REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (From - To)
30-04-2021	Master of Military Studies (MMS) thesis	AY 2020-2021

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Ground Reconnaissance in Large Scale Combat Operations: A World War II Case Study	N/A
	5b. GRANT NUMBER
	N/A
	5c. PROGRAM ELEMENT NUMBER
	N/A

6. AUTHOR(S)	5d. PROJECT NUMBER
Hawkins, Kevin, R. (Major)	N/A
	5e. TASK NUMBER
	N/A
	5f. WORK UNIT NUMBER
	N/A

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068	N/A

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
N/A	
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)
	N/A

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release, distribution unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

World War II is a valuable case study to examine ground reconnaissance and its employment in large-scale combat operations. Analysis demonstrates that combatants had to grapple with three primary tensions when employing ground reconnaissance during the Second World War. First, combatants had to determine whether to prioritize light forces employing stealthy tactics or highly mobile and lethal forces using aggressive tactics. Second, forces had to decide whether ground reconnaissance was viable given the rise of aerial reconnaissance. Third, combatants had to grapple with whether reconnaissance should be a dedicated task or a common task trained to all ground forces.

15. SUBJECT TERMS

Large Scale Combat Operations (LSCO); World War II; Ground Reconnaissance; Intelligence, Surveillance, and Reconnaissance (ISR)

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			USMC Command and Staff College
Unclass	Unclass	Unclass	UU	38	**19b. TELEPHONE NUMBER** (Include area code) (703) 784-3330 (Admin Office)

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

MASTER OF MILITARY STUDIES

TITLE:

Ground Reconnaissance in Large Scale Combat Operations: A World War II Case Study

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

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AY 2020-21

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Date: 30 Apr 21

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Executive Summary

Title: Ground Reconnaissance in Large Scale Combat Operations: A World War II Case Study

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Thesis: Analysis of ground reconnaissance units in The Second World War presents three dichotomies for their employment past, present, and future. The first is whether cavalry elements should prioritize stealth or firepower to obtain information. The second poses the question of whether there is a need for ground reconnaissance given the rise of aerial reconnaissance. Finally, the third raises questions as to whether reconnaissance should be the mission of dedicated reconnaissance units or a task trained for all forces that engage in combat.

Discussion: This case study of ground reconnaissance in World War II begins with examining the Soviet and German elements prior to discussing the American experience. Scholarship and post-war reports indicate that Soviet ground reconnaissance elements prioritized stealthy reconnaissance organizations to conduct information collection on German adversaries. Conversely, German ground reconnaissance elements prioritized highly mobile and aggressive reconnaissance forces operating in advance of their main body to identify, penetrate, and exploit Soviet elements on the Eastern Front. United States Army ground reconnaissance elements went through three distinct phases when it came to developing units and tactics during World War II. The first phase, from 1940 to mid-1942, was when the Army experimented with mechanized reconnaissance units during the Army General Headquarters (GHQ) maneuvers to determine the appropriate organization, tasks, and purposes of mechanized reconnaissance elements. The second phase began in the middle of 1942 when mechanized reconnaissance learned from the 1940-1941 maneuvers and participated in and observed hostilities in North Africa. The third phase began in the summer of 1943 when U.S. Army reconnaissance elements first touched European soil in the Sicily campaign and evolved continuously until Victory in Europe Day. Throughout all three phases the U.S. Army struggled with the tension between light and heavy reconnaissance units. Doctrinally, the U.S. Army preferred stealthy tactics for information collection, but experience in North Africa and the battlefield realities of the European Theater of Operations drove the Army to adopt heavier ground reconnaissance units to fight for information as required.

Conclusion: World War II is a valuable case study for the Army to glean lessons for planning reconnaissance in future large-scale combat operations. The battlefield realities of World War II revealed that both light and heavy reconnaissance units are necessary in large-scale combat operations. However, the more combat capable a reconnaissance unit was, the less it was used for dedicated reconnaissance. Ground reconnaissance units are necessary in large-scale combat operations even with the rise of aerial reconnaissance and other forms of information collection. Reconnaissance units in World War II became some of the most capable and flexible organizations that could not be replaced by training reconnaissance as a basic soldiering task.

Preface

This report examines ground reconnaissance operations in World War II to identify what lessons the United States Army can learn as it prepares for large-scale combat operations and great power competition. For the past twenty years the U.S. Army has enjoyed air superiority over violent extremist organizations in Afghanistan and Iraq. This superiority resulted in largely uncontested intelligence, surveillance, and reconnaissance (ISR). The U.S. Army can anticipate the airspace in future great power conflict to be highly contested. This change in the operating environment inspired me to write on this topic and review the history of how the U.S. Army conducted reconnaissance in an environment without technical overmatch of its adversary and achieved success on the battlefield.

Writing on ground reconnaissance was not entirely foreign as an intelligence officer, but I still felt outside of my expertise. This challenge allowed me to dig further into research and expand my awareness outside of my experience. I would like to thank Dr. Paul Gelpi of Marine Corps University for his guidance and mentorship from thesis proposal through oral defense. I would also like to thank the faculty and fellow students of the 5,000-Year-Mind Gray Scholar's Program who supported my ideas and helped me to translate my thoughts into sections of this report. Above all, I would like to thank my wife Kaleigh for her support through the process. Her proofreading and support through late night writing sessions undoubtedly made this a better report than I could have otherwise completed on my own.

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Introduction

   September 11, 2021 will mark the 20th anniversary of the infamous September 11th terrorist attacks on the United States. On that day Islamic extremists from al Qaeda hijacked four commercial airplanes and attacked the World Trade Center in New York City, the Pentagon, and a third target that is still debated as the plane crashed in a field in Shanksville, Pennsylvania before reaching its destination. These events launched America's longest war—the Global War on Terror (GWOT)—that has continued for almost twenty years. In contrast, December 7, 2021, will mark the 80th anniversary of the surprise attacks on Pearl Harbor by Imperial Japanese Forces that propelled the United States into World War II. The difference between these two monumental events is stark. World War II ended decisively after six long years of high intensity conflict, whereas the Global War on Terror will enter its third decade without an end in sight.

   In 2021, the U.S. Army finds itself in a similar position to that of the U.S. Army in 1939-1940. The 2018 National Defense Strategy assumes that the Army, as it enters the second quarter of the twenty-first century, suffers from "strategic atrophy, aware that our competitive military advantage has been eroding."[1] The U.S. Army that achieved victory in 1945 was not manned, trained, or equipped for the war it was compelled into in 1941.[2] This similarity, coupled with the current Department of Defense focus on large-scale combat operations, makes World War II worth studying to glean insights for how the U.S. Army may approach the Twenty-First century security environment. Few, if any, officers in the contemporary Army have experienced large-scale combat operations. As Michael Doubler argues in *Closing With the Enemy* (1995), "in lieu of actual combat experience, the armed forces must turn to military history to gain insights into the experience of battle."[3] Examining the Army's World War II experience for insights to prepare for the future operating environment is what this essay seeks to accomplish.

The U.S. Army benefits from technical and tactical overmatch of its adversaries in the GWOT leading to air superiority, land dominance, and sea control. Conversely, the operating environment the U.S. Army may find itself in, large-scale combat operations, is sure to be contested in every domain.[4] The guiding research question for this paper is: How may the U.S. Army leverage its World War II experience to develop necessary doctrine as well as tactics, techniques, and procedures to successfully conduct ground reconnaissance in a contested operating environment? This report also analyzes the Soviet and German ground reconnaissance experiences followed by a detailed analysis of U.S. ground reconnaissance elements from 1940-1945. Following the historical review of reconnaissance units in World War II, this essay provides an analysis of contemporary Russian reconnaissance capabilities and implications for U.S. Army reconnaissance in the future. Finally, this paper will examine the U.S. Army ground reconnaissance experience of World War II for observations that may be applied for successful ground operations in the future.

The U.S. Army conducted mounted reconnaissance on horseback up until World War II. The Army was not experienced with mechanized cavalry reconnaissance when it entered the conflict. U.S. ground reconnaissance in the Second World War can be separated into three phases. The first phase, from 1940 to mid-1942, was when the Army experimented with mechanized reconnaissance units during the Army General Headquarters (GHQ) maneuvers to determine the appropriate organization, tasks, and purposes of mechanized reconnaissance elements. The second phase began in the middle of 1942 when mechanized reconnaissance learned from the 1940-1941 maneuvers and participated in and observed hostilities in North Africa. The third phase began in the summer of 1943 when U.S. Army reconnaissance elements

first touched European soil in the Sicily campaign and evolved continuously until Victory in Europe Day.

Analysis of ground reconnaissance units in The Second World War presents three dichotomies for their employment then, today, and in the future. The first is whether cavalry elements, seen as the proponent for ground reconnaissance, should prioritize stealth to obtain information or firepower to fight for it. The second dichotomy poses the question of if there is a need for ground reconnaissance given the rise of aerial reconnaissance. Finally, the third dichotomy raises questions as to whether reconnaissance should be the mission of dedicated reconnaissance units or a task trained for all forces that engage in combat.

Soviet Reconnaissance in World War II

While the U.S. Army was developing and testing theories in training maneuvers from 1940-1942, the Germans and Soviets were engaged in direct conflict on Germany's Eastern Front during Operation BARBAROSSA. All three nations valued and understood the necessity of accurate and timely ground reconnaissance when engaging the enemy.

The experience of Soviet ground reconnaissance elements is worth mentioning when studying U.S. reconnaissance efforts in the European Theater of Operations (ETO) because of the considerable amount of fighting between Germany and the Soviet Union prior to U.S. operations on the continent. The Soviet Army possessed considerable aggregate strength in terms of men and equipment, however, the amount of dedicated reconnaissance was relatively small. In 1941 a soviet infantry division contained a 328-man reconnaissance battalion that consisted of an armored car company with 10x BA-20s and a tankette company with a mix of T-37s and T-38s totaling 16 tankettes.[5] As operations against Germany took their toll, the Soviets settled on a 120-man reconnaissance company (*razvedka kmpaniya*) that became the Soviet division's basic

scouting element for the remainder of the war. The company only maintained 70 7.62 rifles, 36 SMGs, 9 LMGs, 3 50mm mortars, 9 trucks, and a radio.[6] The lack of inherent firepower, protection, and communication of the company reflected how the Soviet Army viewed reconnaissance.

The Soviet Army emphasized stealth above all else when it prioritized how to conduct ground reconnaissance to obtain information.[7] The Soviet reconnaissance company did not have the firepower to engage with and destroy enemy resistance; it could only defend itself as it withdrew from a decisive engagement. Additionally, since the company only had one radio to communicate with its higher headquarters, it could not risk compromise. If compromised, any information obtained could not be delivered to influence decision making. The Soviet term *razvedka*, normally translated as reconnaissance, could also be translated as spying, reinforcing the Soviet emphasis on avoiding detection.[8] These factors led Soviet reconnaissance elements to rely heavily on dismounted patrols which limited their operational reach from their parent unit. A German account of soviet reconnaissance stated the Soviet soldier, "was exceedingly adept at combat reconnaissance…he knew how to adapt his reconnaissance patrols to the terrain…seldom could any conclusion as to the intentions of the Russian enemy be drawn from his reconnaissance patrol activity."[9] Thus, the Soviet emphasis on stealth over firepower appeared successful, at least in terms of their engagements with their German foes.

German Reconnaissance in World War II

Generally opposite of the Soviet Army's organization of reconnaissance, the *Wehrmacht* organized dedicated reconnaissance elements to their divisions and prioritized aggressive tactics over pure information collection. When hostilities began on the eastern front in 1941, the first German infantry divisions mobilized during the war were organized with a 623-man

reconnaissance battalion boasting a mounted squadron with 250 horses, a bicyclist squadron with 50 motorcycles, and a heavy squadron with anti-tank guns, 7.5cm towed infantry support guns, and two to three scout cars.[10] German reconnaissance battalions were approximately six times their Soviet counterparts. As German infantry advanced into Russia, reconnaissance elements normally reconnoitered 25-30 kilometers in front of the main body and traversed up to 70-80 kilometers per day.[11] The horses and motorcycles of German reconnaissance elements proved impractical for the harshness of the eastern front due to the terrain, environment, and nature of close combat. German reconnaissance platoons were also limited in communications capabilities since they did not possess an organic radio to deliver information to higher headquarters. By 1942, German reconnaissance and anti-tank battalions were consolidated into a single "fast battalion" and further reorganization would follow in 1943.[12]

As Germany assumed a defensive posture in 1943, reconnaissance elements were again reorganized but maintained their preference for aggressive tactics. What the Germans needed by this time was not an information collection capability, but a highly mobile and heavily armed force as a security element, counterattack force, or mobile reserve.[13] Land, or terrain, reconnaissance became the responsibility of all units and not just reconnaissance elements. German reconnaissance battalions began to resemble German rifle battalions as the war progressed. The continued mechanization of German forces brought scout cars, armored vehicles, and halftracks to German reconnaissance battalions.[14] These new German reconnaissance battalions would only avoid contact with the enemy if it would divert them from their assigned mission and recon-by-fire was the normal tactic when approaching obstacles as the Germans assumed they were all observed by the enemy.[15] German reconnaissance elements evolved consistently during the war. Throughout this evolution they maintained a continued

prioritization of firepower and aggressive tactics over stealth to obtain information pertaining to opposing forces.

American Reconnaissance in World War II: 1940-1944

The experience of American reconnaissance elements in World War II provides a mixed case with regards to utilizing stealth or aggressive tactics. U.S. Army post-war analysis of reconnaissance elements in the World War II focuses on the European Theater of Operations. It is valuable to begin by providing a brief account of how the U.S. mechanized reconnaissance elements evolved from 1940-1945. The Soviets clearly favored stealthy reconnaissance while the Germans preferred aggressive reconnaissance tactics. The Americans continued to struggle with this dichotomy and Robert Cameron summarizes this neatly in *To Fight or Not to Fight?* (2010) stating, "a clear preference existed for the undetected acquisition of information coupled with the realization that the time to do so would not be available."[16] A review of U.S. reconnaissance manuals from the 1940's along with articles from the cavalry journal reveals that doctrinally the U.S. favored stealth tactics but aggressive action was necessary. This struggle existed from 1940-1944 as evidenced by doctrine that contradicted itself and after-action reports. There was finally a clear emphasis on stealthy reconnaissance operations by 1944.

The U.S. Army adopted the triangular infantry and armor divisions in 1940. There were two primary dedicated reconnaissance elements: the mechanized reconnaissance troop for infantry divisions and the armored reconnaissance battalion for armor divisions.[17] These units were tested during the 1940 and 1941 maneuvers directed by Army General Headquarters (GHQ) to evaluate their doctrine, organization, and tactics. Established in 1940, the GHQ was the Army's organization designed to lead mobilization efforts and evaluate the training and readiness of Army units prior to their entry into World War II. The maneuvers proved the value

of reconnaissance and its correlation to successful operations. They also revealed that U.S.

reconnaissance units were not ready for combat due to insufficient training and U.S.

reconnaissance elements were still finding their way.[18] It was noted during the maneuvers that

these reconnaissance elements favored stealth and neither aggressively pursued enemy

vulnerabilities nor integrated with observation aircraft.[19] These observations revealed existing

tensions between cavalry practitioners and doctrine writers. On one hand, cavalry officers

favored stealth and fighting only if necessary.[20] Doctrine, on the other hand, prized the mobility

of the reconnaissance elements with their inherent ability to gain and maintain contact with the

enemy while executing a wide range of operations.[21]

American reconnaissance units appeared to gain clearer direction in 1942 with the

introduction of Field Manual (FM) 17-20 *Employment of Armored Units Reconnaissance

Platoon and Company*. The manual directed, "the principal mission of all reconnaissance

agencies is to obtain information required by higher authority and get it to the interested party in

time to be useful."[22] The manual further acknowledged that obtaining information undetected is

preferred, but time was the ultimate factor when conducting reconnaissance. It stands to reason

that 1942 signaled a definitive shift in American reconnaissance elements from stealth to

mobility and aggressive reconnaissance methods as a result. This assessment is reinforced by

Major General Charles Scott following his observations of the British Eighth Army in North

Africa. Major General Scott professed reconnaissance elements would need to, "fight in

execution of its mission, to fight for time to send information in, and to fight for time for the

main body to properly utilize the information sent in."[23] Major General Scott viewed an

emphasis on stealthy acquisition of information collection as unrealistic in the context of the

realities of the battlefield. These views were echoed by the first American reconnaissance units to experience combat in the war, but so were sentiments reinforcing the need for stealth.

The first two reconnaissance elements in the North Africa theater of operations were the 81st Armored Reconnaissance Battalion from the 1st Armored Division and the 91st Cavalry Reconnaissance Squadron (Separate). Deployment to Morocco, Algeria, and Tunisia pitted American reconnaissance elements against German and Italian elements for the first time. Frequent encounters with German reconnaissance elements revealed the U.S. elements were at a disadvantage in terms of firepower and often needed augmentation. Additionally, due to the inherent lack of armor, the jeeps found in these organizations were employed only when direct engagement with the enemy was considered unlikely.[24] Operations and combat losses at Kasserine demonstrated the inability of American elements to maintain contact with German forces leading to the after action assessment that desired information could only be obtained by fighting and maintaining contact with the enemy.[25] Conversely, the 81st Armored Reconnaissance battalion reported stealthy employment of reconnaissance to be successful. Lieutenant Colonel Charles J. Hoy, 81st Armored Reconnaissance Battalion commander, noted, "the best jobs that we have done have been where lieutenants with a small crew, through cunning and daring, get an OP [observation post] deep in the enemy territory and sit there for hours and report vital information."[26] These mixed reports demonstrate the continued U.S. struggle with the stealth vs. firepower conundrum until 1943, which proved to be a formative year for U.S. reconnaissance.

The first reason 1943 was pivotal for U.S. reconnaissance elements is conflicting doctrine. Field Manual (FM) 2-30 was published in March 1943 and took into account the lessons of North Africa. The manual echoed earlier publications in that the primary mission of

reconnaissance units was to collect information, and it recommended against other missions advising commanders to consider "the availability of other troops more suitable" before employing reconnaissance squadrons in offensive or defensive operations.[27] This assertion implied that, while capable, reconnaissance elements were not to be employed for operations outside of reconnaissance. This reinforced the cavalry branch's argument for stealth. The publication also explicitly stated that combat is expected and encouraged the squadrons to fight from their vehicles acknowledging "the outstanding combat characteristics of the squadron are its great fire power and extreme mobility."[28] These contradictions demonstrate the U.S. Army's desire for reconnaissance to be dedicated and stealthy but acknowledged the need to decisively engage enemy forces with sufficient combat power.

The second pivotal change to U.S. reconnaissance in 1943 was reorganization. The armored reconnaissance battalions found in armored divisions from 1940 to 1942 were redesignated as cavalry reconnaissance squadrons and the mechanized reconnaissance troops of infantry divisions reorganized as cavalry reconnaissance troops.[29] The reorganization in 1943 also saw the genesis of the mechanized cavalry group, the largest reconnaissance organization of the U.S. Army deployed in The Second World War.[30] These groups were meant to be flexible headquarters allocated at the Corps and Field Army levels. The intent of these organizational changes was to provide Corps and Field Army commanders with the flexibility to attach and detach organizations, especially reconnaissance, as the mission required while maintaining an overall headquarters element in the form of the mechanized cavalry group.[31] Cavalry group headquarters could also assume control of any number of separate battalions including tank, tank destroyer, or other battalions. These organizational changes signaled a shift of U.S. reconnaissance to the purview of the Cavalry Branch which favored stealth. The emphasis on

maneuver and flexibility represented a continued element of the Armored branch which favored flexibility and aggressive action.

The U.S. Army's struggle between undetected reconnaissance and fighting for information appeared to be settled in 1944. Notably, FM 2-30 *Cavalry Reconnaissance Squadron Mechanized* was updated and redistributed in 1944 governing reconnaissance operations for the cavalry reconnaissance squadrons and armored reconnaissance battalions, mechanized cavalry groups, and separate units.[32] Additionally, FM 2-20 *Cavalry Reconnaissance Troop, Mechanized* which governed the employment of the infantry division's organic reconnaissance element was also released in 1944.[33] Both of these publications explicitly stated mechanized cavalry elements, at any echelon, were employed for reconnaissance missions and employed for "other types of missions" only if "no other troops are available."[34] Both publications stressed the principles of seeking routes that were not opposed, infiltration, and engaging in combat "only to the extent necessary to accomplish the assigned mission and avoid destruction or capture."[35] Thus, in a doctrinal sense, it appeared that the Cavalry branch won the debate for dedicated reconnaissance units employed only for reconnaissance. The employment of reconnaissance organizations in the European Theater of Operations from 1944 to 1945 demonstrated that the debate was ongoing despite those doctrinal decisions.

American Reconnaissance in World War II: 1944-1945

Beginning in June 1944 the Army deployed its newly organized reconnaissance elements with their updated doctrine in the European Theater of Operations. Thirteen mechanized cavalry groups deployed with Field Armies and were regularly attached to an Army Corps; thirteen mechanized cavalry reconnaissance squadrons and two armored reconnaissance battalions with the armored divisions; and forty-two mechanized cavalry reconnaissance troops with the infantry

divisions.[36] The reconnaissance doctrine of 1944 proved largely unsuitable for operations in the European Theater of Operations. American reconnaissance units, "found themselves battling on terrain for which they were not prepared"[37] and were employed in various types of missions. U.S. reconnaissance elements were employed in their designated function only a fraction of the time. Ground commanders sought to capitalize on the mobility and firepower of cavalry elements to free up the infantry for other operations and to handle tasks that were not suited for other organizations, such as special operations. The United States Forces, European Theater General Board was directed to evaluate the employment of mechanized cavalry units from 1944 to 1945 and provide findings that can be used to examine American reconnaissance later in the war.[38]

The newly minted mechanized cavalry groups that deployed with the corps and field armies were employed in reconnaissance missions the least out of all U.S. reconnaissance elements. The analysis conducted by the General Board determined that mechanized cavalry groups were employed in all forms of operations with defensive operations consuming most of their time (33%). Mechanized cavalry groups spent 29% of their time on special operation, 25% on security, 10% on offense, and only 3% on reconnaissance.[39] Furthermore, the board noted that mechanized cavalry groups spent almost twice the amount of time dismounted as they did mounted (1.8 days dismounted to 1 day mounted) and were frequently reinforced with a field artillery battalion, a tank destroyer battalion, and a combat engineer company.[40] As mechanized cavalry groups found themselves primarily employed in the defense, it is worth reviewing the case of the 2d Cavalry Group's defense of the Mosselle river from December 1944 to March 1945 as an illustrative example.

The 2d Cavalry group was assigned to protect the east flank of XII Corps along the west bank of the Moselle River on December, 23, 1944 across a frontage of 25 miles.[41] The cavalry

group's defensive line ensured XII Corps' connection with its adjacent units; XX Corps to the east and 4th Infantry Division to the west. The Moselle River itself was a significant obstacle for XII Corps spanning 600 feet across and 25 feet deep defended by enemy infantry and machine gun battalions that patrolled the area and guarded the river's two bridgeheads at Machtum and Mertert. XII Corps established Task Force Reed containing two Combat Teams, Combat Team Hargis and Combat Team Costello. The 2d Cavalry Group comprised the bulk of Combat Team Costello augmented with the 398th Engineer Regiment and a tank destroyer company to establish their defense. Once established, the combat teams began to patrol into Mertert and Machtum forcing the withdrawal of enemy forces followed by a dismounted attack supported by tanks to drive Axis forces from the area. The defensive posture transitioned to the offense on 19 February 1945 when an operation was launched east of the river to seize control of this key terrain.[42] These actions took place over a two month period (23 Dec 1944 – 19 Feb 1945) and highlighted that commanders viewed the firepower and mobility of the Mechanized Cavalry Group as a viable fighting formation, with minimal augmentation (e.g. artillery and engineers), to free infantry divisions for offensive action elsewhere on the battlefield.

The mechanized cavalry reconnaissance squadrons and armored reconnaissance battalions that deployed with armored divisions were employed in a reconnaissance mission most out of all U.S. reconnaissance elements in the European Theater of Operations. These formations were usually employed in a special operations capacity which consumed 48% of their time. Additionally, these units spent 24% of their time on security, 13% on reconnaissance, 11% on defense, and 4% on offense.[43] The United States Forces General Board determined it was common for these reconnaissance squadrons and battalions to be detached from their parent unit to serve as part of a combat command or task force.[44] The special operations identified in this

report generally refers to the employment of these units as mobile reserves; controlling rear areas or serving as an information service.[45] As these elements conducted the largest amount of dedicated reconnaissance of U.S. Army elements, it is worth reviewing how the 92d Cavalry Reconnaissance Squadron conducted reconnaissance for the 12th Armored Division.

The 92d Cavalry Reconnaissance Squadron was tasked to initiate reconnaissance in force from its location south of Wurburg east towards Neustadt on April 8, 1945 as a supporting effort for the 12th Armored Division's mission to attack southeast.[46] The 92d was augmented with two platoons of medium tanks and an armored field artillery battalion for additional firepower. The reconnaissance squadron made contact almost immediately after initiating movement and encountered heavy resistance within six hours. The squadron engaged Axis resistance for several days, observing and probing hostile positions to determine strongpoints and potential weak ones. On April 12, the 92d was able to advance by virtue of tactical success but encountered effective fire from small arms and bazookas by nightfall the same day. This pattern continued until the squadron was able to secure the town of Neueof on April 16.[47] The squadron's successful reconnaissance over 30 miles with firm enemy resistance is a prime example of how ground reconnaissance provided maneuver elements the time and space to be successful. The Cavalry Reconnaissance Squadron required augmentation to be successful in this endeavor, which highlighted that U.S. Army divisions had to fight for information on their enemy's composition and disposition in a contested land domain during World War II.

The mechanized cavalry reconnaissance troops deployed with infantry divisions proved to be employed in a reconnaissance role less than the reconnaissance squadrons/battalions of armored divisions and marginally more than the cavalry groups. Division cavalry reconnaissance troops were employed primarily for security operations which consumed 50% of their time.

These units also spent 39% of their time conducting special operations, 6% for reconnaissance, 4% for defense, and 1% on offense. The general board reported infantry division reconnaissance troops were only reinforced for offensive operations and spent at least half of their time providing security.[48] It is integral to review how mechanized cavalry reconnaissance troops conducted operations as the smallest dedicated U.S. reconnaissance element.

The 80th Cavalry Reconnaissance Troop, 80th Infantry Division, was tasked to conduct a zone reconnaissance while maintaining contact with the First Army which occupied the division's left flank on April 1, 1945 in support of the division's seizing of Kassel, Germany.[49] The troop initiated movement and established contact with First Army elements encountering no opposition and capturing 15 prisoners of war.[50] The reconnaissance troop was the first element to experience firm resistance during the course of operations on April 2. By April 3, the troop reached its assigned positions at Isttra and Breitenbach, and captured another 15 prisoners, destroyed two trucks, and destroyed two 88mm artillery pieces all while it maintained contact with First Army units.[51] This was a typical assignment for a reconnaissance troop assigned to an infantry division. In this case, the general board reported, "enemy resistance was light and scattered, but was about the maximum which could be successfully engaged while maintaining required speed."[52] The performance of the 80th during this operation demonstrated how division reconnaissance troops could be successful in reconnaissance operations, but they lacked sufficient mobility and firepower to overcome anything greater than light resistance. This was a contributing factor to why these units were employed for reconnaissance only 6% of the time while deployed.

The evaluation of U.S. Army reconnaissance employment in the European Theater of Operations by the general board firmly acknowledges that the U.S. Army's doctrinal focus on

stealth and reconnaissance was incompatible with the combat realities of the European continent. The board concluded, "the situation where reconnaissance elements, operating in the prescribed manner, could precede combat elements by an effective distance, seldom presented itself, and more often it was only by fighting that any type of unit could advance."[53] These combat realities, paired with the firepower and mobility of mechanized cavalry units, led commanders to employ them in reconnaissance roles a fraction of the time. Ground commanders viewed mechanized cavalry groups as suitable organizations for economy of force operations such as defensive operations to free up infantry formations for offensive action. Commanders employed mechanized cavalry squadrons in the reconnaissance role the most out of the three echelons deployed to the European Theater of Operations, but even these squadrons were three times more likely to be used at the Commander's behest instead of reconnaissance. The U.S. Army's experience with cavalry reconnaissance in the European Theater illustrates how the Army philosophically approached reconnaissance with stealth in mind, but the realities of large-scale combat operations dictated the requirement for aggressive reconnaissance to fight for information.

Summarizing World War II Ground Reconnaissance

The previous sections analyzed how the Soviet, German, and American forces conducted ground reconnaissance during the Second World War with an emphasis on the American experience and its evolution from 1940 through the war's end in 1945. History reveals that Soviet reconnaissance forces favored stealth and deliberate tactics to obtain information on the enemy, whereas the Germans prioritized aggressive action through mobility and firepower. The American experience provides a mixed case where a doctrinal emphasis on stealth existed but in practice it was necessary to rely on aggressive mobility and firepower to obtain relevant

information about the enemy. All reconnaissance elements adapted to battlefield realities during the war. These adaptations highlight three primary streams of thought for consideration when developing and employing the cavalry in the twenty-first century. These three rationales are whether to prioritize stealth or fight for information, when to rely on other intelligence disciplines such as aerial reconnaissance for information, and should reconnaissance be a dedicated mission for the cavalry, or a task trained to all ground forces. The Russian Army is a leading competitor to the U.S. Army today and analysis demonstrates that Russia's current reconnaissance is influenced by its World War II experience.

Contemporary Russian Reconnaissance.

There are two primary elements within Russia's land component that maintain ready reconnaissance assets: the Ground Troops and Russia's airborne forces, the VDV (*Vozdush no-Desantnye Voyska*).[54] Russian tank and motorized divisions are the primary fighting force of the Ground Troops and these elements have direct support reconnaissance battalions emphasizing speed and lethality for combat operations.[55] These reconnaissance elements are primarily mounted so as to keep pace with their supported units. The VDV, which serves as Russia's rapid response and initial entry forces, maintains a separate special purpose (*Spetsnaz*) reconnaissance brigade in direct support to its four maneuver divisions and four maneuver brigades.[56] These units emphasize speed and mobility as evidenced by their focus on airborne or air assault insertion to seize key terrain, disrupt enemy rear operations, or destroy high value targets. Recent Russian operations in Eastern Ukraine and Syria reveal that Russia emphasizes flexible and agile reconnaissance elements, paired with precision strike capabilities, to take advantage of ambiguous conditions and achieve desired effects in a fluid environment.[57] Russian

reconnaissance today emphasizes stealthy and agile reconnaissance forces to avoid decisive

engagements and direct precision fires like their Soviet Army predecessors did in World War II.

Debate One: How Should The Cavalry Obtain Information - Stealth or Combat?

A common problem when tasking reconnaissance assets during World War II was

determining whether to use stealth or combat to acquire information. Historian John J. McGrath

posits in *Scouts Out! The Development of Reconnaissance Units in Modern Armies* (2008), "on

the eve of World War II, almost all armies assumed that mechanized or motorized

reconnaissance units needed to be light to move fast and gain information primarily through

stealth."[58] This commentary is supported by the Soviet lack of firepower in the reconnaissance

company and their ability to adapt to the terrain, preventing the Germans from ascertaining

information during Operation BARBAROSSA. It is further supported by the U.S. Army's

doctrinal emphasis on assigning cavalry units with solely reconnaissance missions and

commentary from Cavalry Officers such as Lieutenant Colonel Allen Hulse who wrote in 1944

that, "reconnaissance forces move by stealth; they fight only in self-defense or to get the required

information."[59] Obtaining information through stealth provides the ground force commander

with an information advantage as the adversary commander is unaware an opposing force has

ascertained valuable information as to the composition and disposition of his forces. Critical to

reconnaissance by stealth is time. The pace of large-scale combat operations, especially in a

heavily mechanized operating environment like that of World War II, simply did not provide this

time.[60] Stealthy units would often have to maneuver dismounted to reduce their signature in and

around arduous terrain all while taking measures to avoid discovery. This left reconnaissance

patrols exposed to the natural environment and to enemy forces who may possess overwhelming

fire superiority. This lack of survivability, coupled with the lack of time available, led to reconnaissance units adopting a more firepower minded approach.

Central to the argument for reconnaissance units to fight for information is the concept of survivability. Information obtained by reconnaissance was only valuable if it was reported, and couriers were vulnerable during offensive actions in the European Theater of Operations. Radio communications advanced considerably during the interwar period, but reconnaissance units still had to plan for, and sometimes rely on, couriers to report valuable information to their higher headquarters by foot or vehicle.[61] These realities led to three developments as the war progressed. The first was that reconnaissance forces began to become heavier through new equipment such as the M-8 scout car complementing the unarmored jeep or through habitual augmentation with armored forces such as separate tank, tank destroyer, or artillery battalions. The second was ground commanders developed a tendency to use their lead elements in the order of march as a reconnaissance unit as they considered them more survivable than their dedicated reconnaissance unit.[62] The third development, readily apparent in the General Board study analyzed above, is as reconnaissance units became more capable as a fighting force, they were used less for reconnaissance. These evolutions resulted in sentiments that reconnaissance forces were often misused.[63] Commanders viewed the mobility and firepower of cavalry formations as extremely valuable during large-scale combat operations and The First Army reported, "Cavalry units had to fight to obtain information. Organization and equipment of mechanized cavalry based solely on requirements for reconnaissance missions was proved to be equally unsound."[64]

The answer to the question of whether reconnaissance units should be tasked and equipped solely for stealthy reconnaissance or to fight for information does not need to be

binary. Stealth was the preferred method of reconnaissance, but analysis of the Army's World War II experience demonstrates that large-scale combat operations environment may not permit the time or resources for stealth. As such, the U.S. Army should ensure that reconnaissance elements in the twenty-first century are equipped to provide for their own security or tightly coupled with precision strike capabilities for protection and the ability to shape the battlefield. Additionally, reconnaissance elements should remain as mobile as the unit they are supporting. Reconnaissance elements for light infantry elements should generally be light (wheeled or dismounted). Reconnaissance elements for armored elements should likewise be armored. This allows the reconnaissance element to keep peace with, or even slightly outpace, their supported unit in reconnaissance and security operations. Analysis of the U.S. Army's mechanized cavalry during World War II revealed that the more a reconnaissance element outmatches the unit it supports in firepower or mobility, the less it is used for reconnaissance. Matching capabilities may alleviate this potential in the future.

Debate Two: Ground Reconnaissance vs. Aerial Reconnaissance

While the U.S. Army grappled over stealth or survivability for ground reconnaissance, aerial reconnaissance from the Army Air Forces began to fulfill the roles envisioned for it in the period between World War I and World War II. The Army Air Forces were responsible for several missions. The Army Expeditionary Forces Superior Board, which convened at the conclusion of World War I, outlined four primary missions for aviation in future wars: reconnaissance (for artillery spotting and enemy information), pursuit, close air support, and strategic bombing.[65] Once air superiority in the European Theater of Operations was achieved, aerial reconnaissance assets did not face the survivability considerations of ground reconnaissance forces which led to a debate of whether air assets could replace ground assets for

reconnaissance. As with mechanized cavalry units, the United States Forces General Board conducted a study of the Army Air Forces during the war. The general board concluded that aerial reconnaissance provided valuable information on enemy movements, concentrations, defenses, and installations during the planning and execution phases of all tactical operations.[66] Large-scale combat operations during World War II emphasized the advantages and disadvantages of aerial reconnaissance which reinforced the need for ground reconnaissance elements at tactical echelons (e.g. corps and division level).

Aerial reconnaissance assets possessed several advantages over ground reconnaissance elements. The first advantage was aviation assets had more operational reach than ground reconnaissance formations. This was especially true during amphibious and airborne operations where ground reconnaissance forces could not be introduced. The general board concluded that visual reconnaissance through aviation provided the majority of information necessary for mission accomplishment such as detailed photographs of assault beaches and drop zones, terrain outside the immediate objective area where resistance could be expected, and enemy defensive positions.[67] Additionally, outdated maps in the European Theater of Operations were common and aerial reconnaissance assets were often employed to provide more up to date information for planning purposes.[68] Ground reconnaissance elements could provide updated map information, but not as quickly as aerial reconnaissance and with considerably more risk. Army level commanders in the European Theater were more than satisfied with the support received from aerial reconnaissance, but the experience of corps and division commanders in dealing with aviation's limitations reinforced their need for ground reconnaissance.

The Army Air Forces had to contend with three main challenges when it came to supporting the Army Ground Forces. The first was air superiority. Only after the Allies achieved

air superiority would aerial reconnaissance operations contain less risk than ground reconnaissance. The second challenge was environmental. There was only one photo reconnaissance squadron in the European theater tasked to operate at night. This squadron flew the F-3 aircraft which was originally a bomber platform transitioned to conduct aerial reconnaissance. Its relatively slow speed, light protection, and low altitude led to the squadron only operating when an area was "undefended and interception improbable."[69] Visual reconnaissance from the air was unable to advise ground forces of the massing axis counterattack force during the Battle of the Bulge at Ardennes because "reconnaissance was greatly limited by poor weather during the day."[70] The third disadvantage that plagued aerial reconnaissance was communications. Reconnaissance aircraft would report information to their departure airfield where a ground liaison officer assigned to the Army or Group level would provide hourly broadcasts with the information. It was the responsibility of Army Corps and Divisions to monitor these broadcasts, but they often lacked the radios necessary or were outside of the range to receive this information.[71] While providing direct support to ground forces, aerial reconnaissance assets were unable to provide tactical echelons with information in time to be useful because one element outpaced the other and there was no direct contact with the ground and air forces.[72]

Army and Group level commanders were pleased with the support from aerial reconnaissance, but Corps and Division commanders felt that the support they received was too broad and failed to provide the detailed close-in perspective they required for tactical success. Thus, even though Corps and Division commanders routinely employed their organic ground reconnaissance elements outside of their intended role, they were still available to provide the detailed information commanders needed for their immediate operations. Large-scale combat

operations in World War II prove that reconnaissance must be conducted aggressively across all domains to be of real value to tactical commanders.

This debate continues today and has grown to include whether unmanned aircraft systems will replace manned aircraft systems. Many of the environmental considerations experienced in World War II have been overcome by technological advances with aircraft capable of operating at high altitudes over extended ranges, but limiting factors to aerial reconnaissance platforms remain during take-off and landing whereas ground reconnaissance forces are widely considered to be an all-weather capability. While many of the communications challenges have been addressed through technological and organizational developments, the electromagnetic spectrum and information environment are expected to be highly contested and will negatively affect aerial reconnaissance.[73] This challenge leads into the reality experienced during the Second World War and in future large-scale combat operations; aerial reconnaissance is dependent on air superiority or it assumes as much risk as ground reconnaissance elements. The most telling challenge that plagued aerial reconnaissance during large-scale combat operations in Europe during the Second World War was that no suitable formation existed organic to the Corps and Division to provide the overhead perspective that could have greatly benefitted their operations.

Debate Three: Dedicated Reconnaissance or a Commonly Trained Task.

The U.S. Army experience in large-scale combat operations led to a series of debates regarding the relevance ground reconnaissance. As ground reconnaissance forces were employed for reconnaissance less and less as the war progressed and aerial reconnaissance took flight once air superiority was achieved, the question arose as to whether dedicated reconnaissance units were necessary. This perspective is captured plainly by Colonel Edward Fickett, then commander of the 6th Cavalry Group, who commented, "there is no occasion, no opportunity,

and no justification for the maintenance in large commands of such an extremely costly, highly trained organization simply for the purpose of executing reconnaissance," to the United States Forces General Board in 1945.[74] What is surprising about this position is it came from a Cavalry officer seemingly discrediting his own branch. Additionally, the general board determined that cavalry groups were more effective in combat operations than infantry and armored formations despite being engaged more frequently, suffering only 52 casualties per 1,000 men compared to 175 per 1,000 men for the infantry divisions and 95 per 1,000 men for the armored divisions.[75] This combat effectiveness proved how effective the mobility and firepower of cavalry organizations could be, especially when augmented with artillery and other capabilities. While ground reconnaissance units were not employed for their intended purpose most of the time, this does not mean the intended purpose was misguided.

Reconnaissance soldiers were among the most flexible and adaptable forces in the U.S. Army during World War II. Before the war's conclusion, a reconnaissance soldier was required to master mounted and dismounted operations, small unit tactics, radio procedures, combat intelligence, handling enemy prisoners of war, vehicle recognition, minefield clearance, how to act as a forward observer, and several other tasks.[76] If reconnaissance units were taken away, these tasks would likely fall to infantry units whose primary mission is to close with and destroy the enemy or require the distribution of these tasks across multiple organizations. Irrespective of the division of labor, these tasks must be trained and resourced for success in large-scale combat operations as demonstrated on the European continent during World War II. The analysis of aerial reconnaissance above highlights a gap which existed at the echelon between Army and Corps. Mechanized reconnaissance forces in Europe were the ground force commander's only organic formation manned, trained, and equipped to fill this gap.

This operational level reconnaissance gap still exists in the twenty-first century. The 2018 National Defense Strategy has refocused the Department of Defense on great power competition and large-scale combat operations. The Army's primary fighting formation is the Brigade Combat Team (BCT) in three forms: the Infantry Brigade Combat Team (IBCT), the Armored Brigade Combat Team (ABCT), and the Stryker Brigade Combat Team (SBCT).[77] Every Army BCT has an organic cavalry reconnaissance squadron to provide direct support and enable tactical success. There is no dedicated reconnaissance element between a Brigade Combat Team and the Geographic Combatant Commands of today. Field Manual 3-98 *Reconnaissance and Security Operations* governs reconnaissance in today's Army and states, "Corps requires proficient reconnaissance formations capable of developing the situation through action…Regionally aligned reconnaissance and security forces to Geographic Combatant Commands ensure the capability is resident throughout all phases of a joint operation."[78] This reality implies that there is no dedicated organic ground reconnaissance element for at least two echelons (division and corps) between a brigade combat team and a combatant command. This current gap when compared to the conduct of reconnaissance and large-scale combat operations during World War II demonstrates there is still as much of a requirement for dedicated ground reconnaissance today as there was in Europe before the end of World War II.

Conclusion

In-depth analysis of American, Soviet, and German ground reconnaissance operations in World War II reveals several considerations for employing dedicated reconnaissance units in future large-scale combat operations. These include whether future reconnaissance elements should be light in nature, prioritizing stealth to obtain information or heavy enough to fight for it, whether ground reconnaissance is viable given the rise of aerial reconnaissance, and whether

reconnaissance should be a dedicated task for cavalry soldiers or a standard task trained widely across the Army. America's World War II experience in the Europe illustrates a clear preference for reconnaissance elements to obtain information through stealth but battlefield realities required units to be capable of defending themselves. While aerial reconnaissance improved in capability, it created a reconnaissance capability gap at the Army Corps and Army Division levels that was satisfied by dedicated ground reconnaissance elements. By the war's end, ground reconnaissance elements were among the most capable and flexible units in the Army and could not be replaced by general purpose forces. The Army needs to consider all of these factors in developing future doctrine, training, and organization in order to conduct successful ground reconnaissance in large-scale combat operations.

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