it successfully balanced these requirements because it was open to experimentation and adaptation.

Conclusion

Between March when it stood up and August when it reached eastern France, Third Army dramatically altered how it fought. In just over 100 days, it designed, fielded, deployed, and redesigned an AIS to enable decision-making. Over 31 days in combat, it realigned its capabilities to protect friendly information and attack enemy decision-making. These rapid changes and the resultant increase in military effectiveness were only possible because of the culture that Patton formed in just 163 days in mid-1944.

Patton created a culture in Third Army that encouraged urgency, robust feedback loops, and diverse expertise. Patton created a vision for information advantage that inspired urgency and encouraged members of Third Army to innovate. Patton promulgated a vision for information advantage that conceptualized it as a time-based competition. His emphasis on robust feedback mechanisms and diverse expertise encouraged self-criticism and creative thought within Third Army. This allowed individuals like Colonel Fickett and Major Flint to develop new methods that improved Third Army's information forces' military effectiveness. Together Patton's coalition succeeded in aligning capabilities and support functions to enhance decision-making, protect friendly information, and deny the enemy the use of information. They ensured concepts were consistent with available technology while simultaneously maintaining flexibility and mobility. Overall, this culture enabled Third Army to adapt, generate information advantage, and achieve operational success.

Third Army's experience shows military culture is the primary driver of military effectiveness. Culture determines how successful military organizations are in leveraging available technology. It also determines how well organizations weather change. Given that the operational environment is constantly in flux and technological progress is constant, military organizations' success in generating information advantage is determined mainly by their culture. Patton's Third Army shows that organizations that encourage urgency, establish robust feedback loops, and embrace diverse expertise are more likely to generate operational-level information advantage, gain the initiative, anticipate decisions, and extend operational reach.

APPENDIX A

INFORMATION ADVANTAGE AND COMBINED ARMS WARFARE

> You musicians of Mars . . . must come into the concert at the proper place and at the proper time.
>
> —Lieutenant General George S. Patton Jr., *The Patton Papers*

Introduction

Though US Army doctrine has evolved dramatically since 1944, Patton's methodology and Third Army's campaign in France continue to influence US Army thinking. Patton's influence in the US Army continued even after his death, with many of his Third Army subordinates like General Creighton Abrams going on to hold senior positions in the US Army during the 1950s and '60s. In addition, many of his subordinates, like Colonel, later Brigadier General, Koch published memoirs that explained Patton's warfighting approach. Consequently, Patton's thinking certainly impacted the maturation of US Army concepts related to the operational art and combined arms warfare in the decades after World War II. Furthermore, his approach to information and method for getting inside an enemy's decision-making cycle foreshadowed the development of information operations concepts. Thus, Patton not only influenced current warfighting concepts but continues to have relevance for the development of information advantage concepts today.

This Appendix explores certain 21st century concepts related to information advantage and the operational art. First, this Appendix attempts to define information advantage and explores operational level information advantage in conflict. It then describes information advantage activities and how they provide an "intent-based"

approach to generating information advantage. Finally, this Appendix concludes with a brief description of military effective information forces and their contribution to combined arms warfare. While this Appendix is focused on present-day warfighting concepts, the subtle influence of Patton is apparent. Similarly, the example of Third Army in 1944 remains relevant to developing new organizing concepts related to information advantage.

Defining Information Advantage

While the concept of information advantage itself encompasses multiple other concepts, possessing information advantage enables a commander to open and rapidly exploit windows of superiority. Specifically, information advantage represents "a condition when a force holds the initiative in terms of relevant actor behavior, situational understanding, and decision making."[308] Information advantage contributes to a commander's ability to understand his environment, make an accurate and timely decision and then execute that decision with assurance. Generating information advantage is a competitive activity because possessing information advantage allows one side to disadvantage the other. In military decision-making, time is often the limiting factor. Consequently, while some information-related advantages can be persistent, in most cases, information advantage is fleeting, representing a window of opportunity that must be exploited to have a lasting effect. Thus, information advantage can be conceptualized in terms of a time-based competition. Still, actions to generate information advantage are dependent on the situation because information advantage is

[308] ARCYBER, "Operational Art for an Information Age Army," 6.

related to the types of advantage sought, the relevant actors, and the operational environment.

To better understand the nuance of information advantage, Dr. Christopher Paul lays out a framework that explores the military definitions of "information" and "advantage." Information is "the content and data that individuals, groups, and information systems communicate and exchange, as well as the human and technical processes used to exchange information."[309] Still, beyond this simple definition, information in a military context has multiple meanings. According to Paul, it can represent situational awareness or a general understanding of friendly elements, adversary elements, and the operating environment. It can also represent the ability to command and control forces and encompasses factors such as electronic warfare that can degrade command and control and situational awareness.[310]

Paul's definition of information also includes aspects of the operational environment that can "cause subordinates to behave in ways contrary to a commander's preferences."[311] This contrary behavior can be due to misunderstanding between the commander and subordinates resulting from a breakdown in common situational awareness. It can also be due to different perceptions of the environment stemming from divergent personalities of the commander and subordinate. This phenomenon is directly related to the concept of "information for effect" or "efforts to affect behavior." By

[309] ARCYBER, "Operational Art for an Information Age Army," 6.

[310] Paul, "Understanding and Defining Information Advantage," 117.

[311] Ibid., 117.

providing the enemy with information, one can influence their perceptions leading them to behave in a desirable way. Theoretically, understanding differences between enemy commanders and subordinates could allow one to provide information that would lead the subordinate to act contrary to the desires of the superior. Finally, "information" can represent efforts to affect behaviors more broadly, influencing not just an adversary but the behaviors of relevant actors across the operational environment.[312]

The term "advantage" also has multiple meanings. First, Paul notes that advantage, implying superiority of some kind, is a means to some end, not an end in and of itself. It can only be conceptualized in relation to the desired effects.[313] Second, advantages can be persistent or fleeting, with persistent advantage representing an advantage in capability or capacity and a fleeting advantage representing one in time, position, or "surprise."[314] Finally, advantages can also be "unknown" or known," with one having to activate an unknown advantage to derive benefit from it but simply needing to display or present a known advantage to benefit.[315]

Information advantage is situational and relative to the different requirements at the different levels of war. Consequently, activities to generate information advantage differ in their specifics at different levels of war and across the conflict continuum. For instance, in competition, adversaries attempt to exploit political vulnerabilities within the

---

[312] Paul, "Understanding and Defining Information Advantage," 118.

[313] Ibid., 118.

[314] Ibid., 113.

[315] Ibid., 114.

US and its allies creating friction, and eroding resolve.[316] The adversary then exploits this lack of cohesion to achieve operational objectives. To prevent this, the Joint Force influences foreign audiences and informs domestic audiences while denying the enemy the use of information. This preserves cohesion and denies the adversary the starting conditions necessary to commence hostilities with a reasonable certainty of success, thus deterring him. Clearly, this is quite different from the approaches that would need to be taken in conflict.

In all contexts, though, generating information advantage is an inherently competitive activity because information advantage enables one side to act in beneficial ways at the other's expense. Generating information advantage is not a competition for objectively perfect understanding or complete control. Instead, it is a competition to sense, understand, decide, and act relatively more quickly than the adversary in ways that better reflect the reality of the operational environment. The UK Ministry of Defense further notes forces gain information advantage only through "continuous, adaptive, decisive, and resilient employment.[317] Thus, the simple possession of an advantage does not necessarily translate into a change in the operational environment. Instead, generating information advantage is a continuous process to achieve relative superiority and facilitate action.

---

[316] TRADOC, TRADOC Pamphlet 525-3-1, iv.

[317] United Kingdom Ministry of Defense, Joint Concept Note 2/18, *IA.*(London, U.K.: Ministry of Defense, 2018), 21.

Operational Level Information Advantage in Conflict

Given that information advantage is relative to the desired ends, information advantage at the operational level differs from information advantage at the tactical or strategic level. Information advantage in combat also differs from information advantage in competition. At the operational level in conflict, possessing information advantage enables commanders to gain and maintain the initiative, extend operational reach, and anticipate decisions while balancing risk. At the beginning of an operation, possessing information advantage enables the Joint force to create false perceptions causing the adversary to place his forces in a position of relative disadvantage.[318] Information advantage then enables the Joint force to penetrate the enemy's long-range systems by degrading elements of enemy combat power such as command and control or intelligence.[319] Information advantage also allows the commander to maintain the initiative and expand the penetration by disrupting the enemy's effective employment of maneuver formations before they can interdict friendly forces.[320]

[318] James J. Mingus and Chris N. Reichart, "Future Large-Scale Combat Operations (LSCO) Implications for Information Operations," in *Perceptions are Reality: Historical Case Studies of Information Operations in Large Scale Combat Operations,* ed. Mark D. Vertuli and Bradley S. Loudon (Fort Leavenworth, KS: Army University Press, 2018), 177.

[319] JCS, JP 5-0, IV-34.

[320] Wilson A. Shoffner and Christopher D. Compton, "The Future of Fires: Dominating in Large Scale Combat Operations," in *Lethal and Non-Lethal Fires: Historical Case Studies of Converging Cross-Domain Fires in Large-Scale Combat Operations,* ed. Thomas G. Bradbeer (Fort Leavenworth, KS: Army University Press, 2018), 208.

After penetrating the enemy standoff, information advantage extends the Joint force's operational reach, the distance and duration across which the force can successfully employ military capabilities.[321] Enemy capabilities, geography, or other environmental conditions serve to constrain operational reach. Possessing information advantage can mitigate the tyranny of distance, extend the effects of friendly action in both time and space, and defeat enemy attempts to desynchronize friendly action. Information advantage allows the commander to apply power against enemy sources of strength simultaneously and in depth, disintegrating enemy combat power.

Information advantage also allows commanders at the operational level to anticipate decisions, continuously "forcing the enemy or adversary to react rather than initiate."[322] The cumulative effect of continuous anticipation and denial of information to the enemy causes the enemy to lag further behind in their reaction to events. As a result, enemy decisions become progressively less militarily effective from engagement to engagement. This enables the commander to exploit the penetration and disintegration of enemy systems and achieve operational and strategic objectives.[323]

Across all phases of a campaign, information advantage enables the commander to link actions more efficiently in time and space while balancing risk. Information advantage allows the Joint force to gain the initiative, extend operational reach, and continuously anticipate decisions. Relatively superior understanding and enhanced

---

[321] JCS, JP 5-0, IV-34.

[322] Ibid., IV-40.

[323] TRADOC, TRADOC Pamphlet 525-3-1, 42.

decision-making capabilities enable the Joint force to sense, understand, decide, and act faster and with greater assurance than the enemy.

Information Advantage Activities: An Intent-Based Approach

All military activities produce information and impact the human and information dimensions,[324] but commanders rely primarily upon certain capabilities traditionally defined as "information related capabilities" to generate information advantage. Information related capabilities represent the "tools, techniques, or activities employed within a dimension of the information environment that can be used to create effects and operationally desirable conditions."[325] Some of these capabilities include cyberspace operations, electronic warfare, military deception, operations security, information operations, and public affairs. The successful generation of information advantage requires a conceptual framework for the employment of these capabilities that links them to capabilities not traditionally conceptualized as information related capabilities like lethal fires or maneuver.

Information advantage activities represent such a framework and can be defined as the "employment of capabilities to support decision making, protect friendly information, and affect relevant actor perceptions, attitudes, and behaviors to gain and maintain information advantage."[326] There are five broad information advantage activities that include:

---

[324] ARCYBER, *Information Advantage: Expanded White Paper*, 3-1.

[325] HQDA, ATP 3-13.1, 3-2.

[326] United States Cyber Command, "Information in Joint Operations," 28.

1. Enable Decision Making: Enhance understanding of human and information dimensions; assure systems and processes for decision making.
2. Protect Friendly Information: Identify secure obscure and defend friendly information and information systems from compromise or attack.
3. Inform and Educate Domestic Audiences: Provide timely factual information about U.S. Joint, Army and Combined operations to domestic audiences.
4. Inform and Influence Foreign Audiences: Assure allied partner and neutral audiences and influence non-domestic perceptions and behaviors.
5. Deny Use of Information: attack adversary elements of combat power and defend friendly use of information against adversary information attack capabilities.[327]

Information advantage activities are not simply the employment of a capability at a discrete place or time to have a single effect. Instead, they are ongoing processes that integrate multiple capabilities with a specific intent to generate a marked operational advantage over the enemy. Approaching information advantage from an activities or intent-based perspective rather than a capabilities perspective emphasizes the importance of integrated efforts to achieve effects rather than applying specific means. This approach recognizes the need to organize the employment of these capabilities in such a way as to create mutually supporting effects that offset weakness and take full advantage of opportunities. It also underscores the importance of synchronizing the employment of all available military resources, not just applying individual capabilities at discrete places and times.

[327] United States Cyber Command, "Information in Joint Operations," 29.

Information Forces

Given that generating operational level information advantage in conflict is a time-based competitive activity, the Joint force requires organizations that can integrate capabilities and synchronize their employment. Information forces integrate and synchronize these capabilities most efficiently and sustain the Joint force's capacity to generate information advantage across the entirety of a campaign. Information forces consist of the planners and integrators of information advantage activities; elements possessing certain specific capabilities that primarily participate in information advantage activities as part of their core mission; and portions of the intelligence apparatus dedicated to supporting information advantage activities.[328]

Information forces combine multiple capabilities allowing them to engage as a whole to produce a specific effect. By fighting as a cohesive whole, information forces can make the transient effects of capabilities like electronic attack more permanent by converging them with cyber, intelligence, and other capabilities.[329] Information forces are also best postured to integrate into combined arms formations, converging their capabilities with maneuver and firepower to force multiple dilemmas on the enemy. The planning and integrating expertise resident in information forces also enable formations to synchronize disparate capabilities and reliably generate information advantage throughout a campaign. The ability of information forces to fight as a cohesive whole

---

[328] Author's definition adapted from Paul and Schwille, "The Evolution of Special Operations as a Model for Information Forces," 8.

[329] David M. Rodriguez, "The Influence of Electronic Warfare on Operational Maneuver" (Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 1989), 10.

also makes it substantially easier to synchronize their efforts as part of a combined arms approach.

Information forces integrate specialized and robust support functions to sustain their ability to maintain contact with the enemy across his operational depth and overwhelm his decision-making cycle while protecting friendly information. Over the course of even a brief campaign, the enemy will attempt to change his methods and address performance shortfalls. Therefore, capabilities employed at a conflict's beginning will likely be less effective or perhaps even ineffective at the end of a conflict. Dedicated and responsive support structures tailored to their particular needs enable information forces allow them to regenerate capabilities and sustain their efforts against an adaptive enemy.

Much like the fires community, militarily effective information forces are maximally interoperable with Joint, Interagency, and Multi-national partners.[330] Information forces at the operational level have a close working relationship with the intelligence community and the ability to operationalize information gained under intelligence authorities quickly. Information forces are also designed to work with and leverage the platforms, accesses, or capabilities of Multi-national partners. Finally, militarily effective information forces are also delegated the relevant authorities to seize the initiative and exploit opportunities. Tailored authorities are delegated to information

[330] Shoffner and Compton, "The Future of Fires: Dominating in Large Scale Combat Operations," 207.

forces at the lowest appropriate echelon,[331] and coordination mechanisms are streamlined to ensure that information forces can rapidly employ existing and new capabilities.

All told, information forces are a critical component of the Joint force's effort to reliably generate information advantage and win the time-based competition for superior decision-making. Information forces efficiently integrate information related capabilities, enabling them to fight as a whole. They also synchronize information-related capabilities with other military capabilities as part of a combined arms approach. In addition, information forces possess the tailored support structures necessary to sustain information advantage activities for the duration of a campaign. Effective information forces are also purpose-built to be effortlessly interoperable with Joint, Interagency, and Multi-national partners. As Patton noted in 1941, "team play wins. You musicians of Mars…must come into the concert at the proper place and at the proper time."[332] Information forces are the newest addition to the musicians of Mars.

[331] TRADOC, TRADOC Pamphlet 525-3-1, 18.

[332] Blumenson, *The Patton Papers,* 40.

APPENDIX B

THIRD ARMY ORGANIZATION CHARTS

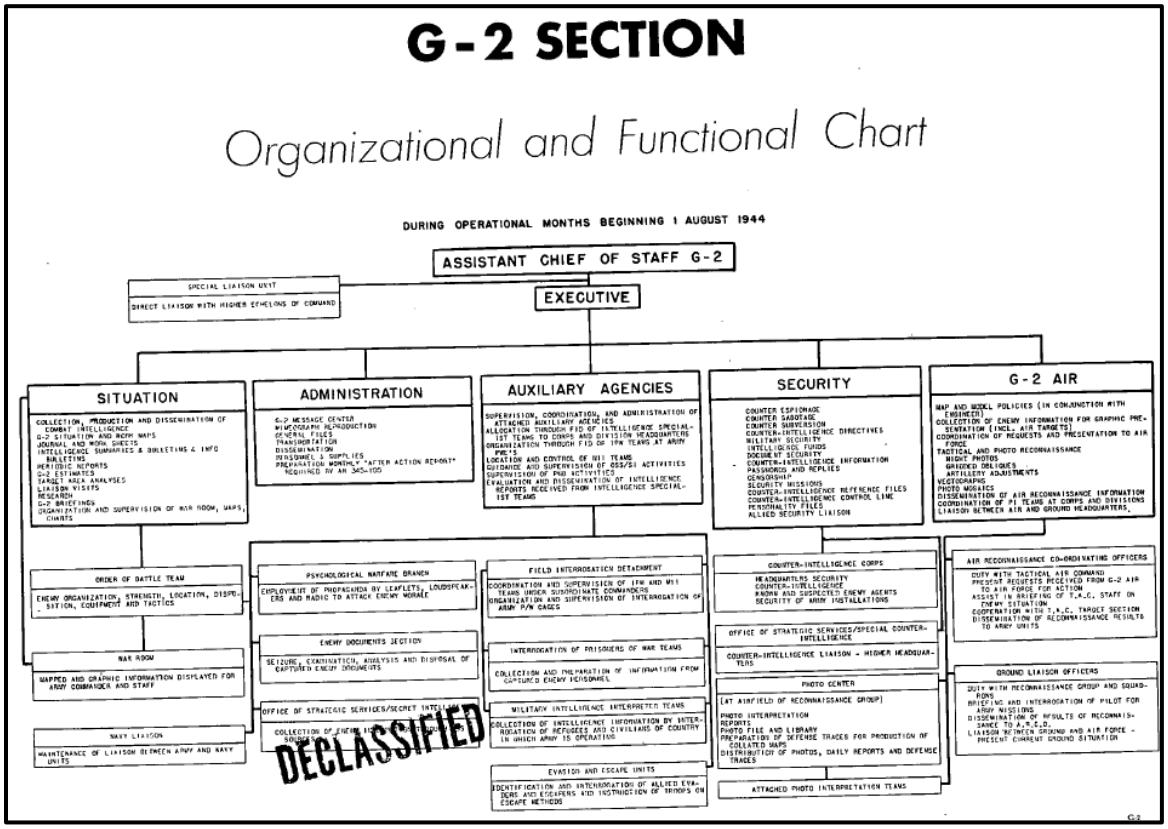

Figure 13. Third Army G-2 Section Organizational and Functional Chart

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, G-2* (Regenburg, Germany, May 1945), 4, Combined Arms Research Library, World War II Operational Documents.

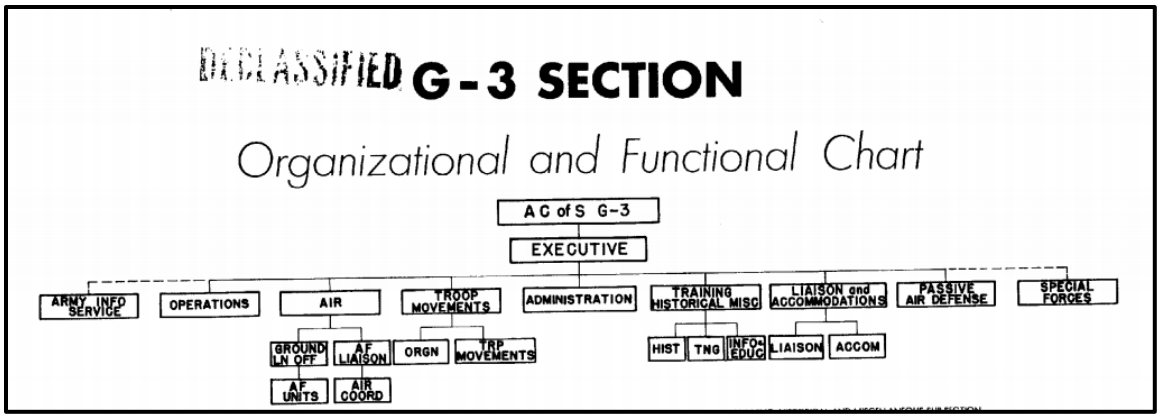

Figure 14. Third Army G-3 Section Organizational and Functional Chart

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, G-3* (Regenburg, Germany, May 1945), 4, Combined Arms Research Library, World War II Operational Documents.

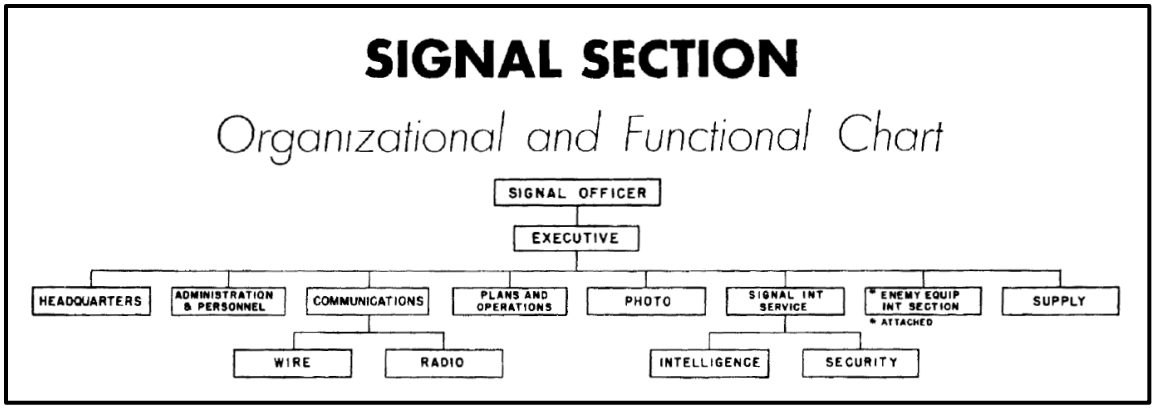

Figure 15. Third Army Signal Section Organizational and Functional Chart

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Signal* (Regenburg, Germany, May 1945), 4, Combined Arms Research Library, World War II Operational Documents.

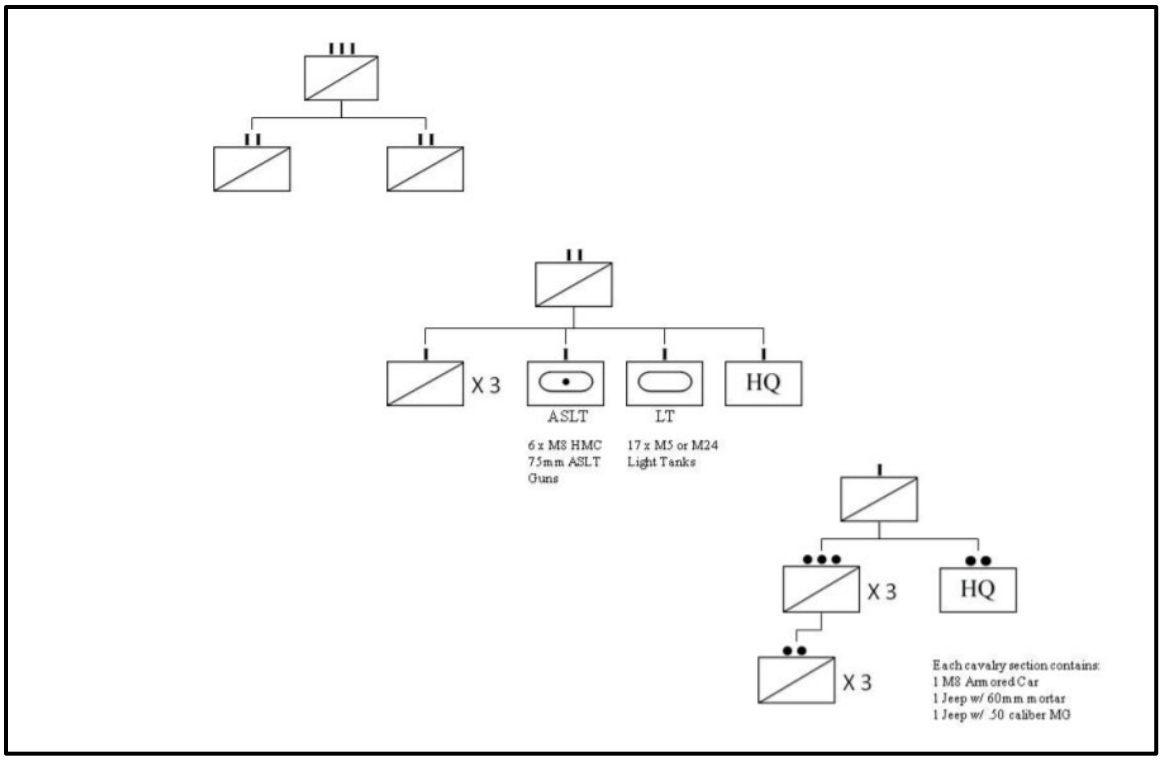

Figure 16. Standard Organization of a US Army Mechanized Cavalry Group 1944

Source: William Stuart Nance, "Patton's Iron Cavalry–The Impact of Mechanized Cavalry on Third Army" (Master of Arts Thesis, University of North Texas, Denton, TX, May 2011), 27.

APPENDIX C

REFERENCE MAPS

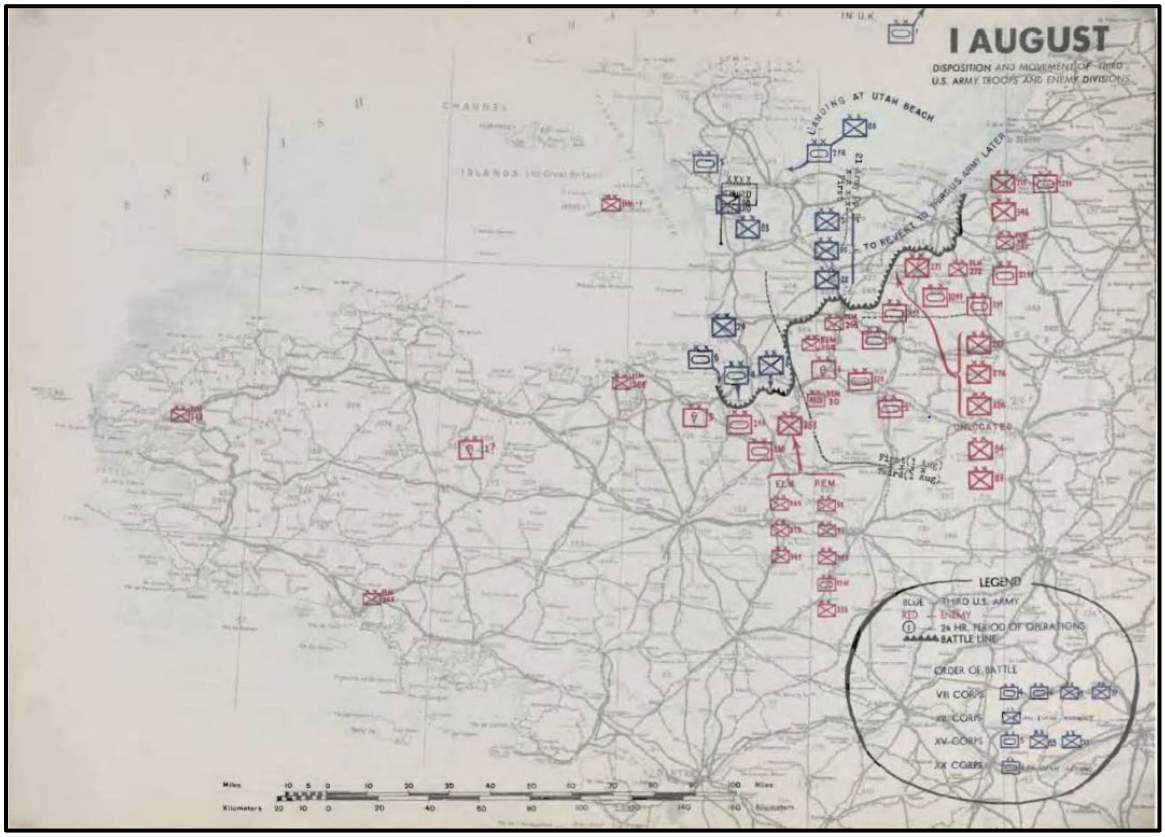

Figure 17. 1 August 1944: Disposition of Third Army and German Forces

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 25, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212.

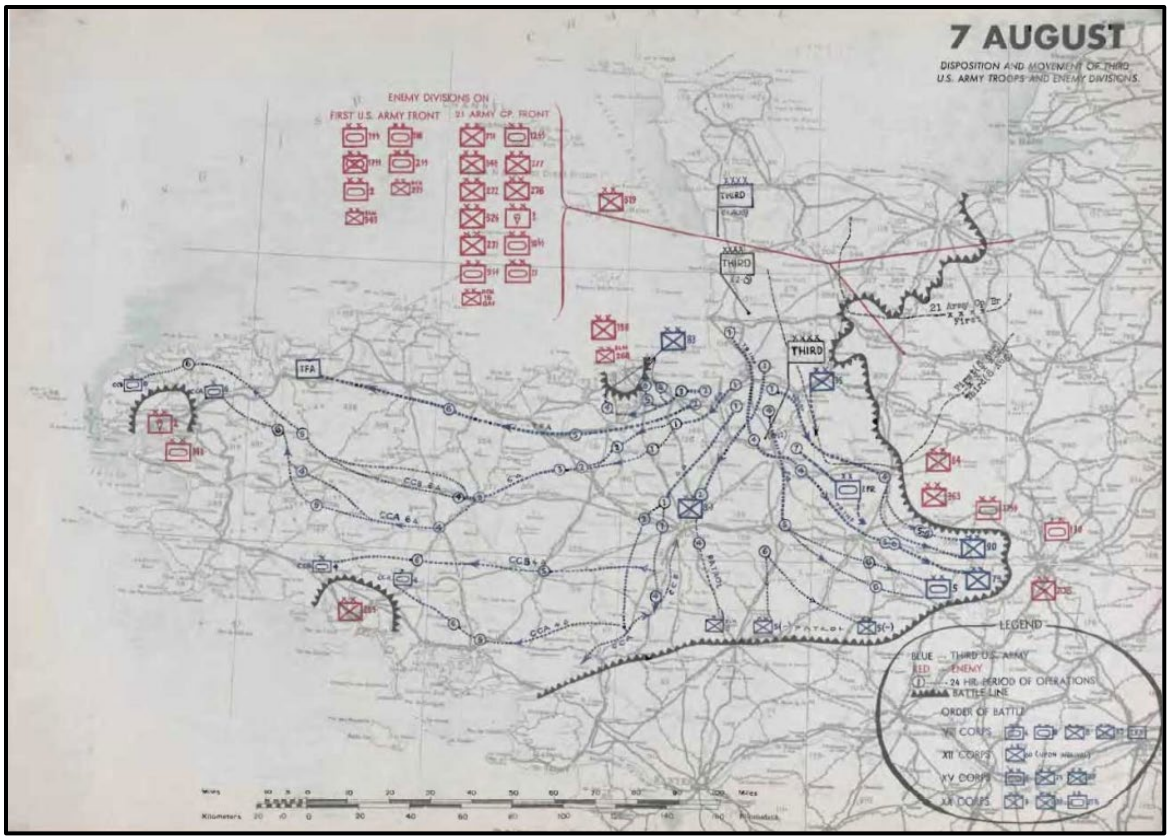

Figure 18. 7 August 1944: Disposition of Third Army and German Forces

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 31, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212.

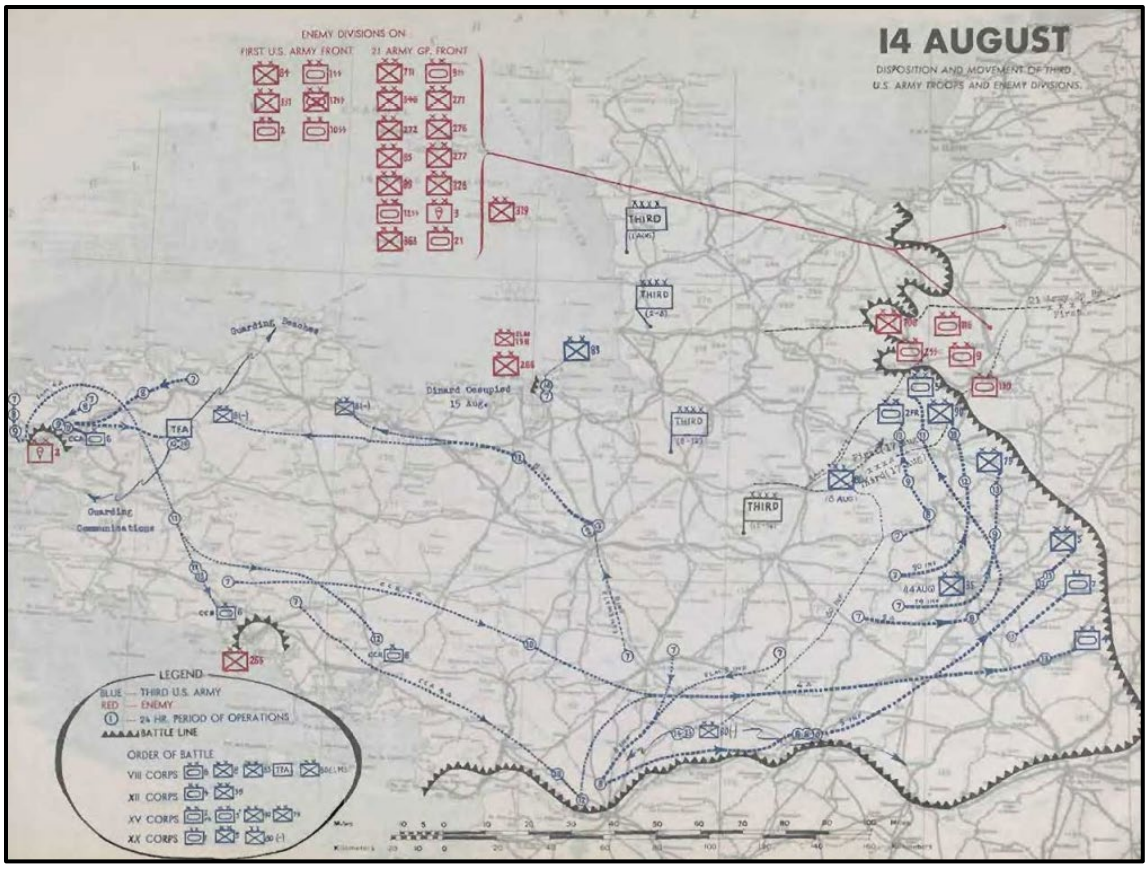

Figure 19. 14 August 1944: Disposition of Third Army and German Forces

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 39, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212.

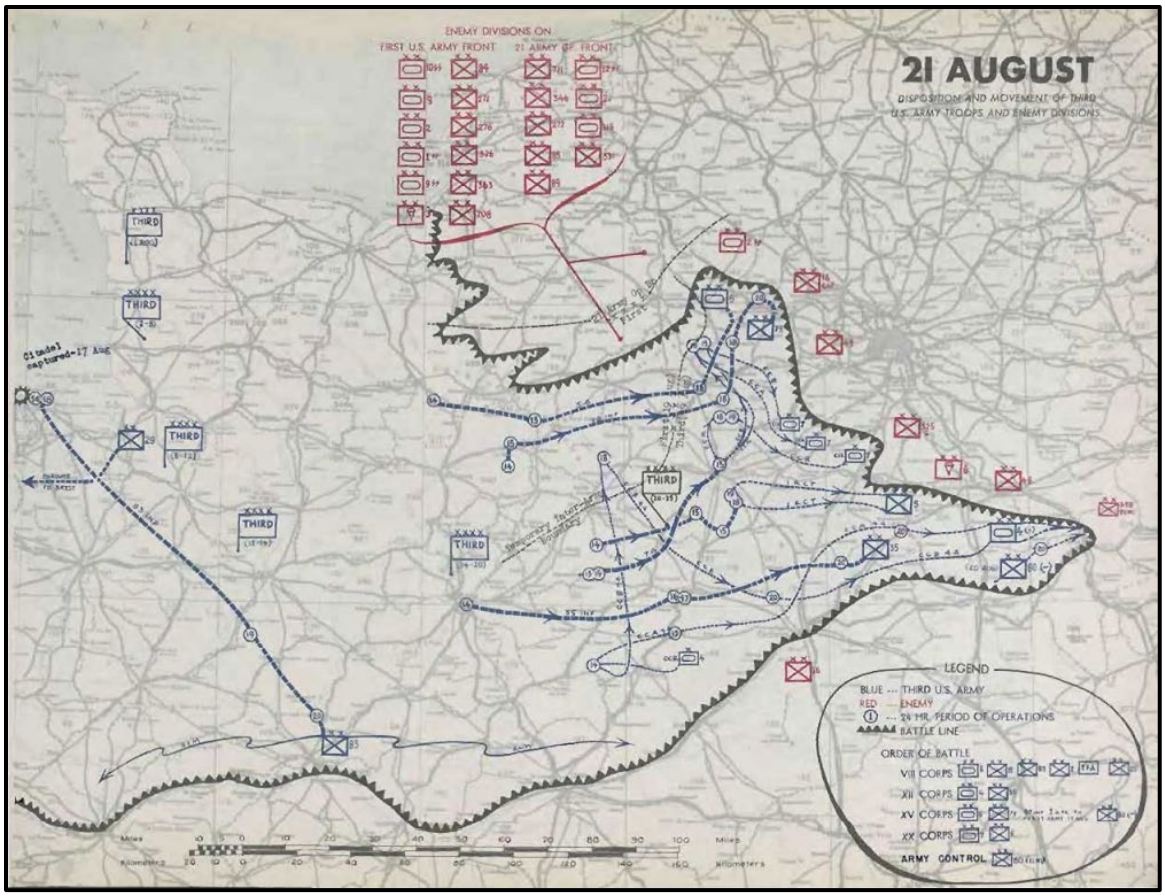

Figure 20. 21 August 1944: Disposition of Third Army and German Forces

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 47, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212.

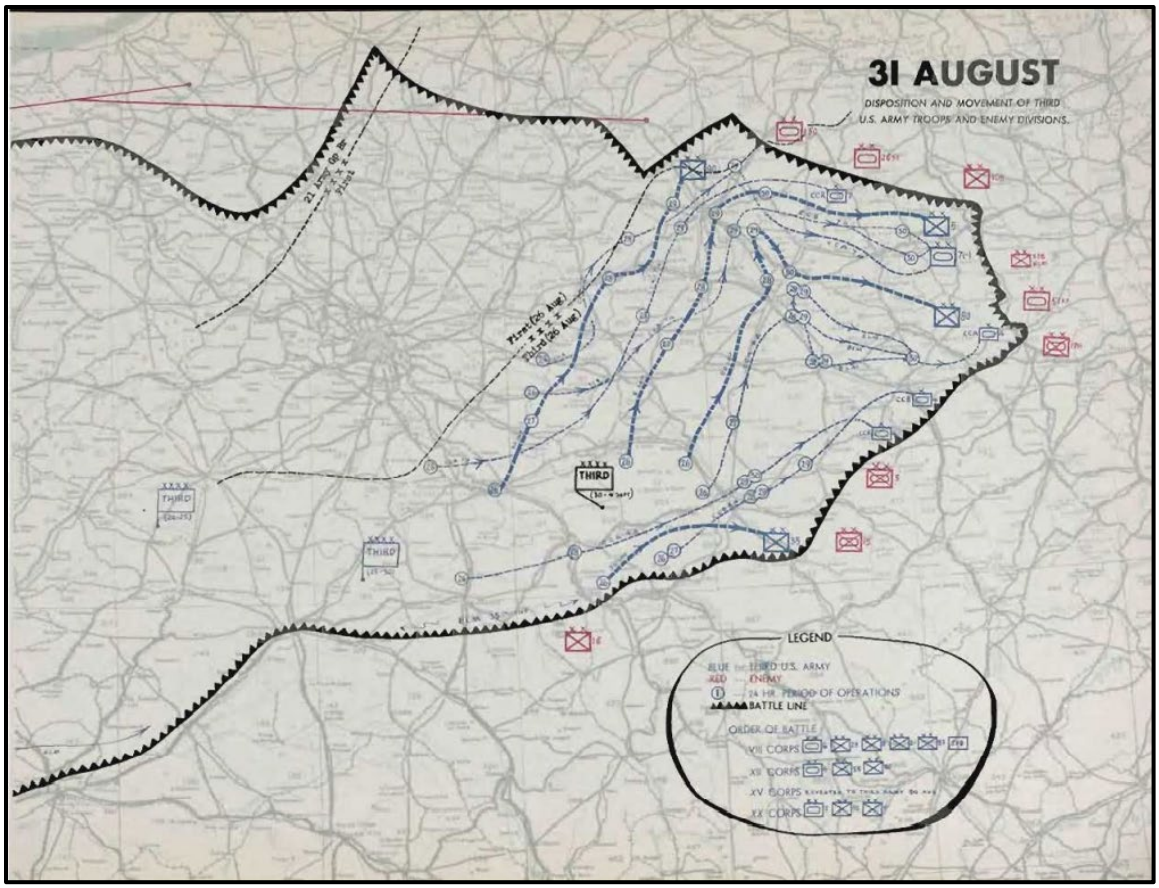

Figure 21. 31 August 1944: Disposition of Third Army and German Forces

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 60, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212.

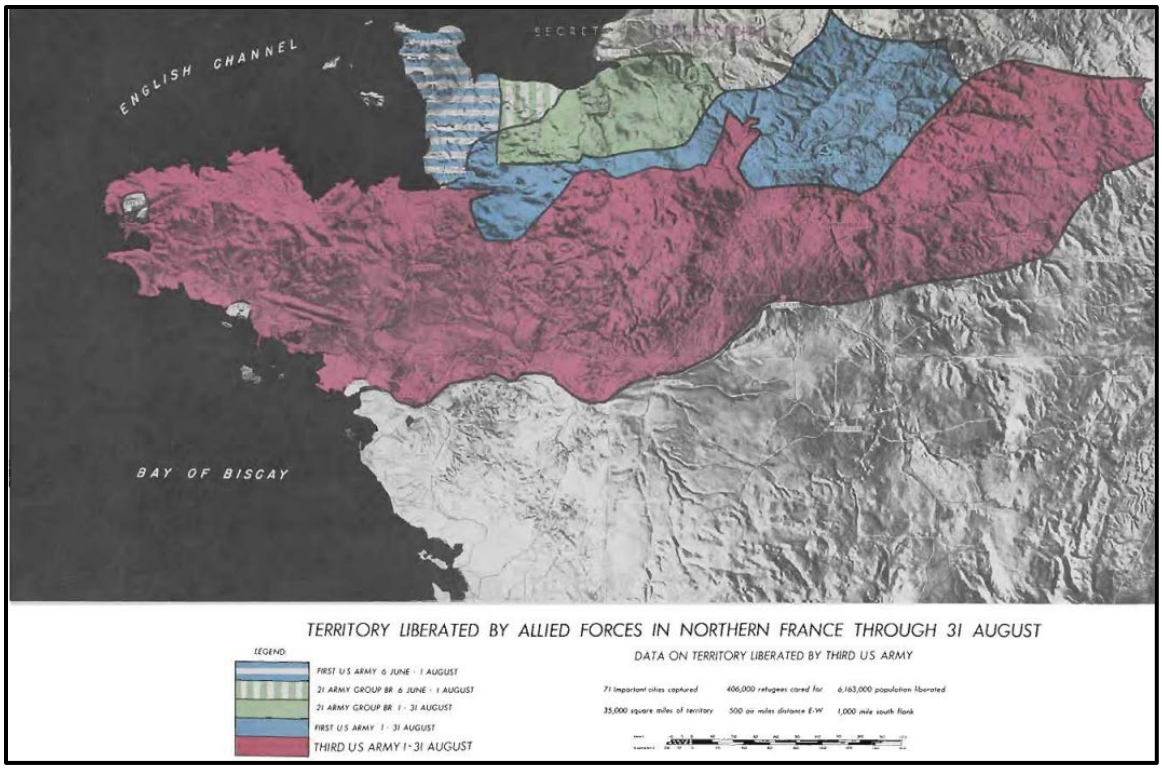

Figure 22. Territory Liberated by Allied Forces through 31 August

Source: Third United States Army, *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations* (Regenburg, Germany, May 1945), 63, Combined Arms Research Library, World War II Operational Documents, accessed 14 October 2020, https://cgsc.contentdm.oclc.org/digital/collection/p4013coll8/id/2212.

BIBLIOGRAPHY

Primary Sources

Army Security Agency. "Histories of Radio Intelligence Units, European Theater, September 1944 to March 1945, Vol. 1." File SRH-228, Records of the National Security Agency, National Archives Control Number NN3-457-83-34. National Archives and Records Administration, College Park, MD.

———. "Histories of Radio Intelligence Units, European Theater, September 1944 to March 1945, Vol. 2." File SRH-228, Records of the National Security Agency, National Archives Control Number NN3-457-83-34. National Archives and Records Administration, College Park, MD.

DeGrote, John W. "The 118th Signal Radio Intelligence Company, 1942-1946, Third US Army, World War II." Marshall Foundation Library and Archives, Lexington, VA, n.d.

General Board of the United States Forces European Theater. "Study No. 18, Army Tactical Information Service." Report of the General Board United States Forces, European Theater, November 1945. Accessed 19 January 2021. https://carlcgsc.libguides.com/c.php?g=1005839.

———. "Study No. 111, Signal Corps Operations." Report of the General Board United States Forces, European Theater, November 1945. Accessed 19 January 2021. https://carlcgsc.libguides.com/c.php?g=1005839.

———. "Study No. 131, Psychological Warfare." Report of the General Board United States Forces, European Theater, November 1945. Accessed 19 January 2021. https://carlcgsc.libguides.com/c.php?g=1005839.

Headquarters Seventh US Army. *XV Corps After Action Reports 31 July 1944–9 May 1945*. Combined Arms Research Library, World War II Operational Documents, 22 August 1945. Accessed 16 February 2021. https://cgsc.contentdm.oclc.org /digital/collection/p4013coll8/id/4318/.

Headquarters XX Corps. *The Campaigns of Normandy and France XX Corps Operational Report 1 August–1 September 1944.* Headquarters, XX Corps, 12 November 1945. Accessed 16 February 2021. http://xxcorps.org/files /aug_sept_aars.pdf.

Helfers, Melvin C. *My Personal Experience with High Level Intelligence*. Charleston, SC: The Citadel Archives and Museum, November 1974.

McCormack, Alfred. “Reports by US Army ULTRA Representatives with Army Field Commands in the European Theatre of Operations.” File SRH-023, Records of the National Security Agency. National Archives and Records Administration, College Park, MD.

Schenkel, Seymour. Interview by Kurt Piehler and Rebecca Karcher. Rutgers Oral History Archives of World War II, March 12 1998. https://oralhistory.rutgers.edu/interviewees/30-interview-html-text/240-schenkel-seymour.

Third United States Army. *After Action Report Third US Army 1 August 1944–9 May 1945: Volume I, The Operations.* Regenburg, Germany, May 1945. Combined Arms Research Library, World War II Operational Documents. Accessed 14 October 2020. https://cgsc.contentdm.oclc.org/digital/collection /p4013coll8/id/2212.

———. *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, G-2.* Regenburg, Germany, May 1945. Combined Arms Research Library, World War II Operational Documents.

———. *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, G-3*. Regenburg, Germany, May 1945. Combined Arms Research Library, World War II Operational Documents.

———. *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Headquarters Commandant*. Regenburg, Germany, May 1945. Combined Arms Research Library, World War II Operational Documents.

———. *After Action Report Third US Army 1 August 1944–9 May 1945: Volume II, Staff Section Reports, Signal*. Regenburg, Germany, May 1945. Combined Arms Research Library, World War II Operational Documents.

Third United States Army Signal Intelligence Service. “Third Army Radio Intelligence History in Campaign of Western Europe.” File SRH-042, Records of the National Security Agency, National Archives Record Group 1457. National Archives and Records Administration, College Park, MD.

US War Department. Field Manual 11-20, *Signal Corps Field Manual: Organizations and Operations in the Corps, Army, Theater of Operations, and GHQ Signal Operations in the Corps and Army*. Washington, DC: Government Printing Office, 1940. https://digitalcommons.unl.edu/usarmyfieldmanuals/1/.

———. Field Manual 11-35, *Signal Corps Intelligence.* Washington, DC: Government Printing Office, 1942. https://digitalcommons.unl.edu/dodmilintel/113/.

———. Field Manual 24-5, *Basic Field Manual: Signal Communication*. Washington, DC: Government Printing Office, 1942. https://www.ibiblio.org/hyperwar /USA/ref/FM/PDFs/FM24-5.PDF.

———. Field Manual 100-5, *Operations.* Washington, DC: Government Printing Office, 1941. Combined Arms Research Library, Obsolete Military Manuals. Accessed 14 April 2021. https://cgsc.contentdm.oclc.org/digital/collection/p4013coll9/ id/978/rec/1.

———. Field Manual 100-5, *Operations.* Washington, DC: Government Printing Office, 1944. Combined Arms Research Library, Obsolete Military Manuals. Accessed 14 April 2021. https://cgsc.contentdm.oclc.org/digital/collection/p4013coll9 /id/973/rec/1.

US War Department, The Adjutant General's Office. *Official Army Register, Volume 1, United States Army Active and Retired Lists.* Washington, DC: Government Printing Office, 1949.

———. *Official Army Register.* Washington, DC: Government Printing Office, 1947.

Wallace, Warrack. "Report on Assignment with Third United States Army 15 August–18 September 1944." File SRH-108, Records of the National Security Agency. National Archives and Records Administration, College Park, MD.

Period Journal Articles

Eisenhower, John S. D. "The Army Tactical Information Service." *Military Review* 29, no. 5 (August 1949): 33–36.

Potter, Walter B. "SIAM–Signal Information and Monitoring." *Military Review* 25, no. 2 (May 1945): 28–30.

Sweeney, Robert D. "How Patton Kept Tabs on His Third Army." *Armored Cavalry Journal* (March-April 1949): 51–53.

Williams, Robert Willoughby, as told to Lyman C. Anderson. "Third Army Reconnaissance." *The Cavalry Journal* (January-February 1945): 20–23.

Government Publications

Headquarters, Department of the Army. Army Doctrine Publication 3-0, *Operations.* Washington, DC: Government Publishing Directorate, July 2019.

———. Army Doctrine Publication 6-0, *Mission Command: Command and Control of Army Forces.* Washington, DC: Government Publishing Directorate, July 2019.

———. Army Doctrine Publication 6-22, *Army Leadership and the Profession.* Washington, DC: Government Publishing Directorate, July 2019.

———. Army Training Publication 3-13.1, *The Conduct of Information Operations*. Washington DC: Government Publishing Directorate, 2018.

Joint Chiefs of Staff. *Joint Concept for Integrated Campaigning*. Washington, DC: Government Publishing Directorate, 2018.

———. Joint Publication 3-0, *Joint Operations.* Washington, DC: Government Publishing Directorate, 2017.

———. Joint Publication 3-13, *Information Operations*. Washington, DC: Government Printing Directorate, 2014.

———. Joint Publication 5-0, *Joint Planning.* Washington, DC: Government Publishing Directorate, 2020.

United Kingdom Ministry of Defense. Joint Concept Note 2/18, *IA.* London, UK: Ministry of Defense, 2018.

United States Army Training and Doctrine Command (TRADOC). TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations.* Fort Eustis, VA: TRADOC, 2018.

———. TRADOC Pamphlet 525-92, *The Operational Environment and the Changing Character of Warfare.* Fort Eustis, VA: TRADOC, 2019.

US Department of Defense. *Summary of the 2018 National Defense Strategy of the United States of America.* Washington, DC: The Pentagon, 2018.

Journal Articles and Book Chapters

Aamodt, Michael G., and Wilson W. Kimbrough. "Effect of Group Heterogeneity on Quality of Task Solutions." *Psychological Reports* 50, no. 1 (February 1982): 171–174.

Bolger, Daniel. "Zero Defects: Command Climate in First Army, 1944-1945." *Military Review* 71, no. 5 (May 1991): 61–73.

Farquahar, Scott C. "Deceive, Divert, and Delay: Operation FORTITUDE in Support of D-Day." In *Weaving the Tangled Web: Military Deception in Large-Scale Combat Operations,* edited by Christopher M. Rein, 137–154. Fort Leavenworth, KS: Army University Press, 2018.

Farrell, Theo. "Figuring Out Fighting Organizations: The New Organizational Analysis in Strategic Studies." *Journal of Strategic Studies* 19, no. 1 (1996): 122–135.

Fogarty, Stephen, and Bryan Sparling. “Enabling the Army in the Era of Information Warfare.” *Cyber Defense Review* (Summer 2020): 17–26.

Garvin, David A. “Performance Measurement: Building a Learning Organization.” *Harvard Business Review* (July-August 1993): 6-14. Accessed 17 October 2020. https://hbr.org/1993/07/building-a-learning-organization#:~:text=Learning%20organizations%20are%20skilled%20%20efficiently%20throughout%20the%20organization.

Gery, William R., SeYoung Lee, and Jacob Ninas. “Information Warfare in an Information Age.” *Joint Force Quarterly* 85 (2nd Quarter 2017): 22–29.

Hambrick Donald C., Theresa Seung Cho, and Ming-Jer Chen. “The Influence of Top Management Team Heterogeneity on Firms' Competitive Moves.” *Administrative Science Quarterly* 41, no. 4 (December 1996): 659–684.

Hoffman, L. R., and N.R.F. Maier. “Quality and Acceptance of Problem Solutions by Members of Homogeneous and Heterogeneous Groups.” *The Journal of Abnormal and Social Psychology* 62, no. 2 (1961): 401–407.

Jungdahl, Adam, and Julia Macdonald. “Innovation Inhibitors in War: Overcoming Obstacles in the Pursuit of Military Effectiveness.” *Journal of Strategic Studies* 38, no. 4 (2015): 467–499.

Kotter, John. “Leading Change: Why Transformation Efforts Fail.” *Harvard Business Review* (May-June 1995): 3-4. Accessed 17 October 2020. https://hbr.org/1995/05/leading-change-why-transformation-efforts-fail-2.

Lacey, Jim, and Kevin Woods, “Adapt or Die.” *US Naval Institute Proceedings* 133, no. 8 (August 2007); 19–20. Accessed 3 October 2020. https://www.usni.org/magazines/proceedings/2007/august/adapt-or-die.

Millett, Allan R., Williamson Murray, and Kenneth H. Watman. “The Effectiveness of Military Organizations.” In *Military Effectiveness,* edited by Allan R. Millet and Williamson Murray, 1–30. Cambridge, MA: Cambridge University Press, 2010.

Mingus, James J., and Chris N. Reichart. “Future Large-Scale Combat Operations (LSCO) Implications for Information Operations.” In *Perceptions are Reality: Historical Case Studies of Information Operations in Large Scale Combat Operations,* edited by Mark D. Vertuli and Bradley S. Loudon, 175-179. Fort Leavenworth, KS: Army University Press, 2018.

Nevis, Edwin C., Anthony J. DiBella, and Janet M. Gould. “Understanding Organizations as Learning Systems.” *MIT Management Review* (January 1995). Accessed 17 October 2020. https://sloanreview.mit.edu/article/understanding-organizations-as-learning-systems/.

Patton, George S Jr. “Personal Glimpses of General Pershing.” In *Military Essays and Articles*, edited by Charles M. Province, 285-289. San Diego, CA: The George S. Patton Jr. Historical Society, 2002. Accessed 8 May 2021. http://www.pattonhq.com/pdffiles/vintagetext.pdf.

———. “War as She Is.” In *Military Essays and Articles*, edited by Charles M. Province, 366-392. San Diego, CA: The George S. Patton Jr. Historical Society, 2002. Accessed 8 May 2021. http://www.pattonhq.com/pdffiles/vintagetext.pdf.

Paul, Christopher. “Understanding and Defining Information Advantage.” *Cyber Defense Review* (Summer 2020): 109–123.

Paul, Christopher E., and Michael Schwille. “The Evolution of Special Operations as a Model for Information Forces.” *Joint Force Quarterly* 100 (1st Quarter 2021): 8–13.

Rock, David, and Heidi Grant. “Why Diverse Teams are Smarter.” *Harvard Business Review* (November 2016). Accessed 24 October 2020. https://hbr.org/2016/11/why-diverse-teams-are-smarter.

Rock, David, Heidi Grant, and Jacqui Grey. “Diverse Teams Feel Less Comfortable–and That’s Why They Perform Better.” *Harvard Business Review* (September 2016). Accessed 24 October 2020. https://hbr.org/2016/09/diverse-teams-feel-less-comfortable-and-thats-why-they-perform-better.

Shoffner, Wilson A. and Christopher D. Compton. “The Future of Fires: Dominating in Large Scale Combat Operations.” In *Lethal and Non-Lethal Fires: Historical Case Studies of Converging Cross-Domain Fires in Large-Scale Combat Operations,* edited by Thomas G. Bradbeer, 203-208. Fort Leavenworth, KS: Army University Press, 2018.

Snowden, David, and Mary Boone. “A Leader’s Framework for Decision Making.” *Harvard Business Review* (November 2007): 5. Accessed 14 January 2021. https://hbr.org/2007/11/a-leaders-framework-for-decision-making.

Williams, Robert. “Moving Information: The Third Army Imperative.” *ARMY* 25, no. 4 (April 1975): 17-21.

Books

Allen, Robert S. *Lucky Forward: The History of Patton’s Third U.S. Army*. New York: Vanguard Press, 1947.

Blumenson, Martin. *Breakout and Pursuit.* Washington, DC: Center of Military History, 1993.

———. *The Patton Papers: 1940-1945, Volume II.* Boston, MA: Houghton Mifflin, 1974.

Cameron, Robert Stewart. *Mobility, Shock and Firepower: The Emergence of the U.S. Army's Armor Branch, 1917-1945*. Washington, DC: Center of Military History, 2008.

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

Crowley, Ellsworth B. *The Fighting Sixth: History of the 6th Cavalry Regiment, 1861-1960*. Dallas, TX: Military Publications, 1961.

D'Este, Carlo. *Bitter Victory: The Battle for Sicily, 1943.* New York: E. P. Dutton, 1988.

———. *Patton: A Genius for War*. New York: Harper Collins, 1995.

Downie, Richard. *Learning from Conflict: The U.S. Military in Vietnam, El Salvador, and the Drug War.* Westport, CT: Praeger, 1998.

Forty, George. *The Armies of George S. Patton*. New York: Arms and Armor Press, 1996.

Gawne, Jonathan. *Ghosts of the ETO: American Tactical Deception Units in the European Theater.* Havertown, PA: Casemate, 2002.

Hoffman, Jon T. *A History of Innovation U.S. Army Adaptation in War and Peace*. Washington, DC: Center of Military History, 2009.

Howe, George. *American Signals Intelligence in North West Africa and Western Europe*. Fort Meade, MD: Center for Cryptologic History, 2010.

Koch, Oscar W. *G-2: Intelligence for Patton.* Atglen, PA: Schiffer Military History, 1999.

Kotter, John. *8 Steps to Accelerate Change in Your Organization.* Self-Published, 2018.

Kretchik, Walter E. *U.S. Army Doctrine from the American Revolution to the War on Terror.* Lawrence, KS: University Press of Kansas, 2011.

Mansoor, Peter. *The GI Offensive in Europe: The Triumph of American Infantry Divisions, 1941-1945*. Lawrence, KS: University Press of Kansas, 1999.

Mansoor, Peter, and Williamson Murray. *The Culture of Military Organizations.* New York: Cambridge University Press, 2019.

Morningstar, James Kelly. *Patton's Way: A Radical Theory of War*. Annapolis, MD: Naval Institute Press, 2017.

Murray, Williamson. *Military Adaptation in War with Fear of Change*. Cambridge, MA: Cambridge University Press, 2011.

Murray, Williamson, and Allan R. Millet. *A War to Be Won: Fighting the Second World War.* Cambridge, MA: Harvard University Press, 2000.

Nye, Roger H. *The Patton Mind: The Professional Development of an Extraordinary Leader.* Garden City Park, NY: Avery Publishing Group, 1993.

Patton Jr., George S. *War as I Knew It.* Boston, MA: Houghton Mifflin, 1947.

Posen, Barry. *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars.* Ithaca, NY: Cornell University Press, 2014.

Polk III, James H. *World War II Letters and Notes of Colonel James H. Polk 1944-1945.* Oakland, CA: Red Anvil Press, 2005.

Rickard, John Nelson. *Advance and Destroy: Patton as Commander in the Bulge*. Lexington, KY: University Press of Kentucky, 2011.

———. *Patton at Bay: The Lorraine Campaign, 1944*. Lincoln, NE: Potomac Books, 2004.

Thompson, George Raynor, and Dixie R. Harris. *The Signal Corps: The Outcome (Mid-1943 Through 1945)*. Washington, DC: Center of Military History, 1991.

Wallace, Brenton G. *Patton and His Third Army*. Harrisburg, PA: Military Service, 1946.

Dissertations/Theses/Monographs

Alberts, David S. "The Agility Advantage: A Survival Guide for Complex Enterprises and Endeavors." Department of Defense Command and Control Research Program, Washington, DC, September 2011.

Buckhout, Laurie G. Moe. "Signal Security in the Ardennes Offensive 1944-1945." Master's Thesis, US Army Command and General Staff College, Fort Leavenworth, KS, May 1997.

Chadwick, Steven L. "Lieutenant General Patton's Seventh Army in Sicily 1943: The Maturation of an American Operational Artist." Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2014.

Donovan, Michael J. "Strategic Deception: Operation Fortitude." Strategy Research Project, US Army War College, Carlisle, PA, 2002.

Evans, Michael. *The Role of Military History in the Education of Future Officers*. Canberra, Australia: Land Warfare Studies Center, July 1997.

Hresko, Eric. "Quicksilver IV: The Real Operation Fortitude." Monograph, School of Advanced Air and Space Studies, US Air Force Command and General Staff College, Maxwell Air Force Base, AL, 2010.

Kromer, R. W. *The Bureaucracy Does its Thing: Institutional Constraints on the US-GVN Performance in Vietnam.* Santa Monica, CA: RAND Corporation, August 1972.

Murray, Williamson. *Experimental Units: The Historical Record.* Alexandria, VA: Institute for Defense Analyses, 2002.

Nance, William Stuart. "Patton's Iron Cavalry–The Impact of Mechanized Cavalry on Third Army." Master of Arts Thesis, University of North Texas, Denton, TX, May 2011.

Nowowiejski, Dean A. "Concepts of Information Warfare in Practice: General George S. Patton and the Third Army Information Service August-December, 1944." Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 1997.

Rodriguez, David M. "The Influence of Electronic Warfare on Operational Maneuver" Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 1989.

Snakenberg, Mark K. "Born Lucky: The Institutional Sources Behind the Third United States Army Headquarters' Procedures in Northwest Europe, 1944-45." Monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2014.

Other

United States Army Cyber Command (ARCYBER). *Information Advantage: Expanded White Paper.* Fort Gordon, GA: ARCYBER, February 2021.

———. "Operational Art for an Information Age Army." Speech delivered to the US Army Command and General Staff College, Fort Leavenworth, KS, October 2020.

United States Cyber Command. "Information in Joint Operations." Presentation, US Cyber Command Headquarters, Fort Meade, MD, 14 January 2021.