ARMOR IN BATTLE

Special Edition for the Armored Force
75th Anniversary

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Foreword

The Armor Branch provides a unique set of capabilities for today's expeditionary Army. The combination of mobility, firepower, survivability, tempo, and shock at both the platform and unit level makes Armor a critical component of the modern combined arms team. These qualities provide armored organizations the versatility necessary for success amid the uncertainties and complexities of future operational environments. Similarly, they ensure the means to outmaneuver and defeat an array of potential threats, including re-emerging ones. These qualities and their continuous evolution across the range of military operations constitute an underlying theme in the following pages.

Armor in Battle: Special Edition for the Armored Force 75th Anniversary captures the essence of Armor through accounts of small unit engagements from the interwar years through the Global War on Terrorism. From the maneuver concepts pioneered by the 7th Cavalry Brigade (Mechanized) in the 1930s through operations in Iraq and Afghanistan, these pages showcase Armor's ability to operate in the high intensity environments of World War II and the first Gulf War, its suitability for counterinsurgency operations in Vietnam and Iraq, and its value in stability and support operations in Occupied Germany and the Balkans.

This publication uses historical accounts as a professional development tool. Study of the actions described in the following pages provides insight into the maneuver and command of armored organizations directly applicable to current and future operational environments. Executing a fast paced engagement against an aggressive enemy, leading a movement to contact in low visibility conditions, overcoming supply concerns, and battling a determined foe in an urban environment represent tactical concerns to which tankers from World War II to the present can relate. Similarly, managing hostile crowd behavior, preventing complacency during routine checkpoint operations, interacting with a civilian population, and responding to sudden insurgent attacks are experiences common to Armor soldiers who served in Occupied Germany, Vietnam, or the Balkans. Leaders can expect to confront many of these challenges on their next operational deployment.

The special sections devoted to the creation of the Armored Force serve as a reminder of Armor Branch's roots and identity. From these beginnings emerged a branch noted for its aggressiveness, rapid action, and versatility-qualities which underscored Armor's role as the combat arm of decision.



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Introduction

In 1986 the U.S. Army Armor School published *FKSM 17-3-2: Armor in Battle*. This manual provided a collection of articles and accounts focused upon tactical armored engagements. It provided Armor leaders with a reading set that highlighted actual operations in confusing and sometimes terrifying combat environments. *Armor in Battle* supported the professional development of junior leaders, particularly at the battalion and below levels, exposing them through history to the challenges of tactical command. The combat experiences included in its pages described the mud, blood, and chaos of the real world in which Armor leaders would have to function.

This updated edition of *Armor in Battle* also focuses on small unit armored actions. It opens with the interwar period and ends in the Global War on Terrorism. The chapters on World War II, *The Korean War*, and Vietnam include different perspectives than the content offered in the original edition. For example, the new chapter on World War II provides insights into armored combat in North Africa, detailed coverage of the Arracourt tank battles, and several articles focused upon tank-infantry coordination in the Mediterranean and Pacific theaters. The Korean War chapter addresses the use of tanks in an urban environment and pursuit and exploitation actions, while the Vietnam chapter covers quick reaction force and relief operations in an austere operational environment. Other chapters detail the use of light armor as a stability force in postwar Germany, the insertion of tanks by air into Panama, Operation Desert Storm, and peace enforcement in the Balkans. A final chapter addresses the use of armor during the war on terror through articles detailing the air deployment, urban combat, counterinsurgency operations, and the employment of tank units as either motorized or dismounted forces.

Collectively, these accounts highlight the versatility of armor units. They depict the ability of armored organizations to perform multiple functions across the range of military operations. However, the different eras and locations depicted in these pages posed unique challenges to armor leaders. Understanding these past challenges builds mental mobility—an old horse cavalry term used to describe a commander's ability to react quickly and effectively to rapidly changing circumstances on the battlefield.

The tactical experiences included in these pages include insights into most aspects of armor leadership that can be incorporated into a self-study program or used for structured discussion in a field or classroom environment. Indeed, this volume constitutes a training tool readily inserted into programs of instruction or leader professional development activities.

Armor's versatility and unique combat capabilities should be clear from the articles that follow. Too often, these qualities have been misunderstood or marginalized by an overemphasis upon the limitations of armored combat organizations. Yet, the importance attached to combined arms maneuver by today's Army necessitates that all team members understand the true capabilities of each team component. Tanks and armored organizations possess tremendous combat power, mobility, and shock effect that must be understood to maximize their impact and achieve decisive overmatch in battle. Such comprehension is a must for all soldiers, regardless of branch, who will lead, train, or plan the deployment of armored organizations. Hence, this work targets a broad audience that includes Armor personnel in addition to all soldiers, civilians, and contractors who support combined arms and joint operations.

This work deliberately focuses upon the U.S. Army armor experience. This American orientation does not diminish international achievements but rather reflects the ready availability of source material. However, given the rich tapestry of experience that defines U.S. Armor history since the interwar era, this focus upon American actions necessarily includes a diverse collection of operational environments, mission types, and opponents from which to extract relevant insights.

This publication also commemorates the 75th anniversary of the establishment of the Armored Force. It therefore includes several items related to Armor Branch's formative years. A detailed chronology charts the path from the first American tank units in World War I to the Armored force in 1940. A set of images tells a similar story in pictures, and the directive that created the Armored Force is presented in its entirety. Finally, the work concludes with a listing of Medal of Honor recipients to commemorate the talents and sacrifices of those who have served in Armor.

FORGE THE THUNDERBOLT!

Armor in Battle

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Road to Armored Force

Editor: The Armored Force occurred as the result of the series of events described in the following pages. The first was the development of the tank in World War I. Subsequent improvements produced faster, more reliable armored combat vehicles with a broader range of potential employment. New doctrinal and organizational concepts emerged to shift armored development away from its platform-centric roots toward a unique capability set. This transition happened gradually in the United States, shaped by the National Defense Act of 1920, budgetary constraints, and the different missions assigned to the Infantry tank force and the 7th Cavalry Brigade (Mechanized). No consensus existed concerning the correct organization or method of employment of armored units. Hence, until the late 1930s, U.S. Army mechanization lacked a central focus and direction. The First Army maneuvers of 1939, the Third Army maneuvers of 1940, and Germany's successful mass application of armored formations in Poland and France resolved this uncertainty, generating widespread acknowledgment of the need for American armored divisions. The creation of the Armored Force was the direct consequence of this newfound clarity of purpose.

World War I—the Foreign Experience

June 15, 1915: British Lt. Col. Ernest Swinton authors the first discernible requirements for a tank design. The vehicle was intended to help overcome the trench deadlock on the Western Front.

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September 6, 1915: The British build and run the first practical tank design, known as "Little Willie."

January 12, 1916: The British demonstrate an improved tank model known as "Mother," which became the basis for the first production vehicle, the Mark I.

February 21, 1916: The French complete testing of a Schneider tank design and several days later decide to produce several hundred.

September 15, 1916: The British employ tanks in combat for the first time during the Somme offensive. Mark I tanks were employed in small numbers with varying degrees of success. They proved vulnerable to German armor piercing small arms ammunition, artillery, and terrain that mired them. Subsequent British designs increased the level of armor protection to withstand armor piercing small arms ammunition, marking the onset of the development race between tank survivability and antitank measures.

October 8, 1916: The British create the Heavy Section of the Machine-gun Corps. Later renamed the Tank Corps, it provided institutional support and training for the tank force.

April 10, 1917: The French Renault FT light tank successfully completes official trials. The vehicle featured the characteristics that have become synonymous with subsequent tank designs—main armament in a revolving turret, driver in hull front, engine in rear hull, and track suspension. It did not carry the heavy armor of the Schneider and St. Chamond platforms, but it was simpler and cheaper to produce. Through mass employment, the French intended to overwhelm opposition through numbers, a concept sometimes referred to as a "bee swarm."

April 16, 1917: French tanks make their combat debut during the Nivelle Offensive with the commitment of 132 Schneider tanks. The results were mixed with 57 destroyed by various means and 44 succumbing to mechanical breakdowns. The rest pushed on to their objectives, but poor coordination with supporting infantry forced them to retreat. German artillery barrages and artillery firing in a direct fire role accounted for many of the tanks destroyed. Mounted in the forward hull, the gasoline tanks of the early model Schneider tanks tended to ignite when hit by enemy gunfire. The resultant catastrophic fire often destroyed the vehicle and killed the crew. Hence, the Schneider tank became nicknamed a "Mobile Crematorium."

April 17, 1917: The British employ tanks for the first time in the Middle East, when eight support the Second Gaza Offensive. This action marks the first employment of tanks in theaters of operations outside Europe.

May 5, 1917: The French St. Chamond tank enters combat. Heavier, larger, and carrying more weapons than the competing Schneider design, the St. Chamond suffered from insufficient power and limited mobility on the

shell-torn terrain of the Western Front. Its role shifted from that of assault to fire support, and encouraged development of the smaller and lighter Renault FT. The difficulties experienced by the Schneider and St. Chamond tanks trying to maneuver on the battlefield led the French to attach engineers to tank units equipped with these platforms. The engineers improved trench and stream crossing points and dug out mired vehicles

May 14, 1917: The Germans test their first tank, the A7V Sturmpanzerwagen. Few were actually fielded, and the Germans lagged behind the British, French, and Americans in their development of a tank force in World War I. Indeed, the bulk of German tanks encountered in combat were captured vehicles.

November 20, 1917: The British commit 476 tanks to an offensive at Cambrai, including specialized tanks intended to facilitate trench crossing, remove barbed wire, bridge obstacles, carry supplies, and facilitate communications with higher headquarters. Preparations included the coordination of plans for tank employment with a sophisticated fire support plan, aerial observation, aerial ground attack, and integrated operations with infantry. On the first day, the offensive breached the German lines along a six-mile frontage. However, the inability to exploit this success enabled the Germans to mount a counterattack that recaptured much of the lost ground. The use of specially trained antitank artillery and mobile antiaircraft guns in an antitank role inflicted significant tank losses and foreshadowed the more sophisticated antitank measures of World War II.

April 24, 1918: The first tank versus tank battle occurs between British and German platforms at Villers-Bretonneux.

May 24, 1918: British Tank Corps officer J.F.C. Fuller authors a paper arguing for the creation of a tank force capable of penetrating enemy lines and striking into the hostile rear area, destroying artillery, headquarters, and those assets necessary to sustain a coherent defense. He also advocated a much larger tank force that included a variety of tank types able to perform different combat functions. Better known as "Plan 1919," the paper was never fully implemented, but aspects captured the attention of Allied leaders.

May 31, 1918: The French Renault FT enters combat during the Second Battle of the Marne.

August 8, 1918: The British and French employ nearly 600 tanks to the offensive at Amiens, integrating their operation with infantry, close air support, and artillery. Learning from Cambrai, plans for early exploitation of a breakthrough included the use of armored cars with cavalry and the employment of the newly fielded light Whippet tanks. The offensive penetrated six miles into German lines along a twenty-mile frontage, capturing over 16,000 prisoners. The success of the offensive spurred the German leadership to consider peace negotiations.

World War I—The American Experience

May 21, 1917: The American Military Mission completes a report on British and French tank operations. This document encouraged General John J. Pershing, commander of the American Expeditionary Forces, to direct further studies of tank operations, related training measures, and production efforts.

July 19, 1917: General Pershing orders the creation of an American tank board to study British and French tank operations on the Western Front.

September 1, 1917: The tank board submits its findings in a report that notes the value of the tank to combat operations and recommends the creation of an American tank arm directly subordinate to the American Expeditionary Forces commander. The report also advocated the creation of a mixed force of heavy and light tanks, reflecting the influence of both British and French tank design philosophies.

September 23, 1917: Organizational and personnel requirements for an American tank force are submitted to the War Department. These requirements include nearly 15,000 soldiers to man combat organizations, establish a training base, and staff a headquarters.

November 10, 1917: Capt. George S. Patton Jr. directed by American Expeditionary Forces Headquarters to establish a tank training school for the U.S. First Army in France. He became the first soldier assigned to tank duty.

November 10, 1917: Following visits to British and French tank production facilities, two Ordnance officers, recommend the U.S. concentrate production on an American version of the French Renault tank. They also proposed a joint US-British heavy tank design which featured British armor and weapons with an American engine for assembly in a French plant. This first international tank program resulted in the Mark VIII, a heavy tank which entered production too late to see combat in World War I.

December 22, 1917: Col. Samuel D. Rockenbach appointed chief of the Tank Corps in the American Expeditionary Forces. By year's end, the Corps numbered just three officers, including Rockenbach. However, plans for the new force included a general headquarters, three tank training centers, two army tank headquarters, and ten brigades. With an authorized strength of 14,287 soldiers, efforts to meet this personnel strength formally began in January 1918.

***February 18, 1918*:** In the United States, the Tank Service of the National Army is authorized and placed under the control of the Chief of Engineers.

March 5, 1918: The Tank Service becomes a separate Army branch under its newly appointed director Col. Ira C. Welborn. His primary responsibilities included organizing, training, and equipping tank units. He oversaw the establishment and operation of several stateside tank training camps, while managing related recruitment efforts. Welborn's command, however, remained separate from the tank force serving under the AEF in France.

March 22, 1918: The Tank Service in the United States is renamed the Tank Corps. It remained a separate organization from the AEF Tank Corps.

April 9, 1918: American soldiers begin training for service in heavy tanks under British tutelage in England. Many of these soldiers became the first members of the U.S. 301st Tank Battalion, which subsequently entered combat with British and Australian forces.

May 28, 1918: U.S. infantry receives tank support for the first time when French Schneider tanks accompany a successful attack by the 28th Infantry upon Cantigny. This action also marked the first American offensive of World War I.

September 12, 1918: The 1st Provisional Tank Brigade (redesignated the 304th Tank Brigade in November), participates in the St. Mihiel offensive, marking the combat debut of the U.S. Tank Corps. The offensive succeeded and validated the extensive preparations made by Patton, who commanded the 1st Provisional Tank Brigade during this offensive.

September 26, 1918: The American-led Meuse-Argonne offensive begins with tank support from the 1st Provisional Tank Brigade. Lessons learned from St. Mihiel resulted in special measures to push supply and maintenance assets forward. Tanks initially carried additional external gasoline cans and provision was made for commonly needed spare parts to be moved forward with the advancing tanks. Nevertheless, the offensive, conducted against fortified positions amid hilly, wooded terrain made slow progress, and it continued to the war's end.

November 8, 1918: General Pershing rejects the Ford M1918 as a tank suitable for the Tank Corps. The vehicle, long delayed, had been field tested in France and found unsuited to battlefield conditions. The M1918 marked the first American-built tank. Despite Pershing's rejection, Ford Motor Company had already received a contract to build over 15,000. By war's end, however, only fifteen had been built. The contract was cancelled, and no tank produced in the United States entered combat in World War I. This poor production performance directly stemmed from the lack of industrial mobilization planning prior to America's entrance into the war.

November 11, 1918: An armistice is signed ending fighting on the Western Front and marking the end of World War I.

End of the US Tank Corps

February 19, 1919: Tank School established at Camp George G. Meade, Maryland, after abortive attempt to consolidate stateside tank training at Camp Benning, Georgia.

March 8, 1919: The War Department reduces Tank Corps size to 300 officers and 5,000 enlisted as part of postwar downsizing. These new personnel caps were never reached due to rapid demobilization, which began in France immediately after the armistice.

August 6, 1919: The AEF Tank Corps leadership and staff, led by Brig. Gen. Rockenbach, arrives at Camp George G. Meade, where it is reorganized into the headquarters of the postwar Tank Corps. It assumed responsibility for training; materiel development; coordination with the General Staff on tactics, organization, and policy; and general supervision of the Tank Corps. Rockenbach provided the leadership continuity from war to peace.

August 15, 1919: The Tank Corps reorganized to include a general headquarters, the Tank School, two tank brigades, and sufficient personnel to attach a light tank company to each Regular Army division and a training cadre to each division in the National Guard and Organized Reserves. This plan remained largely a paper one, since the Tank Corps lacked the personnel to implement it. Early efforts focused on the formation of the two tank brigades to constitute the backbone of the Tank School and discharge its training functions. These actions occurred amid growing uncertainty as to the future of the Tank Corps as an independent branch.

December 31, 1919: Personnel establishment for the Tank Corps further reduced to 154 officers and 2,508 men as part of ongoing demobilization and downsizing. Rumors circulated of pending plans to subordinate the Tank Corps to the Infantry, creating uncertainty for the professional futures of those remaining Tank Corps personnel.

May 1920: The *Infantry Journal* publishes an article by George S. Patton Jr., entitled "Tanks in Future Wars." The article argued that support for the tank suffered from ignorance of its capabilities. Patton offered a view of future battlefields different from the trenches of the Western Front that required integrated action by tanks and infantry for success. This article was part of a larger effort by Tank Corps supporters to highlight the importance of the tank and the need to avoid subordinating its development to an existing combat arm. However, the general disparagement of J.F.C. Fuller's ideas and the absence of an alternative American vision of mechanized warfare undermined the belated effort to articulate a sound argument for continuing the Tank Corps' independence.

June 4, 1920: Congress passes the National Defense Act of 1920. This Act established the basic structure and size of the Army for the interwar period. It authorized the creation of separate chiefs for the Cavalry, Infantry, Air Service, and Chemical Warfare Service, but it abolished the Tank Corps. Following testimony from Army leaders, Congress concluded that the tank's primary role, derived from its World War I experience, lay solely in infantry support. Therefore, the law assigned tanks and responsibility for the related doctrine, materiel, and training development to the Infantry.

Tank Development Under the National Defense Act of 1920

June 30, 1920: Publication of *Tactics and Techniques of Tanks*, a provisional manual for possible use in the General Service Schools at Fort Leavenworth authored by Capt. Joseph Viner, a former Tank Corps officer serving with the Cavalry. The manual outlined a variety of missions for tanks beyond infantry support to include raids, pursuit, advance guard, and rear guard. This manual reflected the view that the battlefield utility of tanks transcended close support of the rifleman.

1921: General Service Schools' representatives meet to discuss tactics and organization for the Infantry tank force. They quickly embraced a much broader mission set for tanks than infantry support. In doing so, they contradicted official Army tank policy. Consequently, The Adjutant General sent each attendee a notice warning that the views expressed exceeded the stated purpose of the conference.

July 1921: The *Cavalry Journal* publishes "Cavalry Tanks," an article written by Maj. Bradford G. Chynoweth, an Infantry tank officer, who advocated the use of tanks to perform cavalry roles. This article proved one of many appearing in service journals that advocated a broader role for tanks beyond infantry support, despite the Army's official tank policy.

February 1923: Rockenbach finalizes requirements for the design of a new medium tank based upon lessons learned from World War I. Salient characteristics included the ability to reach the battlefield without reliance upon special transport, a top speed of 12 miles per hour, an armament of one cannon and two machine guns, the ability to cross a nine-foot-wide trench, armor protection against .50 caliber ammunition, 360-degree field of fire, and a maximum weight of 15 tons. Several models were built by the Ordnance Department, but none met the weight restriction.

November 2, 1923: The War Department publishes the *Field Service Regulations, United States Army*. This manual outlined a warfighting concept for the Army based upon maneuver rather than the positional warfare of World War I. These regulations considered tanks largely for the conduct of assaults in terrain or conditions that limited infantry maneuver. Tanks were not seen as suited to shaping or other types of operations, effectively limiting their use to circumstances similar to those of the Great War, despite the manual's overall emphasis upon maneuver.

1925: The General Service Schools at Fort Leavenworth publishes *The Employment of Tanks in Combat* as an instructional text. In this work, breakthrough tanks preceded the infantry assault to clear obstacles, while a second wave of tanks accompanied the infantry, providing direct fire support. This concept reflected the intended use of American tanks in World War I that was never realized before the armistice. In the postwar years, the Mark VIII served as the breakthrough tank, while M1917 light tanks constituted the accompanying tanks.

May 2, 1925: The War Department publishes *Training Regulations No. 420-275: Infantry: Tank Combat Practice*. These regulations provided basic principles to govern tank gunnery training.

September 1925: The British army conducts maneuvers, utilizing tanks, armored cars, mechanized artillery, and motorized infantry. The event reflected Britain's leadership in mechanization in the 1920s, and it gained widespread coverage in U.S. Army service journals. This event also introduced the Vickers Medium Tank Mark I, with significantly improved capabilities over its Great War predecessors that made it suited to a variety of battlefield environments.

1926: The Cavalry School publishes *Armored Cars*, a provisional manual for the operation of armored cars by cavalry organizations. Since the National Defense Act of 1920 gave Infantry exclusive responsibility for tanks, the Cavalry worked to develop concepts for the tactical employment of armored cars.

1927: The 1st Cavalry Division is assigned an armored car company as an organic asset.

August 27, 1927: The British Experimental Mechanized Force forms to develop doctrinal and organizational concepts for an armored combined arms unit based upon tanks.

September 20, 1927: The 1st Cavalry Division begins maneuvers near Marfa, Texas. A platoon of M1917 tanks participates, using truck carriers to move to and from battle areas, but its slow speed (5-7 miles per hour in optimal conditions) encouraged interest in a light, fast tank that did not require a special truck carrier.

September 26, 1927: The War Department publishes *Training Regulations No. 420-290: Infantry: Tanks—Moves and Positions*. These regulations governed the movement of tanks to the area of operations, preparations for combat, and the related coordination, logistical planning, and staff operations necessary to realize their maximum effectiveness in battle.

October 1927: First demonstration of the T-1 Light Tank occurs. This vehicle leveraged the latest advances in automotive technology. It featured a turret mounted 37-mm gun, a springless suspension system, and the use of an all-purpose chassis to facilitate standardized production. This vehicle marked a shift in American tank design away from medium tanks toward lighter vehicles, which was reinforced by Infantry interest in a vehicle capable of keeping pace with infantry operations in open terrain.

1928: The War Department constitutes three armored car squadrons on paper and activates one armored car troop. This action reflected continued interest in armored car operations, particularly with cavalry organizations.

March 20, 1928: Brig. Gen. Frank Parker, Assistant Chief of Staff, G-3, outlines a mechanized development program to the Army chief of staff that includes fully mechanized formations capable of attacking enemy flanks and rear areas to assist the advance of traditional ground forces. Parker believed the tank's combination of firepower and mobility would restore decisiveness to the battlefield. Hence the Army needed to establish permanent mechanized organizations with clear roles. Maj. Adna R. Chaffee Jr. served under General Parker at this time, having been assigned to the G-3 to study mechanization.

July 1, 1928: Establishment of the U.S. Experimental Mechanized Force at Camp Meade. Secretary of War Dwight Davis directed the creation of this organization after observing the British Experimental Mechanized Force in England. Impressed with the British initiative, he sought a similar organization in the U.S. Army to explore a combined arms mechanized unit. The unit included a collection of personnel and material drawn from across the Army. The resultant motley collection of antiquated vehicles created a mechanic's nightmare, but it did provide a unique opportunity to experiment with a new type of unit.

September 20, 1928: The U.S. Experimental Mechanized Force disbands. Analysis of the organization's experience followed.

October 1, 1928: The Mechanized Board submits its final report on the Experimental Mechanized Force. This body convened in May 1928 to study the organization and determine whether it or a similar mechanized force should become a permanent part of the Army's force structure. The Mechanized Board recommended the

establishment of a permanent mechanized force to serve as the Army's technical and tactical test bed for further mechanized development. This force was not to be a separate branch, but it was intended to be independent of the existing combat arms. Board membership included Maj. Chaffee.

1929: Army War College Commandant Maj. Gen. William D. Connor introduces mechanized elements into all student problems at the War Department's request.

June 29, 1929: The War Department publishes *Training Regulations No. 420-270: Infantry: Tank Marksmanship*. These regulations refined previous gunnery instruction for crews of the M1917 and Mark VIII tanks then in use. A more uniform method of training was provided that increased the emphasis given to accuracy, recording of individual skill development, the duties of training officers, and the derivation of a more scientific ballistic solution.

October 1929: An armored car company participates in 1st Cavalry Division maneuvers near the Mexican border. The rapid speed of the vehicle was considered an asset by the Cavalry, despite command and control issues and the ease with which armored cars were disabled.

March 12, 1930: At the Army War College General Connor completes a study of mechanization, concluding that cavalry missions constituted the likely future function of mechanized formations. In this timeframe, the cavalry mission set included offensive and defensive combat actions, reconnaissance, security, pursuit, exploitation, delay, the raid, the seizure of critical objectives in advance of the main body, and service as a mobile reserve.

April 17, 1930: Tank School Commandant Col. James K. Parsons proposes a mechanized development program that includes the establishment of six tank divisions, each one a combined arms formation capable of sustained, independent operations.

October 1930: Army Chief of Staff General Charles P. Summerall directs the establishment of a permanent Mechanized Force at Fort Eustis, Virginia. Created as a combined arms organization, the Mechanized Force served to study tactics, techniques, and test new materiel. Its initial activities focused upon organization, equipment, and individual training. Col. Daniel Van Voorhis commanded the Mechanized Force, whose leaders represented a mix of Infantry and Cavalry officers. Maj. Chaffee later joined as the executive officer. The Mechanized Force included a headquarters company, an armored car troop, an infantry tank company, a machine gun company, a self-propelled artillery battery, an engineer company, an Ordnance company, and detachments of Signal, Chemical Warfare Service, and Quartermaster troops. Total strength included 36 officers and 648 men with 167 vehicles of various types, including 23 tanks. The Mechanized Force constituted a separate organization independent of the existing combat arms. Opposition to the new force soon emerged from the chiefs of those arms. Against the backdrop of the Great Depression and the resultant drop in military spending, the chiefs of the combat arms feared that the Mechanized Force would drain personnel and resources from their branches. The Infantry, in particular, feared the Mechanized Force would divert tanks from infantry support in the same manner that the Air Corps' embracement of strategic bombing marginalized close air support.

The Army's Bifurcated Mechanization Program: Infantry Tank and Mechanized Cavalry Development in the 1930s

1931: The War Department publishes *Infantry Field Manual*, which includes basic guidance for the employment of tanks with infantry. Concepts reflected refinement of World War I practices, including the use of tanks in waves to breach enemy defenses and provide fire support to advancing riflemen. At this time the Infantry tank force included a light tank regiment, a heavy tank regiment, and thirteen individual tank companies. A small tank force supported training at the Tank School. However, most of these units existed only on paper, and materiel included World War I vintage M1917s and Mark VIIIs.

May 1, 1931: Army Chief of Staff General Douglas MacArthur issues "General Principle to Govern in Extending Mechanization and Motorization Throughout the Army." This document emphasized the importance of tanks in the execution of both Infantry and Cavalry missions. It established a dual mechanization policy that remained in effect throughout the 1930s. This broadening of the scope of tank development reflected the trend of the Mechanized Force to execute missions more akin to cavalry operations while affirming the importance of the infantry tank force. MacArthur's guidance noted that "as one of the principal duties of the tank will be to support infantry, it should be trained with it to develop the most efficient type of machines and most applicable methods of tank support for infantry units." To avoid violating the

letter of the National Defense Act of 1920, tanks assigned to cavalry organizations would be designated "combat cars." Further guidance from the War Department encouraged mechanization and motorization throughout the Army and made each branch responsible for its own program. The collective impact of these actions effectively nullified Infantry's exclusive control over tank development, reflecting the evolution of mechanization from a branch into an Army asset.

September 10, 1931: The War Department publishes *Training Regulations 425-90: Cavalry: Armored Car Marksmanship*. This manual provided a uniform method of gunnery training with related standards applicable to vehicle-mounted .30 and .50 caliber machine guns as well as the Thompson submachine gun, the preferred weapon for vehicle crews.

October 3, 1931: The War Department issues a directive entitled "Disposition of Mechanized Force," which identified the broad objectives and steps to be followed in mechanizing a cavalry regiment and establishing the 7th Cavalry Brigade (Mechanized). It called for the mechanization of a single cavalry regiment to develop the basic organization and related tactical principles with the intent to expand this force as it evolved. This directive also included the organization of the 1st Battalion, 68th Field Artillery, to serve as the artillery component of the 7th Cavalry Brigade (Mechanized) and to develop those principles necessary to ensure the effective integrated operation with mechanized cavalry.

October 31, 1931: The Mechanized Force disbands. This action had been anticipated for months and reflected the combined influence of a funding shortfall, the inability to secure additional funds from Congress during the Great Depression, and the opposition of the branch chiefs, who perceived the Mechanized Force as a resource threat. Amid the growing budgetary crisis of the Depression era and President Herbert Hoover's determination to cut military spending, Army Chief of Staff General Douglas MacArthur had to decide whether to sustain expensive new technology (the Mechanized Force) or retain as many Regular Army personnel as possible. He chose personnel over technology.

November 1, 1931: Detachment for Mechanized Cavalry Regiment created from cavalry personnel and armored cars assigned to the now defunct Mechanized Force. This detachment relocated to Camp Knox, Kentucky, where it became the nucleus for the first mechanized cavalry regiment to be formed. Camp Knox offered a variety of terrain types, centralized location, and accessibility via road and rail. It was also one of the largest military reservations little used other than for summer training.

December 1931: The War Department directs the activation of the 7th Cavalry Brigade (Mechanized) by May 1932. This action reflected the War Department's intent to expand mechanized cavalry beyond a single regiment.

1932: The Mark VIII declared obsolete. Due to a lack of tanks, however, the use of this tank in the event of a national emergency was considered likely.

January 1932: Camp Knox becomes Fort Knox, reflecting an upgrade to the post's status as a result of the permanent assignment of the 1st Cavalry Regiment and planned future unit assignments. Construction of permanent infrastructure followed to provide facilities sufficient to support mechanized cavalry development. The Tank School relocates to Fort Benning, where it becomes part of the Infantry School. This action facilitated the Army chief of staff's guidance for more integrated training between tanks and riflemen.

February 1932: Table of organization for a mechanized cavalry regiment created. Principal components included a headquarters and headquarters troop, a machine gun troop, a covering squadron of armored cars and scout cars, and a combat car squadron. This structure marked the start of an evolutionary process that would continue to refine the regiment's organization.

1933: The Cavalry School issues "Mechanized Cavalry," a pamphlet intended to provide doctrinal guidance for mechanized cavalry development. Based largely upon studies of foreign mechanization, armored car activities, and the limited U.S. mechanized development to date, it provided general concepts rather than mature doctrine.

January 1, 1933: 1st Cavalry Regiment leaves Fort Russell in Marfa, Texas, en route for its new permanent station at Fort Knox. Texas legislators contested this move and delayed it for nearly two years, arguing that the regiment's proper place lay near the Mexican border. At issue was the economic loss to Texas represented by the unit's departure. The Great Depression only intensified this impact.

Jan 16, 1933: The 1st Cavalry Regiment arrives at Fort Knox. There it underwent reorganization and became the 1st Cavalry Regiment (Mechanized), commanded by Col. Daniel Van Voorhis and assisted by Lt. Col.

Chaffee as his executive officer. The unit became the first mechanized cavalry organization in the Army's force structure, though it initially lacked combat vehicles and required additional personnel.

March 31, 1933: Congress establishes the Civilian Conservation Corps to provide employment in landscaping, reforestation, and other public works projects. The Army assumed responsibility for recruiting manpower for these jobs and managing the related work camps scattered across the United States. The Army met its responsibilities through the mass diversion of personnel and resources from regular military activities. Units provided small teams of soldiers to manage and lead the scattered work camps. The 1st Cavalry Regiment (Mechanized), for example, became responsible for running 144 Civilian Conservation Corps camps in the V Corps Area, which included Kentucky. This responsibility adversely impacted the unit's efforts to complete its transition into the Army's first mechanized cavalry regiment. However, management of scattered camps in rural areas provided invaluable experience in dispersed operations, particularly in the creation and sustainment of communication and logistics systems over broad areas.

September 18, 1933: A briefing at the Army War College summarizes a proposed change in the table of organization for the tank battalion that would add armored cars and a machine gun unit transported in halftracks. These changes were not implemented. During the same event, Maj. Sereno Brett, a Tank Corps veteran who continued to serve in the Infantry tank force throughout the interwar years, noted that the "best solution for the present mechanized means of the U.S. Army is to get the biggest transport we have, load it all on, and dump it into the middle of the Atlantic Ocean." Brett's comment reflected the frustration experienced by tankers working with an obsolete tank fleet that created a false image of combat power and obstructed the acquisition of newer, more capable designs.

November 2, 1933: The War Department plans to equip fully a regiment of light tanks, a regiment of medium tanks, and seven light tank companies for attachment to infantry divisions. This plan remained in effect until 1938, but most tank units possessed few of the tanks indicated in their tables of organization and equipment. National Guard tank companies, for example, possessed only two tanks for much of the decade.

May 1934: The 1st Cavalry Regiment (Mechanized) participates in maneuvers with horse cavalry elements at Fort Riley, Kansas. The maneuver debut of the mechanized cavalry permitted the Cavalry to assess the relative strengths and limitations of horse and mechanized cavalry units working together and in opposition during a series of field exercises. The maneuvers also permitted testing of the T-4 and T-5 combat cars and experimentation with the .50 caliber machine gun in an antitank role. In the wake of these maneuvers, Col. Bruce Palmer replaced Van Voorhis as commander of the 1st Cavalry Regiment (Mechanized).

July 1934: The Mechanized Cavalry Board convenes at Fort Knox. This board studied the May maneuvers and provided the analytical basis for further development of the organizational and operational concept for a mechanized cavalry regiment. The Board's findings included the incorporation of squadron headquarters detachments to facilitate decentralized maneuver and control of the regiment, enabling the unit to operate as a collection of independently operating components with separate tasks assigned by the regimental commander. The Board also recommended the assignment of motorized engineers to facilitate river crossings, a support squadron to secure objectives, and the inclusion of mortars to suppress hostile antitank positions.

September 1934: New Jersey hosts a command post exercise that includes horse and mechanized cavalry assets. The event offered insights into the use of horse and mechanized cavalry together and encouraged the possible use of mechanized cavalry to support air operations, exploiting their effects to seize key objectives until relieved by other ground forces. However, the exercise only included commanders and staffs. More extensive field maneuvers in 1935 were cancelled due to lack of funds.

1935: The M2A1 Light Tank enters service. This vehicle featured a turret mounted .50 caliber machine gun. After receiving ten of these vehicles, the Army opted for a different version with two turrets, each carrying a machine gun. Designated the M2A2, this vehicle was better known as the Mae West in reference to the buxom, well known actress of the time. The twin turrets enabled simultaneous target engagement and suited Infantry tank doctrine. With a 250 horsepower engine, this vehicle attained a maximum speed of 45 miles per hour on roads. Its suspension and engine reflected the automotive advances of the era, including improved overall reliability. Further refinement resulted in the M2A3.

1935: The M1 Combat Car enters service with the 7th Cavalry Brigade (Mechanized). The combat car designation reflected the language of the National Defense Act of 1920 that directed all tanks be assigned to the Infantry. Similar to the M2A1 Light Tank, the M1 Combat Car differed primarily through the mounting of its main machine gun armament in a single turret rather than the twin turrets of the light tank. Improvements

included easier engine access, increased fuel capacity, and suspension changes that lengthened the hull. These upgrades resulted in the M1A1 Combat Car that entered service in 1938.

April 5, 1935: The War Department assigns the 1st Battalion, 68th Field Artillery (Mechanized) to Fort Knox. The unit was attached to the 7th Cavalry Brigade (Mechanized) for combined training and to determine the most effective principles for integrated action.

October 15, 1935: The German army forms the first three panzer divisions, armored combined arms formations.

July 17, 1936: A military uprising against the Spanish Republican government marks the onset of the Spanish Civil War. This conflict lasted three years and witnessed the employment of tank forces, increased effectiveness of antitank weapons, and the development of close air support techniques. The war also served as a testing ground for new weapons developed by the European powers.

August 1936: The Army conducts the Second Army Maneuvers in two phases, one at Fort Knox, the other near Allegan, Michigan. The maneuvers tested the latest mechanized cavalry developments and the ability of motorized and mechanized assets to operate together. The 7th Cavalry Brigade (Mechanized) participated with the 1st Cavalry Regiment (Mechanized) and the attached 1st Battalion, 68th Field Artillery Regiment (Mechanized). Additional maneuver attachments included a motorized field artillery battalion, a motorized infantry battalion, an aerial observation squadron, and service and supply units. Recommendations from the maneuvers focused on improving the versatility and self-sufficiency of the mechanized cavalry through the addition of observation aircraft, engineers, cavalry rifle elements for dismounted operations, a signal unit, and service and supply components.

August 14, 1936: The War Department approves the mechanization of the 13th Cavalry Regiment, its permanent transfer to Fort Knox, and its incorporation into the 7th Cavalry Brigade (Mechanized). This action marked an evolutionary step for the mechanized cavalry, elevating the development of mechanized concepts from regiment to brigade level.

September 1936: The 13th Cavalry Regiment (Mechanized) arrives at Fort Knox as an organic component of the 7th Cavalry Brigade (Mechanized). Commanded by Col. Charles L. Scott, the regiment initially lacked personnel, vehicles, and basic equipment—deficiencies only gradually corrected amid the Great Depression.

December 1936: Representatives from the Office of the Chief of Cavalry, the Signal Corps, the Ordnance Department, and the 7th Cavalry Brigade (Mechanized) meet to discuss maintenance concepts. This conference resulted in the adoption of an echeloned maintenance organization that identified maintenance responsibilities from vehicle operators to rear area repair shops. Each successive echelon to the rear bore responsibility for more comprehensive repairs. Under this plan, vehicles that broke down or became damaged were either repaired by forward echelons or left for rear echelon recovery and maintenance.

1937: Field tests of the triangular division begin and continue into 1939. The new division design minimized organic support assets, including tanks, and pooled them in units assigned to corps and army commands for attachment as necessary. This concept established the foundation for the later General Headquarters separate tank battalions intended for temporary attachment to infantry formations.

February 1937: The 7th Cavalry Brigade (Mechanized) temporarily halts training and development activities to provide disaster relief to Louisville, Kentucky, after the Ohio River flooded, leaving much of the city under several feet of water.

Summer 1937: Chief of Cavalry Maj. Gen. Leon B. Kromer recommends the expansion of the 7th Cavalry Brigade (Mechanized) into a division. This action reflected confidence in the unit's development and a desire to expand its capabilities. However, no War Department action resulted and no mechanized cavalry division emerged.

July 1937: The 1st Cavalry Regiment (Mechanized) and combat cars from the 13th Cavalry Regiment (Mechanized) participate in maneuvers on Fort Knox against a National Guard horse cavalry brigade. Both forces included attached observation aircraft and mechanized artillery. The horse cavalry employed mobile antitank teams to slow the mechanized cavalry and leveraged its greater cross country mobility to operate in terrain ill-suited to vehicles. The mechanized cavalry relied upon extensive radio use and decentralized command and control to coordinate the movement of independently operating combat elements toward common objectives.

October 1937: The War Department General Staff G-3 (Operations and Training) begins a general study of mechanization that concluded in April 1938. The final recommendations included the creation of a separate mechanized arm. Without additional funding and personnel, such an action could only occur at the expense of the existing branches, which found little reason to support such a loss. No mechanized arms was created.

November 1937: A mechanized cavalry board convenes to study organizational, doctrinal, and materiel improvements for the 7th Cavalry Brigade (Mechanized). The board continued its work until January 1938, when it presented its recommendations to the Chief of Cavalry, including the formation of a three-regiment mechanized cavalry division.

1938: Tank units are reorganized to reflect the difficulty of acquiring additional, new platforms and a growing belief that tanks should be concentrated for maximum effect. Divisional tank companies were abolished in the Regular Army, though they remained in the National Guard. The remaining tanks were reorganized into the 66th Infantry Regiment (Light), the 67th Infantry Regiment (Medium), and two additional separate light tank battalions. However, this concentration occurred largely on paper. These units possessed only a portion of their established strength and were dispersed among different installations.

January 3, 1938: The War Department publishes the three-volume *Cavalry Field Manual*. This manual provided detailed doctrinal guidance for the mechanized cavalry based upon the experiences of the 7th Cavalry Brigade (Mechanized) to date. This publication outlined the operation of the mechanized cavalry regiment as a collection of independently maneuvering columns. Radio based communications were considered vital to command and coordination and in sustaining a high operational tempo. Therefore, the manual outlined the structure of command reporting nets within the regiment. The extensive use of radio proved unique in the Army at the time and encouraged a command style more akin to mission type orders supplemented as necessary with short, cryptic fragmentary orders or situation updates. In many respects, this manual included concepts that would serve as the doctrinal foundation for the later Armored Force during its formative period.

March 12, 1938: The 2d Panzer Division participates in the *Anschluss*, Germany's annexation of Austria. This formation's role received considerable press coverage, and served as a benchmark for the execution of a tactical march by the 7th Cavalry Brigade (Mechanized), particularly its movement to and from Fort Oglethorpe in May.

April 6, 1938: The War Department issues an updated mechanization directive. It identified the Infantry and Cavalry branches as the leaders of future mechanized development and confirmed the basic roles and functions for mechanized cavalry outlined in the *Cavalry Field Manual*. Guidance for infantry tank units highlighted their support role, including subordination to dismounted formation commanders and use in close proximity to rifle units. Tank units were also expected to coordinate their action with available artillery, aircraft, smoke, engineers, and other infantry support weapons to overcome enemy antitank and artillery. This directive encouraged efforts to integrate the action of tanks with other weapons and capabilities at the small unit level.

Spring 1938: Chief of Cavalry Maj. Gen. John K. Herr proposes a three-regiment mechanized cavalry division to the War Department.

May 1938: The 7th Cavalry Brigade (Mechanized) executes a tactical road march to and from Fort Oglethorpe, Georgia, to test new materiel and march techniques. The movement involved the use of forward reconnaissance, flank screens, and radio communications to control and coordinate the actions of all elements. The brigade's commander, Brig. Gen. Van Voorhis, observed and directed ground movements from an aircraft flying above the column. During the return to Fort Knox, air and ground reconnaissance assets provided a steady flow of information that facilitated planning by the brigade leadership for a mock attack upon the installation.

September 29, 1938: The Munich Conference averts the start of a European war by satisfying the territorial demands of Germany at Czechoslovakia's expense.

October 1938: The 7th Cavalry Brigade (Mechanized) marches to Fort Riley for maneuvers with and against horse cavalry. The maneuvers underscored the growing difficulties of integrated action by horse and mechanized assets, and the relative strengths and limitations of each cavalry type. The same month, the chief of cavalry submitted a proposal for a smaller mechanized cavalry division based upon War Department guidance. The combined arms formation reflected the accumulated experience of the 7th Cavalry Brigade (Mechanized), War Department guidance, and awareness of the German panzer division.

December 1938: The Army directs conversion of an M2A3 Light Tank into a platform carrying a turret mounted 37mm gun. This change resulted in the M2A4 Light Tank, which entered production in May 1940. It directly reflected lessons learned from the Spanish Civil War, particularly the need for tanks carrying a heavier armament than a machine gun.

1939: The Infantry School bases tank instruction on the "Tank Combat Principles (Tentative)." This manual reflected the final refinement of Infantry tank concepts during the interwar era. Principal ideas included the employment of tanks in waves to overcome opposition, and an acceptance that tank units might also be used in pursuit, flanking, counterattack, and countermechanization roles. Command and control measures continued to emphasize the use of phase lines and time control measures to ensure the coordination of tanks with infantry, but this manual also encouraged the use of oral orders and increased radio usage—a belated acknowledgement that such measures better suited the faster pace of tank operations. The manual embodied the views of Chief of Infantry Maj. Gen. George A. Lynch, a strong supporter of the integrated use of tanks and infantry.

March 13, 1939: The 3rd Panzer Division enters Prague. This action culminated Germany's annexation of Czechoslovakia, despite the terms of the Munich Agreement.

May 12, 1939: Army Chief of Staff General Malin Craig rejects the proposed mechanized cavalry division, suggesting instead a restudy of mechanization.

August 23, 1939: The First Army maneuvers begin near Plattsburg, New York. The 7th Cavalry Brigade (Mechanized) applied the principles and techniques it had pioneered and mastered throughout the 1930s to outmaneuver the opposing force. Decentralized command and control, high operational tempo, mobility, and aggressive maneuver permitted the mechanized cavalry to thrust into the hostile rear area, creating widespread disruption. The maneuvers demonstrated the ability of the mechanized cavalry to have a decisive battlefield impact. Afterward, the 7th Cavalry Brigade (Mechanized) visited the U.S. Military Academy at West Point and participated in the World Fair in New York City.

September 1, 1939: Germany invades Poland, triggering the start of World War II. By October 6, the last Polish forces had surrendered and the country had been overrun. Panzer divisions and corps featured prominently in this lightning campaign, demonstrating the combat power and decisive impact of combined arms, armored formations with close air support. At the time of the invasion, Poland possessed more battle ready armored combat platforms than the U.S. Army. Moreover, the campaign tended to validate the principles demonstrated by the 7th Cavalry Brigade (Mechanized) in the recently concluded First Army maneuvers. Nevertheless, the War Department considered the Polish defeat a foregone conclusion and the campaign a special case rather than the emerging shape of modern warfare. No major changes in the Army's basic structure ensued.

September 15, 1939: Brig. Gen. Chaffee submits a new proposal for a mechanized cavalry division that includes related requests for additional personnel and equipment to support the creation of additional mechanized units. He also sought the assignment of supporting assets (artillery, motorized infantry, engineers, supply, medical, and maintenance) to Fort Knox to enable combined arms training.

October 1939: The War Department awards the American Car and Foundry Company a contract to produce 329 M2A4 light tanks. This contract marked the first major production order since the end of World War I. Earlier financial constraints resulted in only small numbers of newer models being built after the Great War ended.

October 3, 1939: Chief of Cavalry Maj. Gen. John K. Herr submits a proposal for a mechanized cavalry division. Though different in composition from that recommended by Chaffee, this proposal, too, advocates a combined arms formation with all component elements to be stationed and trained at Fort Knox.

The Armored Force

December 1939: Infantry tank units begin to concentrate at Fort Benning to form the Provisional Tank Brigade. This organization included much of the Regular Army's infantry tank force. The Provisional Brigade was intended to test the viability of a large concentration of infantry tanks during the Third Army maneuvers. The brigade spent ten weeks training to operate as a cohesive unit before participating in the IV Corps maneuvers also held at Fort Benning. The Provisional Tank Brigade marked the first attempt by the Infantry to employ tanks en mass since World War I. It suffered from the absence of a pre-existing brigade structure that

possessed the requisite staff, communications, supply, and maintenance support. Nevertheless, basic operational principles were derived from the tentative manual developed for the Infantry tank force.

March 1940: Chaffee arranges for the 6th Infantry to be motorized and attached to the 7th Cavalry Brigade (Mechanized) for training and participation in the Third Army maneuvers planned for May 1940.

May 9, 1940: The Third Army maneuvers of 1940 begin. They constituted one of the largest peacetime training events held in the United States since World War I. They also served to test new concepts and organizations, including the viability of creating an improvised mechanized division in the field and the Provisional Tank Brigade. During one phase of the maneuvers, the Provisional Tank Brigade and the 7th Cavalry Brigade (Mechanized) merged on short notice to form the Provisional Mechanized Force, which then proceeded to conduct a series of operations. Its combined mass of nearly 400 tanks proved difficult to stop, but it lacked the proper equipment, personnel, and vehicles normally associated with permanent formations to ensure effective command, communications, supply, and maintenance support. Maneuver analysis encouraged the creation of permanent mechanized divisions rather than their improvised constitution in combat.

May 10, 1940: Germany invades Holland, Belgium, Luxembourg, and France. Central to these operations is the thrust by German armored divisions and corps through the Ardennes Forest, across the Meuse River, and on to the English Channel. These ongoing combat operations occur simultaneous with the Third Army maneuvers, underscoring the latter's importance in preparing the U.S. Army for war.

May 20, 1940: German armored spearheads reach the English Channel, trapping British, French, and Belgian forces.

May 25, 1940: Assistant Chief of Staff G-3 Brig. Gen. Frank M. Andrews convenes a meeting of officers from the 7th Cavalry Brigade (Mechanized) and the Provisional Tank Brigade in a Louisiana schoolhouse following the conclusion of the Third Army maneuvers. This meeting generated a consensus among those present to concentrate responsibility for mechanized development in a single organization. This recommendation gained the immediate support of Army Chief of Staff General George C. Marshall.

May 26, 1940: The evacuation of British and allied soldiers trapped by German armored thrusts to the English Channel begins on the beaches around Dunkirk.

June 5, 1940: After the British evacuation and fall of Dunkirk, German offensive operations resume into central and southern France, starting from the Somme River. The French reorganized their forces, employed combined arms teams, and adopted a flexible defense in depth, but these measures failed to prevent the rapid and widespread advance of German panzer formations.

June 10, 1940: The War Department convenes a mechanization conference in Washington, D.C., to address the creation of a new mechanized force and the related formation of mechanized divisions. The participants included War Department General Staff representatives, the branch chiefs, and senior Infantry and Cavalry mechanization leaders. The resulting plan called for the reorganization of existing tank and mechanized cavalry units into two armored divisions, one stationed at Fort Knox and the other at Fort Benning. Organizational and doctrinal concepts pioneered and developed by the 7th Cavalry Brigade (Mechanized) were to govern both formations.

June 14, 1940: The Germans capture Paris. In World War I, Paris never fell. Its loss in 1940 without a fight suggested the imminent collapse of French resistance.

June 22, 1940: France surrenders to Germany. This event had a traumatic effect upon the U.S. Army, which had relied upon French doctrine and routinely sent officers to attend French military schools. Upon their return to the U.S., these leaders served as instructors, further disseminating French concepts. French armored doctrine and organizational principles exerted a shaping influence upon the American tank force. The French defeat coupled with the success of German combined arms armored formations spurred the War Department to abandon now discredited French concepts and generate a capability similar to that represented by the German panzer division, building upon the principles developed by the 7th Cavalry Brigade (Mechanized). War Department discussions centered upon how best to implement the mechanized development plan determined on June 10.

July 10, 1940: The War Department directs the establishment of the Armored Force. Mechanized cavalry personnel provided the cadre for the 2d Armored Division, created at Fort Benning, while Infantry tank personnel formed the nucleus for the 1st Armored Division at Fort Knox. Other tank units merged to form the separate 70th Tank Battalion, which became the first of many battalions intended for temporary attachment to

infantry divisions as needed. In this manner, the decisive maneuver sought by the mechanized cavalry and the infantry support emphasis of the tank force were incorporated into the new organization. However, the dominance of 7th Cavalry Brigade (Mechanized) concepts was reflected in the selection of Fort Knox as the location of the Armored Force headquarters, the appointment of Maj. Gen. Chaffee as the first chief of the Armored Force, and the prevalence of mechanized cavalry principles in early Armored Force doctrine. Hence, the armored divisions developed from the outset as combined arms formations intended for rapid operations into the enemy's rear area. The panzer division served as their standard of comparison and shaped their initial composition.

Establishment of the Armored Force

Editor: On July 10, 1940, the War Department directed the creation of the Armored Force. The specific guidance issued to establish this new organization is presented in its entirety in the following pages. Note that the Armored Force was depicted as a service test. This nomenclature permitted the Army to create this organization on its own authority without an act of Congress. As a service test, the Armored Force could rapidly begin building the armored capability desired by the Army. The new organization possessed many of the same powers associated with the existing combat arms, but it was not an official branch. Consequently, the Army could and did alter the structure and responsibilities of the Armored Force throughout World War II. Only in 1950 with passage of the Army Organization Act did the Armor Branch acquire the legal foundation and permanency of the other combat arms.

The enclosure included with the following document describes the original organization and personnel composition of the armored division. This new formation reflected the availability of resources in July 1940 and a deliberate attempt to model it upon the German panzer division, which had played a prominent role in the Polish and French campaigns.

WAR DEPARTMENT
The Adjutant General's Office
Washington

AG 320.2 (7-5-40)
M (Ret) M-C

July 10, 1940

SUBJECT: Organization of Armored Force

TO: Commanding Generals of all Armies, Corps Areas, and Panama Canal Department; Chiefs of Arms and Services; and Commanding Officers of Exempted Stations.

1. For the purposes of service test, an Armored Force is created. The Armored Force will include all armored corps and divisions, and all GHQ Reserve tank units.

2. The I Armored Corps will consist of a Corps headquarters and Headquarters Company and the 1st and 2d Armored Divisions (see paragraph 7). Brigadier General Adna R. Chaffee, United States Army, is designated as the Chief of the Armored Force and the Commander of the I Armored Corps.

3. The duties of the Chief of the Armored Force include the development of tactical and training doctrine for all units of the Armored Force, and research and advisory functions pertaining to development and procurement of all special transportation, armament and equipment used primarily by armored units. As the Chief of the Armored Force, his relationship to all armored elements of the I Armored Corps and GHQ Reserve tank units, except the Field Artillery, Engineer, Signal, Ordnance, Quartermaster and Medical Corps elements, will be essentially those of a chief of a combatant arm, as prescribed in Army Regulations 70-5, April 30, 1927, as modified in this directive.

4. The following active units of the Regular Army will be utilized in the initial organization of the Armored Force.

All Cavalry elements of the 7th Cavalry Brigade (Mecz)
Separate Combat Car Squadron, Fort Riley, Kansas
2d Battalion, 68th Infantry (L Tks)
66th Infantry (L Tks)
67th Infantry (M Tks)
6th Infantry
7th Signal Troop (Mecz)
47th Engineer Troop (Mecz)
68th Field Artillery (Mecz)
17th & 19th Ordnance Companies (Hv Maint)
30th Quartermaster Company (L Maint)
4th Medical Troop (Mecz)

5. The I Armored Corps, consisting of the 1st and 2d Armored Divisions, will be organized with permanent stations as follows:

Hq. & Hq. Co., I Armored Corps	Fort Knox, Kentucky
1st Armored Division	Fort Knox, Kentucky
2d Armored Division	Fort Benning, Georgia

6. a. Tentative tables of organization for units in the Armored Corps are being prepared and will be issued in photostatic form. These tables will govern the initial organization of the I Armored Corps. Recommendations for both peace and war tables for all components of the I Armored Corps and GHQ Reserve tank units will be submitted to this office, by the Chief of the Armored Force, by November 1, 1940.

b. Pending the receipt of tentative tables, the units of the I Armored Corps will be organized as Indicated in Inclosure No. 1.

7. Upon completion of constitution, activation, redesignation, disbandment or transfer of units, or transfer of personnel and equipment, as directed hereinafter, the initial organization of the Armored Force will be as follows:

a. I Armored Corps.
(1) Hq. & Hq. Co., I Armored Corps, Fort Knox, Kentucky.
(2) (a) 1st Armored Division Fort Knox, Kentucky:
Hq. & Hq. Co.,1st Armored Division
1st Reconnaissance Battalion (Armd)
1st Armored Brigade:
Hq. & Hq. Co., 1st Armor Brigade
1st Armored Regiment (L)
13th Armored Regiment (L)
69th Armored Regiment (M)
68th Field Artillery (Armd)
16th Engineer Battalion (Armd)
6th Infantry (Armd)
27th Field Artillery Battalion (Armd)
47th Signal Company (Armd)
19th Ordnance Company (M Maint) (Armd)
13th Quartermaster Battalion (Armd)
47th medical Battalion (Armd)
(b) 2d Armored Division, Fort Benning, Georgia:
Hq. & Hq. Co., 2d Armored Division
2d Reconnaissance Battalion (Armd)
2d Armored Brigade:
Hq. Co., 2d Armored Brigade
66th Armored Regiment (L)
68th Armored Regiment (L)
67th Armored Regiment (M)
14th Field Artillery (Armd)
17th Engineer Battalion (Armd)
41st Infantry (Armd)
78th Field Artillery Battalion (Armd)
48th Signal Company (Armd)
17th Ordinance Company (Armd)
14th Quartermaster Battalion (Armd)
48th Medical Battlian (Armd)
b. GHQ Reserve Tank Battalion.
70th Tank Battalion (M), Fort George G. Meade, Maryland.

8. The following constitution, activation, redesignation, disbandment or transfer of units, or transfer of personnel and equipment in connect with the organization of the armored force will be effective as of July 15, 1940, unless otherwise indicated.

a. The Headquarters and Headquarters Troop, 7th Cavalry Brigade (Mechanized) is redesignated as the Headquarters and Headquarters Company, 1st Armored Division.

b. Headquarters and Headquarters Company, 2d Armored Division is constituted on the active list, with permanent station at Fort Benning, Georgia.

c. The 7th Reconnaissance and Support Squadron (Mechanized) is redesignated as the 1st Reconnaissance Battalion (Armored).

d. The 2d Reconnaissance Battalion (Armored) is constitution on the active list with permanent station at Fort Benning, Georgia.

e. The Headquarters and Headquarters Company, 1st Armored Brigade, is constituted on the active list with permanent station at Fort Knox, Kentucky.

f. The Headquarters and Headquarters Company, 2d Armord Brigade, is constituted on the active list with permanent station at Fort Benning, Georgia.

g. The 1st Cavalry (Mechanized) is redesignated as the 1st Armored Regiment (Light)

h. The 13th Cavalry (Mechanized) is redesignated as the 13th Armored Regiment (Light).

i. (1) The 67th Infantry (Medium Tanks) is redesignated as the 67th Armored Regiment (Medium).

(2) The 69th Armored Regiment (Medium) is constituted on the active list at Fort Knox, Kentucky. The personnel and equipment of the 3d Battalion, 67th Armored Regiment (Medium), will be transferred thereto from Fort Benning, Georgia.

(3) The 70th Tank Battalion (Medium) is constituted on the active list and assigned to the GHQ Reserve with station at Fort George G. Meade, Maryland. The personnel and equipment of the 1st Battalion, 67th Armored Regiment (Medium), Fort George G. Meade, Maryland, will be transferred thereto.

(4) The Band, 67th Armored Regiment (Medium), will be transferred from Fort George G. Meade, Maryland, to Fort Benning, Georgia, on or about August 10, 1940.

j. (1) The 66th Infantry (Light Tanks) is redesignated as the 66th Armored Regiment (Light), with station at Fort Benning, Georgia.

(2) The 1st Battalion, 66th Armored Regiment (Light), Fort George G. Meade, Maryland, less twenty (20) light tanks, will be transferred to Fort Benning, Georgia, on or about August 10, 1940, for permanent station; the twenty (20) light tanks, together with their armament and equipment, will be transferred to the 70th Tank Battalion (Medium), Fort George G. Meade, Maryland. Upon arrival at Fort Benning, Georgia, the personnel and equipment of the 1st Battalion, 66th Armored Regiment (Light), will be transferred to the 68th Armored Regiment (Light), Fort Benning, Georgia.

k. (1) The 68th Infantry (Light Tanks) is redesignated as the 68th Armored Regiment (Light), with station at Fort Benning, Georgia

(2) The 2d Battalion, 68th Armored Regiment (Light) (less tanks), Fort Lewis, Washington, will be transferred to Fort Benning, Georgia, for permanent station.

(3) The light tanks in possession of the 2d Battalion, 68th Armored Regiment (Light), together with their armament and equipment, will be prepared for rail shipment before the departure of the unit from Fort Lewis, Washington, and will be shipped to the 1st Armored Division at Fort Knox, Kentucky.

l. (1) The 6th Infantry (Rifle) is redesignated as the 6th Infantry (Armored), with station at Fort Knox, Kentucky.

(2) The 41st Infantry (Rifle) is redesignated as the 41st Infantry (Armored), on the active list, with permanent station at Fort Benning, Georgia.

(3) The 6th Infantry (Armored) (less 2d Battalion and Band) Jefferson Barracks, Missouri, will be transferred to Fort Knox, Kentucky, for permanent station.

(4) On or about August 10, 1940, the 2d Battalion, 6th Infantry (Armored) (less personnel and equipment), will be transferred to Fort Knox, Kentucky; the 2d Battalion, Jefferson Barracks, Missouri, will be transferred to the 41st Infantry (Armored), Fort Benning, Georgia.

(5) The Band, 6th Infantry (Armored), Jefferson Barracks, Missouri, will be transferred to Fort Knox, Kentucky, on or about August 10, 1940 for permanent station.

m. (1) The 68th Field Artillery (Mechanized) is redesignated as the 68th Field Artillery (Armored).

(2) The personnel and equipment of two batteries, 68th Field Artillery (Armored), to be designated by the Chief of the Armored Force, will be transferred to Fort Benning, Georgia, to form the nucleus of the 14th Field Artillery (Armored).

n. The 27th Field Artillery (155-mm How., truck-drawn) is redesignated as the 27th Field Artillery Battalion (Armored), and is placed on the active list with permanent station at Fort Knox, Kentucky.

o. The 14th Field Artillery (75-mm Gun, horse-drawn) is redesignated as the 14th Field Artillery (Armored) on the active list, with permanent station at Fort Benning, Georgia.

p. The 78th Field Artillery (75-mm Gun, truck-drawn) is redesignated as the 78th Field Artillery Battalion (Armored) on the active list, with permanent station at Fort Benning, Georgia.

q. The 7th Signal Troop (Mechanized) is redesignated as the 47th Signal Company (Armored).

r. The 48th Signal Company (Armored) is constituted on the active list, with permanent station at Fort Benning, Georgia.

s. (1) The 16th Engineer Regiment (General Service) is withdrawn from allotment to the Panama Canal Department and redesignated as the 16th Engineer Battalion (Armored).

(2) The 16th Engineer Battalion (Armored) is activated with permanent station at Fort Knox, Kentucky.

(3) The 47th Engineer Troop (Mechanized), Fort Knox, Kentucky, will be disbanded and its personnel and equipment transferred to the 16th Engineer Battalion (Armored), Fort Knox, Kentucky.

(4) The 39th Engineer Regiment (General Service) is constituted as an inactive unit and is allotted to the Panama Canal Department.

t. (1) The 17th Engineer Battalion (Heavy Pontoon) is withdrawn from the allotment to Second Corps Area, and is redesignated as the 17th Engineer Battalion (Armored) on the active list, with permanent station at Fort Benning, Georgia.

(2) The 86th Engineer Battalion (Heavy Pontoon) is constituted on the inactive list and is allotted to the Second Corps Area.

(3) The 86th Engineer Battalion (Separate) is redesignated as the 100th Engineer Battalion (Separate).

(4) The 12th Engineer Squadron will be disbanded.

u. The 19th Ordnance Company (Heavy Maintenance) is redesignated as the 19th Ordnance Company (Heavy Maintenance) (Armored).

v. The 17th Ordnance Company (Heavy Maintenance) is redesignated as the 17th Ordnance Company (Heavy Maintenance) (Armored).

w. (1) The 13th Quartermaster Battalion (Armored) is constituted on the active list with permanent station at Fort Knox, Kentucky.

(2) The 30th Quartermaster Company (Light Maintenance), Fort Knox, Kentucky, will be disbanded and its personnel and equipment transferred to the 13th Quartermaster Battalion (Armored), Fort Knox, Kentucky.

x. The 14th Quartermaster Battalion (Armored) is constituted on the active list with permanent station at Fort Knox, Kentucky.

y. The 4th Medical Troop (Mechanized) is redesignated as the 47th Medical Battalion (Armored).

z. The 48th Medical Battalion (Armored) is constituted on the active list with permanent station at Fort Benning, Georgia.

aa. The Separate Combat Car Squadron, Fort Riley, Kansas, will be transferred to Fort Knox, Kentucky; upon arrival at Fort Knox, Kentucky, it will be disbanded and its personnel and equipment transferred to the 1st Armored Division.

9. a. Instructions relative to the source, composition and movement of cadres are being issued separately.

b. Cadres for units other than those referred to in 9a. above will be furnished by appropriate units within the I Armored Corps, as directed by the Chief of the Armored Force.

10. The necessary instructions for the movement of units and individuals, and the shipment of materiel in accordance with the above directive, will be issued by the Corps Area or exempted station commander under whose jurisdiction the units or individuals are now serving.

11. In the initial organization of the I Armored Corps, in addition to the shipment of materiel prescribed in this directive, Corps Area and exempted station commanders are authorized to direct such additional transfer of materiel, now in the hands of units listed in paragraph 4, as may be requested by the Chief of the Armored Force.

12. Movement of personnel will be effected in the most economical manner, as directed by the Corps Area and exempted station commanders concerned.

13. Commanders directing travel and shipment of materiel are authorized to obligate the following procurement authorities to the extent necessary to accomplish the provisions for this directive.

Travel of the Army

FD 1437 P 1-0620, P 50-0623, P80-0600, P 82-0600, A 0410-01 (For travel of officers and enlisted men, including authorized commutation of rations for enlisted men en route; and for travel of dependents of officers and of enlisted men of the first three grades).

Army Transportation – Motor "C"

QM 1620 P 32-0236, P 35-1280, A0525-01 (For gasoline and oil and necessary repairs to motor vehicles en route).

Army Transportation – Rail

QM 1620 A0525-01 "D" For packing and crating and shipping organizational equipment, impedimenta and authorized allowances of baggage of officers and enlisted men of the first four grades; and for tolls and ferriages en route).

Applicable Purpose Numbers

Pay:

P 54-0110 Wages of personnel employed for packing and crating, in connection with organization movements.

Services, nonpersonal:

P54-1378 Packing and crating, in connection with organization movements.

Supplies, procurement of:

P 54-0284 Packing and crating, in connection with organization movements.

Transportation:

P 54-0700 Impedimenta and public animals, in connection with organization movements.

P 54-0701 Baggage of military and civilian personnel, and horses of officers when moved with organizations.

P 54-0702 Tolls and ferriages, including vehicle drivers and passengers, in connection with overland organizations movements.

Barracks and Quarters

QM 1620 P 2-0230, P 11-1111, A 0535-01 (For purchase of fuel and rental of camp sites en route when impracticable to camp overnight at Army reservations).

14. Corps Area and exempted station commanders will report ot this office upon completion of each movement, the cost thereof by purpose number under each procurement authority.

15. Corps Area and exempted station commanders will notify this office by radio as to movements of units and cadres to include date of departure, estimated date of arrival, strength and composition of each serial.

16. Such delay in the exectution of the above directive is authorized as is deemed best in the interest of the service. However, except in the case of the 2d Battalion and Band, 6th Infantry (Armored), the 1st Battalion, 66th Armored Regiment (Light), and Band, 67th Armored Regiment (Medium), every effort will be made to complete the changes directed herein by July 31, 1940.

17. Direct communication between Corps Area, exempted Station, and unit commanders is authorized in matters relating to movements directed herein.

18. The provisions of AR 210-50 will govern in the adjustment or disposition of company (troops, battery) funds, company fund property, and Post Exchange stock in all cases of physical transfer of enlisted personnel.

19. Pending addition allotment of grades and ratings to units of the Armored Force, the present total allotments to units listed in paragraph 4, by arms and services will not be exceeded.

20. The transfer of the enlisted personnel involved herein will be made without loss of grades and ratings.

21. Grades and specialist's ratings allotted to Infantry and Cavalry units of the I Armored Corps and GHQ Reserve tank battalion are withdrawn from the control of the Chief of Infantry and the Chief of Cavalry, respectively, and will be administered by the Chief of the Armored Force. The Chief of the Armored Force will insure parity in grades and specialist's ratings in similar units within the Force.

22. Subject to provisions of paragraph 21, the 9,511 enlisted men provided for the Armored Force in the augmentation of the army to 375,000 will be allotted to arms and services and follows:

Infantry	4079
Cavalry	1249
Field Artillery	2217
Engineers	680
Signal Corps	171
Quarter Master Corps	416
Ordinance	65
Medical Department	598
Air Corps	20
Finance Department	16
TOTAL	9511

23. The Chief of Cavalry and the Chief of Infantry will provide officer personnel for the Headquarters, I Armored Corps.

24. Initially, the Chief of Cavalry will provide officer personnel for the following units of the Armored Force:

Headquarters Company, I Armored Corps
Hq. & Hq. Co., 1st Armor Division
Hq. & Hq. Co., 1st Armor Brigade
1st Armored Regiment (Light)
13th Armored Regiment (Light)
1st Reconnaissance Battalion
2d Reconnaissance Battalion

25. Initially, the Chief of Infantry will provide officer personnel for the following units of the armored force:

Headquarters Company, I Armored Corps
Hq. & Hq. Co., 2d Armor Division
Hq. & Hq. Co., 2d Armor Brigade
66th Armored Regiment (Light)
67th Armored Regiment (Medium)
68th Armored Regiment (Light)
69th Armored Regiment (Medium)
6th Infantry (Armored)
41st Infantry (Armored)
70th Tank Battalion (Medium)

26. In so far as practicable the Chief of Cavalry and the Chief of Infantry will assign to units of the I Armored Corps commissioned personnel with experience with tank and mechanized units.

27. Cavalry and Infantry officers assigned to the 1st and 2d Armored Divisions will be directed to report to the respective division commanders for duty, and not to duty with any particular arm.

28. Until further orders, the personnel of Infantry and Cavalry units in the Armored Force will continue to wear the insignia of the parent organizations. Small, distinctive shoulder patches for the various units of the Armored Force may be prescribed by the Chief of the Armored Forces, subject to War Department approval. Special markings for armored and motor vehicles are authorized under the same provisions.

29. The Quartermaster General will submit recommendations for distinctive insignia for the following units of the Armored Forces:

Headquarters Company, Armored Corps
Headquarters Companies, Armored Divisions
Headquarters Companies, Armored Brigades
Reconnaissance Battalions
Armored Regiments
GHQ Tank Battalions

30. For the time being, the tank sections of the Infantry School at Fort Benning, Georgia, will be used for instruction of officers and enlisted men of the Armored Force. At such time as the Chief of the Armored Forces deems it necessary, he is authorized to establish a suitable school at Fort Knox, Kentucky, and to request the transfer from Fort Benning, Georgia, of equipment and personnel used exclusively in tank instruction.

31. The Chief of the Air Corps will submit recommendations for two specifically organized observations squadrons for operation with the armored divisions.

32. a. Until further orders, all units of the I Armored Corps, and all GHQ Reserve tank battalions are exempted from corps area control except for routine supply, discipline and court-martial jurisdiction as provided in AR170-10, except as indicated in b, below.

b. The 6th Infantry (Armored), and 1st Battalion, 66th Infantry (Armored), pass to the exempted status upon their arrival at the new stations. The 70th Tank Battalion (Medium) passes to the exempted status on August 10, 1940.

33. a. Tactical gasoline and Quartermaster and Ordnance motor maintenance funds will be allotted to armored units through the Chief of the Armored Force, based upon 300 hours of training annually. Special field exercise funds and special training funds will be allotted to the Chief of the Armored Force.

b. The Chief of the Armored Force is authorized to order travel necessary for the accomplishment of his mission within the limits of available funds.

c. The Chief of the Armored Force will submit estimates for funds for the Armored Force activities during the Fiscal Year 1942, similar to those submitted by the Chiefs of Arms for all Special Service Schools. A similar estimate will be submitted to cover appropriations for Special Field Exercises.

34. The Chief of the Armored Force will maintain liaison with the technical committees of the Supply Arms and Services through an officer of his staff to be stationed in Washington D.C.

35. For the present, no staff or headquarters personnel will be allotted to the Chief of the Armored Force. The staff and administrative functions of his office will be performed by the staff and headquarters personnel of the I Armored Corps.

By order of the Secretary of War:

[Signature of Emory S. Adams]
Major General,
The Adjutant General.

1 Incl.

ORGANIZATION

Armored Division

T/O Strengths:--	Off.	Men
Division Headquarters	18	68
Division Hq. Company	7	133
Signal Company	4	186
Reconnaissance Battalion	29	554
Armd. Brigade Hq. & Hq. Co.	9	87
Armored Regiment (Light)	91	1405
Armored Regiment (Light)	91	1405
Armored Regiment (Medium)	64	1047
Field Artillery Regiment	37	822
Engineer Battalion	20	463
Infantry Regiment	63	1526
Field Artillery Battalion	28	659
Ordnance Company	8	194
Quartermaster Battalion	9	251
Medical Battalion	20	289
Attached Medical	26	240
Attached Chaplain	6	------
	530	9329

TOTAL 2 DIVISIONS	1060 Off.	18,658 Enl. Men
CORPS HQ. & HQ. CO.	40 Off.	131 Enl. Men
AGGREGRATE, ARMORED CORPS	1100 Off.	*18,789 Enl. Men

*Total allotted strength to I Armored Corps 17,486 Enl. Men

Incl. No. 1

Division Headquarters 18 Officers – 68 Enl. Men

Div. Comdr. & Aides	3/1	
Gen. Staff. Section	6/12	
Signal Section	1/2	
Avn. Sec.	1/2	
Engr. Sec	*1/6	Officer commands Engr. Bn.
A.G. Section	2/11	
Inspector's Sec.	1/2	
Ordnance Section	1/2	
J.A.G. Section	1/2	
Finance Section	1/8	
Chaplain's Section	*1/2	
QM Section	*1/5	Officer commands QM Battalion
Division Surgeon	*1/7	Officer commands Medical Battalion
Artillery Section	1/1	
Postal Section	0/5	

* Officers not included in total

Division Headquarters Company	**7 Officers – 133 Enl. Men**		
Company Headquarters	2/15		
Mil. Police Platoon	2/50		
Mil. Police Section		1/32	
Motorcycle Section		1/18	
Mess & Orderly Section	1/19		
Transportation Platoon	2/49		
Plat. Hq. & Maint. Section		1/8	
Motorcycle Section		0/13	
Transportation Section		1/28	
Signal Company (Armored)	**4 Officers – 186 Enl. Men**		
Headquarters Platoon	2/67		
Co. Admin. Section		1/16	
Sup. & Transp. Section		1/39	
Radio Maintenance Section		0/12	
Operations Section	2/119		
Mesg. Cen. & Mesgr. Sec.		1/66	
Radio Section		1/37	
Wire Section		0/16	
Reconnaissance Battalion (Armored)	**29 Officers – 554 Enl. Men**		
Battalion Headquarters	4/19		
Reconnaissance Company	7/149		
Reconnaissance Company	7/149		
Company Headquarters		2/39	
Headquarters Section			2/29
Motor Maint. Section			0/10
Motorcycle Platoon		1/34	
Reconnaissance Platoon		1/19	
Reconnaissance Platoon		1/19	
Reconnaissance Platoon		1/19	
Reconnaissance Platoon		1/19	
Rifle Company	5/145	(Same as rifle company of Infantry regiment)	
Armored Company (Light)	6/92	(Same as company of light armored regiment)	
Armored Brigade Headquarters and Headquarters Company		**9 Off. – 87 Enl. Men**	
Brigade Headquarters	5/0		
Headquarters Company	4/87		
Company Headquarters		1/17	
Communication Platoon		1/23	
Transportation Platoon		1/47	

Armored Regiment (Light) **91 Officers – 1405 Enlisted Men**

- Headquarters 7/28 (T/O 2-32)
- Headquarters Company 5/126 (T/O 2-32)
- Service Company 4/95 (T/O 2-33)
- Machine Gun Company 6/183 (T/O 2-38)
- Reconnaissance Company 6/115 (T/O 2-27)
- Battalion 21/286
- Battalion 21/286
- Battalion 21/286
  - Battalion Headquarters 3/10
  - Armored Company 6/92
  - Armored Company 6/92
  - Armored Company 6/92
    - Company Headquarters 2/44
    - Platoon 1/12
    - Platoon 1/12
    - Platoon 1/12
    - Platoon 1/12

82 Scout Cars
136 Light Tanks

Armored Regiment (Medium) **64 Officers – 1047 Enlisted Men**

- Headquarters 9/28
- Headquarters Company 1/63
  - Company Headquarters 1/6
  - Staff Platoon 0/42
  - Transportation Platoon 0/15
- Armored Battalion 27/478
- Armored Battalion 27/478
  - Headquarters 6/0
  - Headquarters Company 3/94
    - Company Headquarters 1/10
    - Staff Platoon 0/37
    - Maintenance Platoon 1/24
    - Transportation Platoon 1/23
  - Armored Company 6/128
  - Armored Company 6/128
  - Armored Company 6/128
    - Headquarters Platoon 3/50
      - Headquarters Section 2/37
      - Maintenance Section 1/13
    - Armored Platoon 1/26
    - Armored Platoon 1/26
    - Armored Platoon 1/26

9 Scout Cars
110 Tanks (Medium)

F.A. Regiment, 75mm How. (Armored) 37 Officers – 822 Enl. Men

Headquarters	9/28		
Headquarters Battery	6/169	(T/O 6-122)	
Battery	5/137		
Battery	5/137		
Battery	5/137		
Battery	5/137		
Battery Headquarters		2/32	
1st Platoon		1/23	
1st Section			1/14
2nd Section			0/9
2nd Platoon		1/21	
3rd Section			1/12
4th Section			0/9
3rd Platoon		1/33	
5th Section			1/12
6th Section			0/9
Antitank Section			1/12
4th Platoon		0/28	
Ammunition Section			0/9
Maintenance Section			0/19

Engineer Battalion (Armored) 20 Officers – 463 Enlisted Men

Battalion Headquarters	6/0		
Battalion Hqrs. Company	2/100		
Headquarters Platoon		1/63	
Company Headquarters			1/22
Supply Section			0/4
Administrative Section			0/6
Operations Section			0/23
Motor Section			0/8
Reconnaissance Platoon		1/37	
7Engineer Company	4/121		
Engineer Company	4/121		
Engineer Company	4/121		
Company Headquarters		2/35	
Reconnaissance Section			1/4
Administrative Section			1/14
Transportation Section			0/17
Engineer Platoon		1/43	
Engineer Platoon		1/43	

Infantry Regiment (Armored) 63 Officers – 1526 Enlisted Men

Headquarters	4/28			
Headquarters Company	3/112			
Company Headquarters		1/18		
Intel. & Rec. Platoon		1/36		
Communication Platoon		1/58		
Platoon Headquarters			1/2	
Regimental Section			0/32	
Battalion Section			0/12	
Battalion Section			0/12	
Service Company	5/89			
Company Headquarters		2/12		
Regimental Hq. Platoon		1/20		
Staff Section			1/12	
Supply Section			0/8	
Transportation Platoon		2/57		
Platoon Headquarters			1/9	
Battalion Section			0/13	
Battalion Section			0/13	
Hq. Co. & AT Co. Section			0/5	
Maintenance Section			1/17	
Antitank Company	5/109			
Company Headquarters		2/22		
Antitank Platoon		1/29		
Antitank Platoon		1/29		
Antitank Platoon		1/29		
Platoon Headquarters			1/5	
Antitank Section			0/12	
Antitank Section			0/12	
Section Headquarters				0/2
Squad				0/5
Squad				0/5
Infantry Battalion	23/594			
Infantry Battalion	23/594			
Battalion Headquarters		3/0		
Headquarters Detachment		0/28		
Headquarters Section			0/4	
Message Center Section			0/6	
Intelligence Section			0/2	
Ammunition & Pioneer Section			0/16	
Section Headquarters				0/2
Squad				0/7
Squad				0/7
Heavy Weapons Company		5/131		
Company Headquarters			1/19	
Cal. 30, MG Platoon			1/38	
Cal. 30, MG Platoon			1/38	
Platoon Headquarters				1/4
Section				0/17

Section			0/17	
Section Headquarters				0/1
Squad				0/8
Squad				0/8
Cal. 50 MG Platoon		1/18		
Platoon Headquarters			1/2	
Squad			0/8	
Squad			0/8	
81mm Mortar Platoon		1/18		
Platoon Headquarters			1/2	
Squad			0/8	
Squad			0/8	
Infantry Company	5/145			
Infantry Company	5/145			
Infantry Company	5/145			
Company Headquarters		1/17		
Weapons Platoon		1/26		
Platoon Headquarters			1/2	
60mm Mortar Section			0/13	
Section Headquarters				0/3
Squad				0/5
Squad				0/5
Light Machine Gun Section			0/11	
Section Headquarters				0/3
Squad				0/4
Squad				0/4
Rifle Platoon		1/34		
Rifle Platoon		1/34		
Rifle Platoon		1/34		
Platoon Headquarters			1/5	
Automatic Rifle Squad			0/5	
Rifle Squad			0/8	
Rifle Squad			0/8	
Rifle Squad			0/8	

Field Artillery Battalion (Armored) 28 Officers – 659 Enlisted Men

Headquarters and Headquarters Battery	7/88			
Battalion Headquarters		4/0		
Headquarters Battery		3/88		
Battery Headquarters			3/4	
Operations Platoon			0/28	
Fire Direction & Command Post Section				0/14
Reconnaissance, Liaison & Obsn. Section				0/14
Communications Platoon			0/42	
Wire Section				0/27
Radio Section				0/15
Maintenance Section			0/14	
Service Battery	3/88			
Battery Headquarters		1/9		
Service Platoon		1/28		
Battalion Supply Section			0/9	
Battalion Motor Maint. Section			1/19	
Ammunition Train		1/39		
Ammunition Section			1/13	
Ammunition Section			0/13	
Ammunition Section			0/13	
Battery Maintenance Section		0/12		
105mm How. Battery	4/120			
105mm How. Battery	4/120			
105mm How. Battery	4/120			
Battery Headquarters		2/41		
1st Platoon		1/25		
1st Section			1/14	
2nd Section			0/11	
2d Platoon		1/32		
3d Section			1/11	
4th Section			0/11	
5th Section (AT) (2 – 37mm guns)			0/10	
3d Platoon		0/22		
Ammunition Section			0/9	
Maintenance Section			0/13	
75mm Gun (Antitank) Battery (8 guns)	6/123			
Battery Headquarters		2/9		
Maintenance Section		0/14		
Platoon		1/25		
Platoon		1/25		
Platoon		1/25		
Platoon		1/25		
Section				1/13
Section				1/12

Ordnance Company (Heavy Maintenance) Armored 8 Officers – 194 Enl. Men

Headquarters Section	3/35
Service Section	1/42
Artillery & Automotive Sec.	3/100
Armament Section	1/17

See T/O 9-9 (War)

Quartermaster Battalion (Armored)	**9 Officers – 251 Enlisted Men**		
Headquarters	3/11		
Headquarters Company	2/75		
Company Headquarters		1/15	
Service Platoon		1/23	
Truck Platoon		1/37	
Platoon Headquarters			1/5
Truck Section			0/16
Truck Section			0/16
Light Maintenance Company			
(T/O 10-27 W) 4/165			

Medical Battalion (Armored)	**20 Officers – 289 Enlisted Men**		
Battalion Headquarters	4/0		
Headquarters Detachment	2/36		
Detachment Headquarters		1/7	
Battalion Hq. Section		0/12	
Supply Section		0/11	
Maintenance Section		1/6	
Collecting Company	3/125		
Company Headquarters		1/17	
Collecting Platoon		1/54	
Collecting Platoon		1/54	
Platoon Headquarters			1/5
Ambulance Section			0/27
Litter Bearer Section			0/22
Clearing Company	11/128		
Company Headquarters		1/14	
Clearing Platoon		5/57	
Clearing Platoon		5/57	
Platoon Headquarters			1/2
Technical Section			3/18
Ward Section			1/20
Transportation Section			0/17

Attached Medical and Chaplains		
Armored Regiment (Light)	4/40	1/0
Armored Regiment (Light)	4/40	1/0
Armored Regiment (Medium)	4/40	1/0
Artillery Regiment	3/25	1/0
Artillery Battalion	3/25	
Engineer Battalion	2/20	
Infantry Regiment	6/50	1/0
Division Headquarters	____	1/0
	26 Officers 240 Enlisted Men	6 Officers

Creating an Armored Force in Pictures

Editor: These pages illustrate through photographs the development of the Armored Force. They show the evolution in materiel that paralleled the emergence of new doctrinal and organizational concepts. These images collectively tell the story of the World War I tank corps, the Infantry tank force, the 7th Cavalry Brigade (Mechanized), and the early days of the Armored Force.

World War I



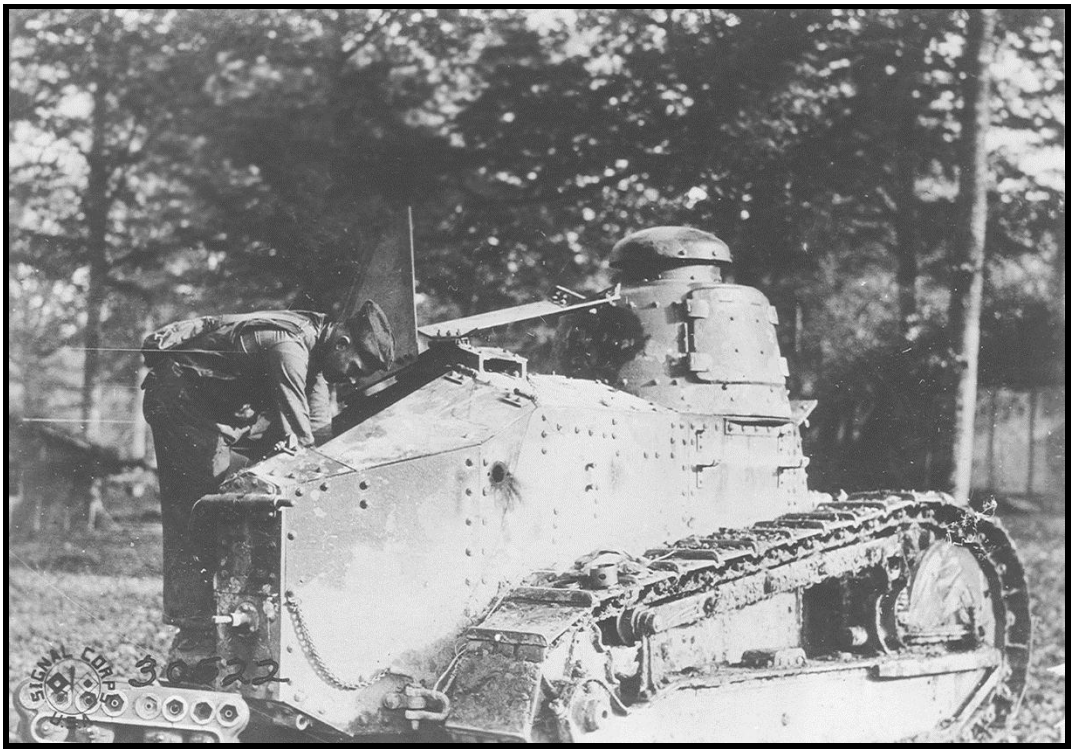
French tank column moving toward the front.
(U.S. Army Signal Corps)



American Expeditionary Forces Tank Corps officer.
(National Armor and Cavalry Museum)



Tank maintenance at the Tank Corps School in France in 1918.
(U.S. Army Signal Corps)



Repairing a Renault FT light tank. Note the puncture hole in the rear side armor.
(U.S. Army Signal Corps)



Renault FT of the 327th Tank Battalion in September 1918
with the driver's compartment clearly visible.
(National Armor and Cavalry Museum)



Preparing American tanks for rail transport.
(National Armor and Cavalry Museum)



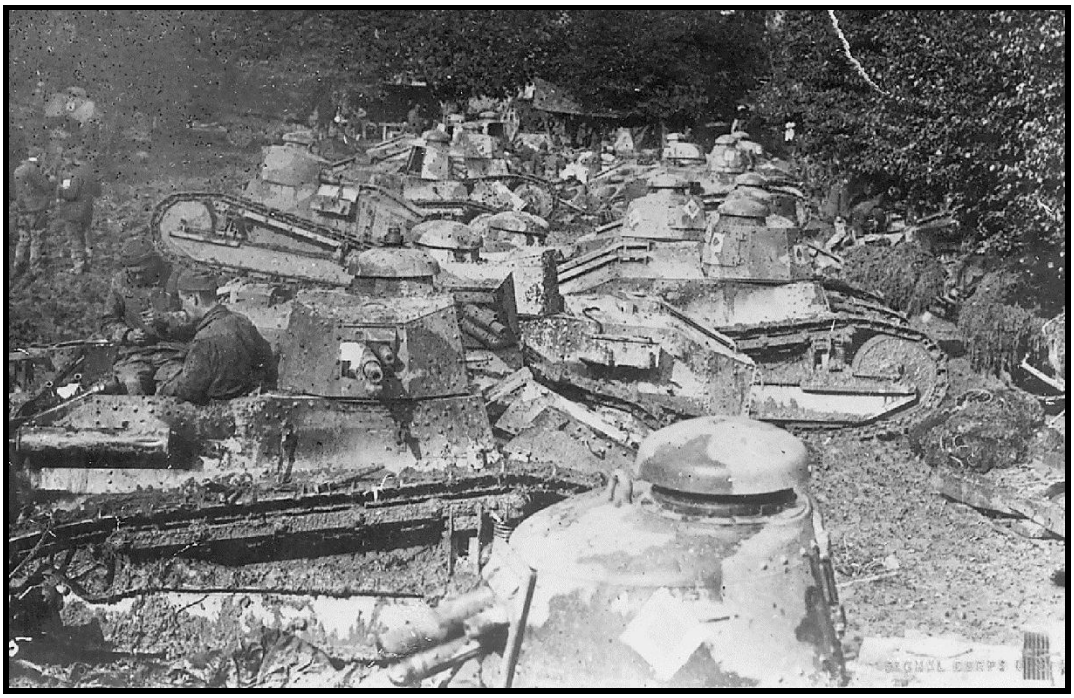
An American Renault FT light tank climbing over a trench.
(National Armor and Cavalry Museum)



A close-up view of a Renault FT light tank in American use on the Western Front.
(National Armor and Cavalry Museum)



An American tank park near the front. Note the use of camouflage to help prevent discovery from the air. (National Armor and Cavalry Museum)



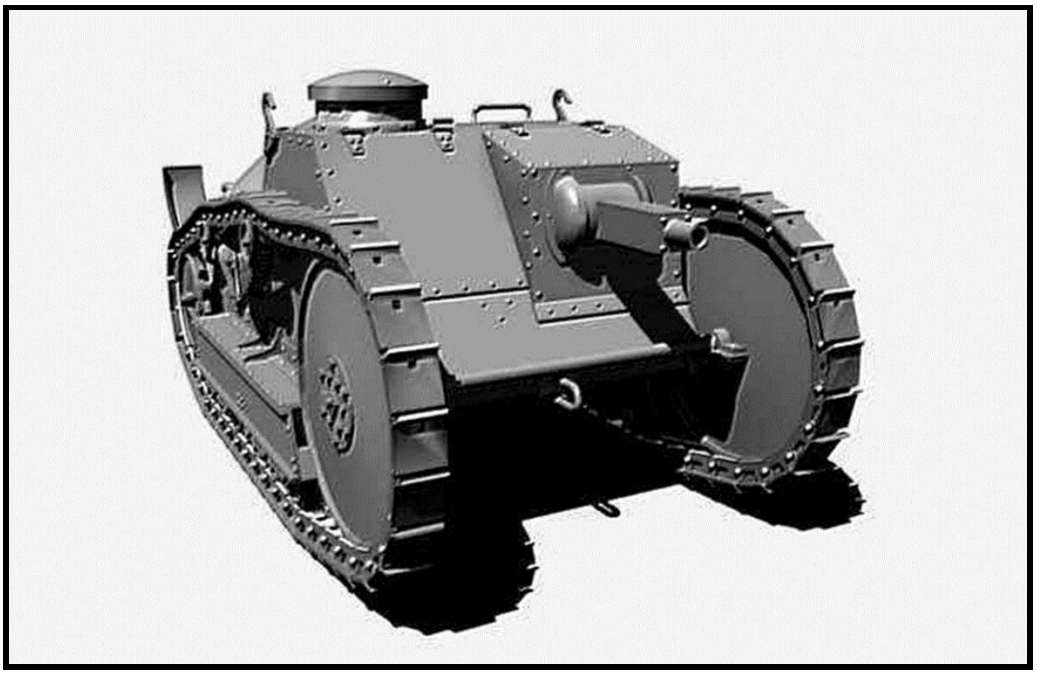
A tank assembly area in September 1918. (U.S. Army Signal Corps)



A Renault FT light tank of the 326th Tank Battalion during training September 1918. The playing card unit identification is plainly visible.
(National Armor and Cavalry Museum)



The inherent dangers of the battlefield remained even for armored vehicles. This Renault light tank has been completely destroyed, most likely from an artillery round. Armor protection designed to defeat small arms could not prevent larger caliber weapons from penetrating the vehicle and potentially triggering ammunition and gasoline fires.
(National Armor and Cavalry Museum)



The Ford M1918 was the first tank built by the United States. It proved ill-suited for the Western Front, and none entered combat.
(National Armor and Cavalry Museum)

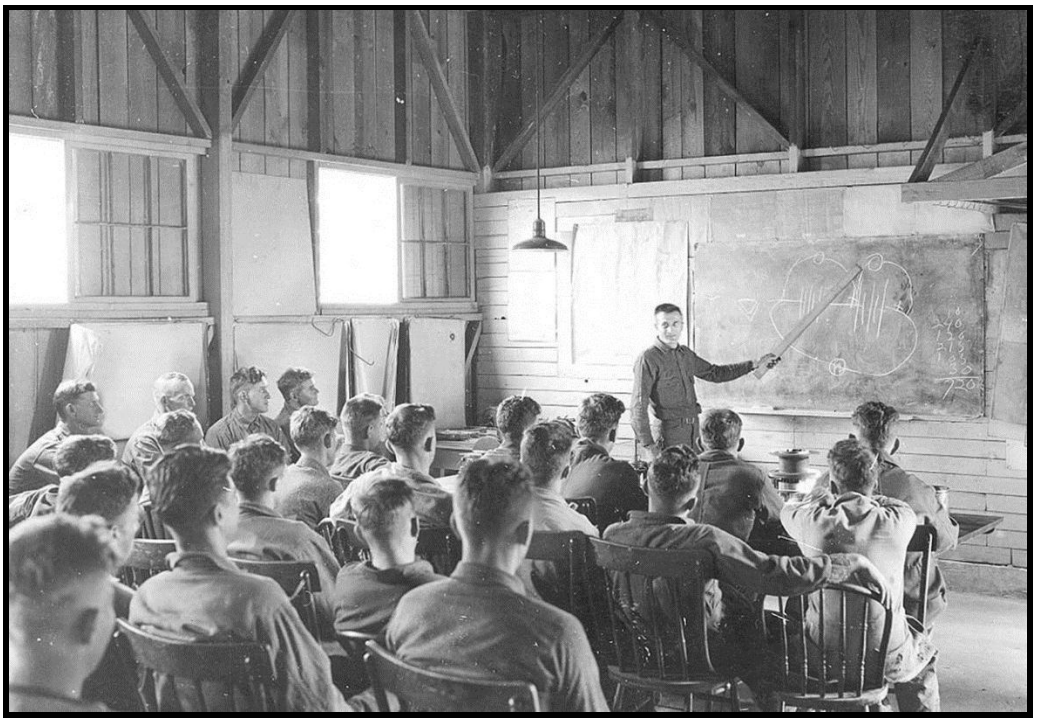


The many uses of tanks. Here an M1917 is being used to collect money to repay war debt.
(National Armor and Cavalry Museum)

Army Tank Development 1920s-1930s



Tank School Headquarters at Camp Meade in the 1920s.
(Virginia Military Institute)



Tank School classroom instruction at Camp Meade in the 1920s.
(Virginia Military Institute)



Mark VIII heavy tanks and M1917 light tanks practice attacking trenches in the 1920s.
(Virginia Military Institute)



Light tanks of the 66th Infantry lead attack upon hostile machine gun positions during exercise at Camp Meade in the 1920s.
(National Armor and Cavalry Museum)



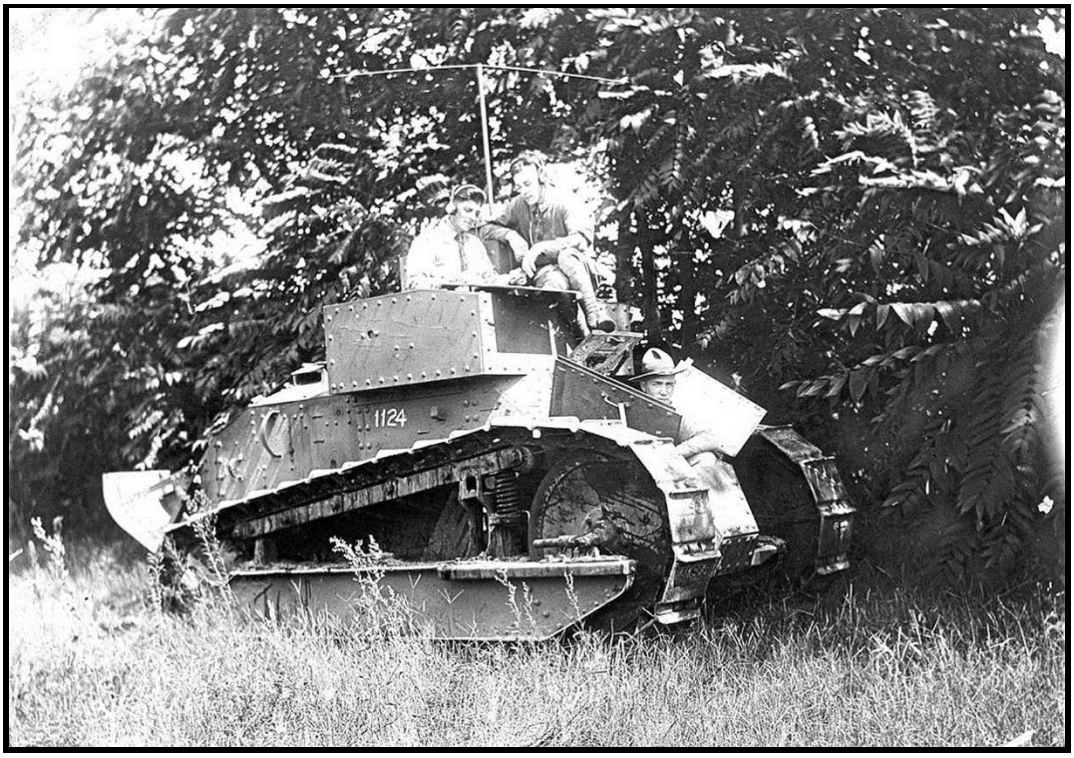
Light tank being loaded on a tank transporter in the 1920s.
(Virginia Military Institute)



Light tank that has rolled over at Camp Meade.
(National Armor and Cavalry Museum)



Recovering a light tank that has rolled over onto its side at Camp Meade.
(National Armor and Cavalry Museum)



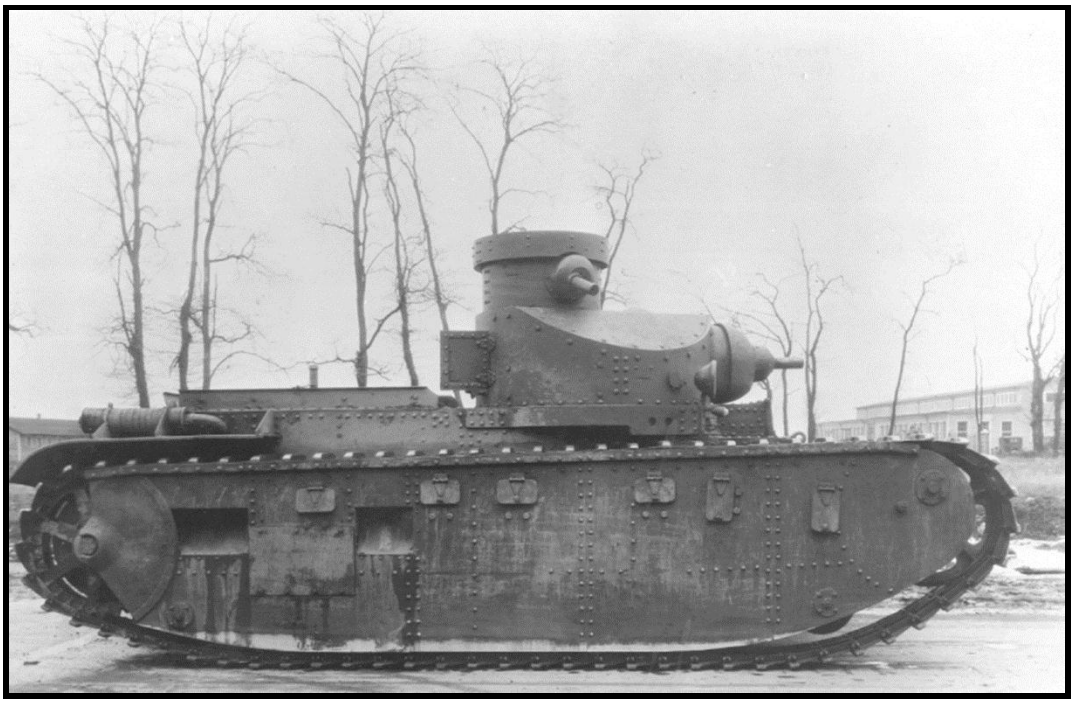
Experimental configuration of light tank with armament replaced with a radio in the early 1920s.
(Virginia Military Institute)



Tanks and infantry training together at Fort Benning in the 1920s.
(National Armor and Cavalry Museum)



Mark VIII tanks during field training in July 1928.
(U.S. Army Signal Corps)



T-1 Medium Tank in 1927. This vehicle marked one of several efforts to build tanks more powerful, faster, and survivable than World War I vehicles, but the inability to field a platform within an acceptable weight range encouraged a shift in tank design emphasis to light tanks.
(U.S. Army Signal Corps)



The T1 Light Tank in 1929, one of several prototype vehicles produced in the interwar years.
(National Armor and Cavalry Museum)



M1917 light tanks of the Mechanized Force charge over Revolutionary War trenches originally constructed by the British at Yorktown, Virginia, in 1781.
(U.S. Army Signal Corps)



Kentucky National Guard light tanks training at Camp Knox in 1931.
(National Armor and Cavalry Museum)



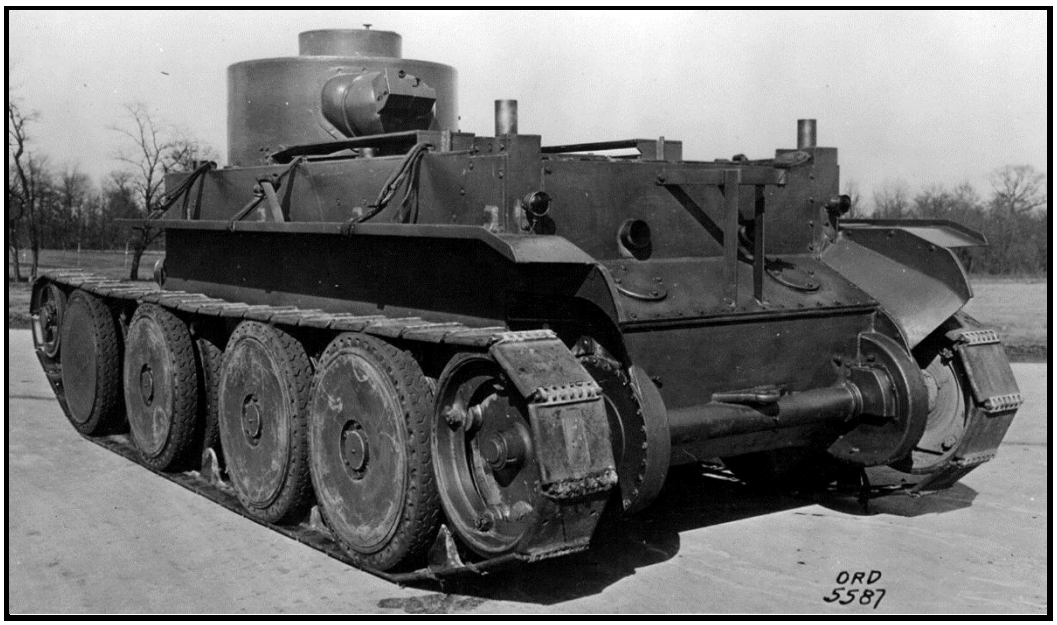
A light tank being transported by truck at Fort George G. Meade in 1933.
These tanks were routinely carried by rail or trucks to minimize the time spent running on their own tracks to reduce the risk of mechanical breakdown. Their short range also encouraged minimization of travel under their own power.
(National Armor and Cavalry Museum)



The ultimate fate of the World War I era American-built light tanks—a scrap yard in 1942.
(National Armor and Cavalry Museum)



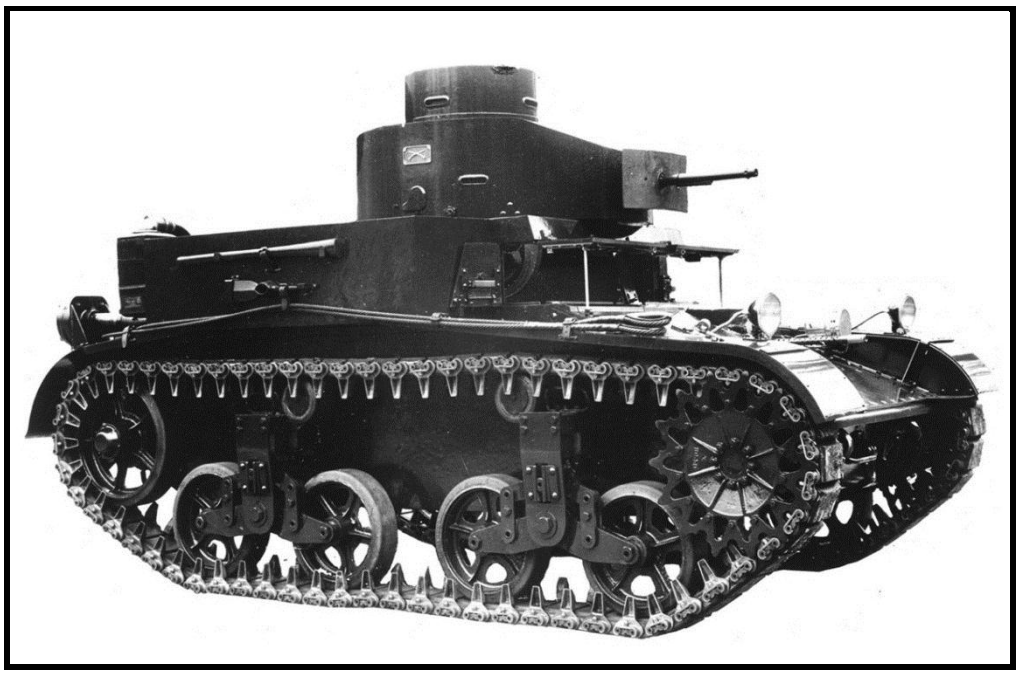
Mark VIII tanks of the 67th Infantry (Heavy Tanks) await destruction at Fort George G. Meade in 1940. Although declared obsolete, these vehicles remained in service to support a potential national emergency.
(National Armor and Cavalry Museum)



A Christie T3 Medium tank in 1932. J. Walter Christie designed a number of innovative tank designs in the interwar years that attained speeds of 40 miles per hour, did not depend upon a special carrier for movement to and from the battlefield, and could travel either on their tracks or road wheels. However, despite Army experimentation with Christie's designs, none were accepted for production.
(National Armor and Cavalry Museum)



A column of Christie tanks of the 67th Infantry Regiment in 1935, traveling on their road wheels.
(National Armor and Cavalry Museum)



With a crew of four, carrying three machine guns, and capable of 45 miles per hour on a level road surface, the M2A1 light tank constituted a major advance in American tank design, particularly in its track and suspension. It entered service in 1935.
(National Armor and Cavalry Museum)



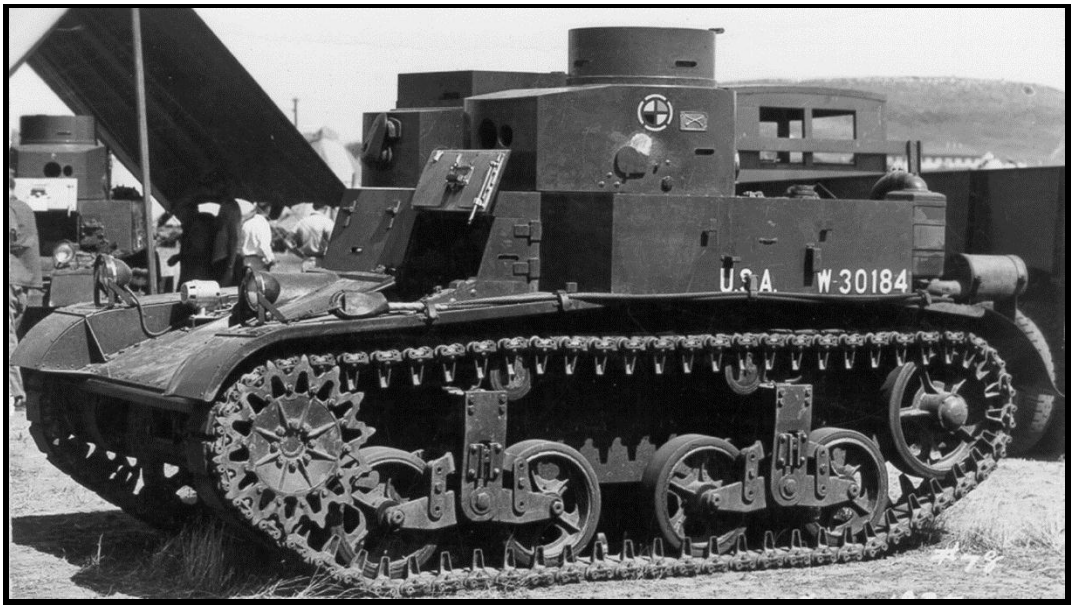
The M2A2 Light Tank also entered service in 1935. Its distinctive twin turret system reflected Infantry interest in the ability to engage more than one target simultaneously while attacking.
(National Armor and Cavalry Museum)



The M2A3 Light Tank entered service in 1938. Principal differences with the A2 included greater distance between turrets, more space between the bogies, and a redesigned rear hull to facilitate access to the engine for maintenance.
(National Armor and Cavalry Museum)



The M2A4 Light Tank marked the last development of the M2 series. The principal change occurred in the main armament which shifted to a single 37mm gun in one turret. This upgrade in firepower reflected the influence of the Spanish Civil War upon American tank design.
(National Armor and Cavalry Museum)



An M2A2 of the 35th Infantry Division at Fort Riley, Kansas, in 1937.
(National Armor and Cavalry Museum)



Camouflaging a light tank during Mississippi field maneuvers in 1938.
(U.S. Army Signal Corps)



M2A2 Light Tank crosses a hurdle at speed to become airborne. This image captures the major improvements in reliability and robustness of American tank suspensions in the 1930s.
(U.S. Army Signal Corps)

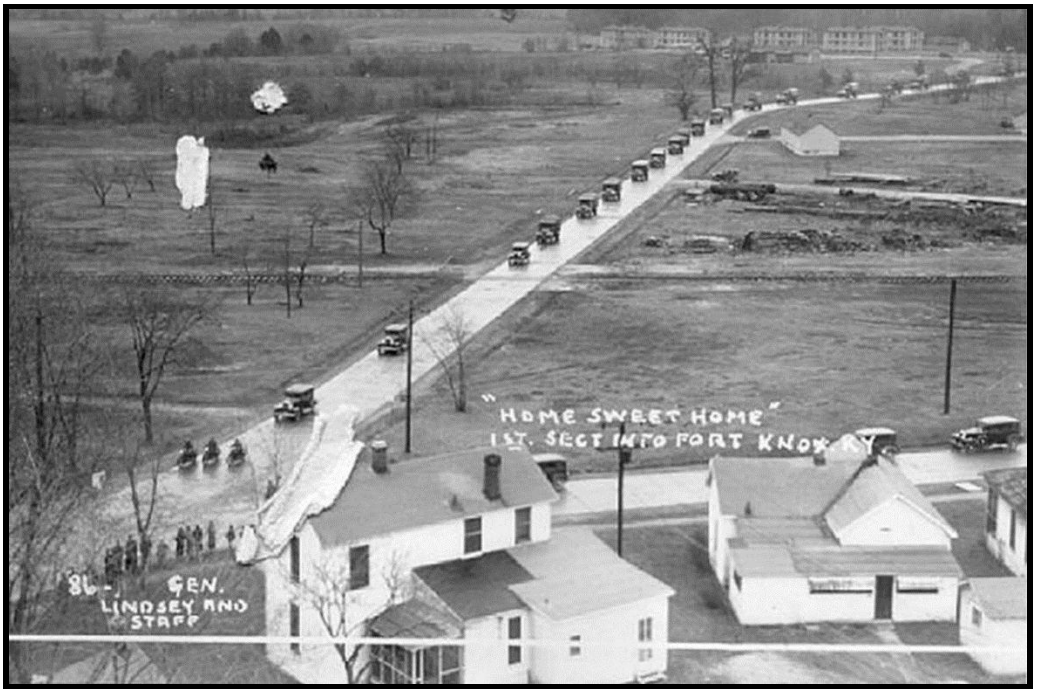


An M2A3 Light Tank of the 66th Infantry (Tank) demonstrates its fording ability in November 1939.
(U.S. Army Signal Corps)



Light tanks crossing a stream under simulated artillery fire to support an infantry attack at Fort Benning, Georgia, in 1939.
(U.S. Army Signal Corps)

Mechanized Cavalry Development in the 1930s



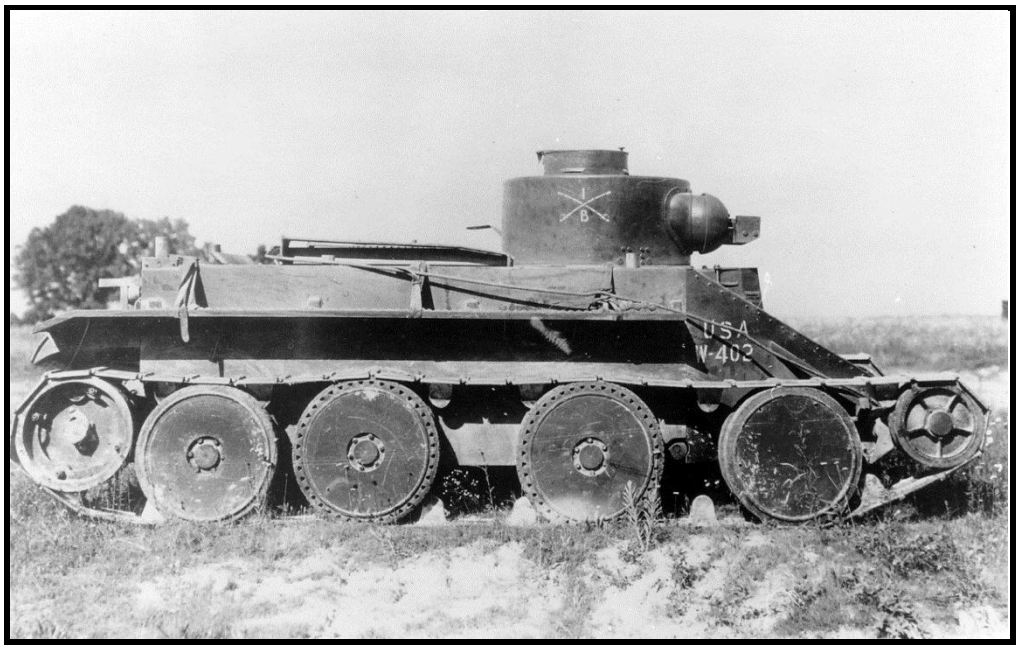
The 1st Cavalry Regiment arrives at Fort Knox in 1933, where it became the 1st Cavalry Regiment (Mechanized). (National Armor and Cavalry Museum)



M1 Combat Cars of the 1st Cavalry Regiment (Mechanized). (National Armor and Cavalry Museum)



A T5 Combat Car with a thrown track while being tested during the May 1934 Cavalry maneuvers at Fort Riley, Kansas.
(National Armor and Cavalry Museum)



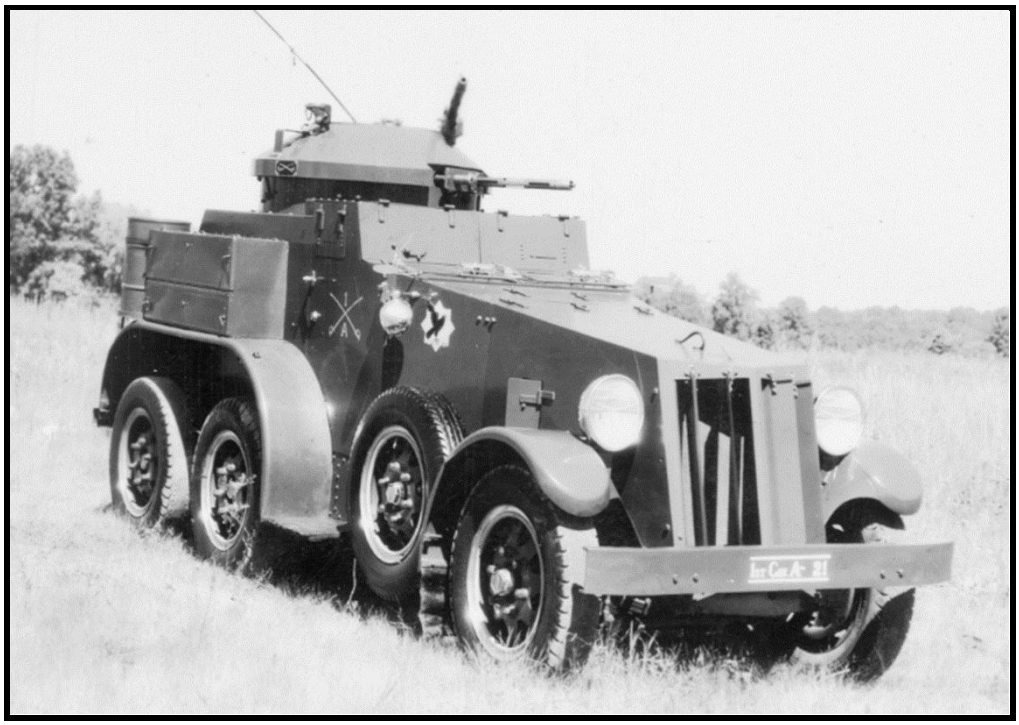
T1 Christie Combat Car of the 1st Cavalry Regiment (Mechanized) in 1934.
(National Armor and Cavalry Museum)



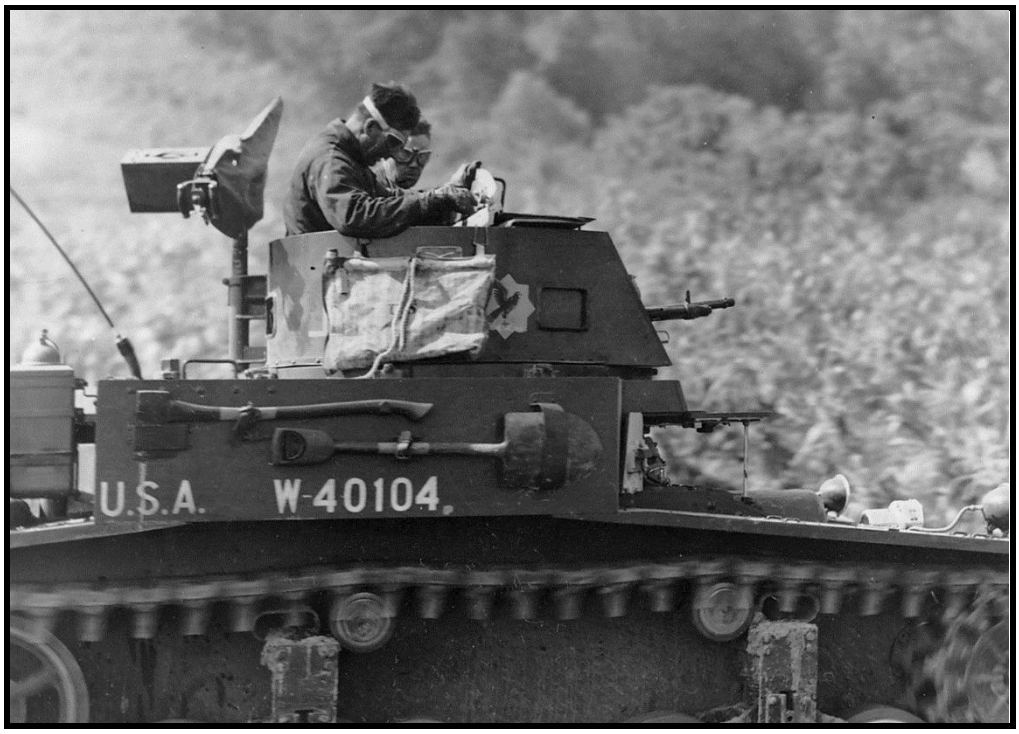
Inspection of Headquarters Troop, 1st Cavalry Regiment (Mechanized) after the conclusion of the 1934 Fort Riley maneuvers. (U.S. Army Signal Corps)



Early halftracks of the 7th Cavalry Brigade (Mechanized) in 1936. (National Armor and Cavalry Museum)



M1 Armored Car of the 1st Cavalry Regiment (Mechanized).
(National Armor and Cavalry Museum)



M1 Combat Car commander pauses to check his map during maneuvers on Fort Knox in 1936.
(National Armor and Cavalry Museum)



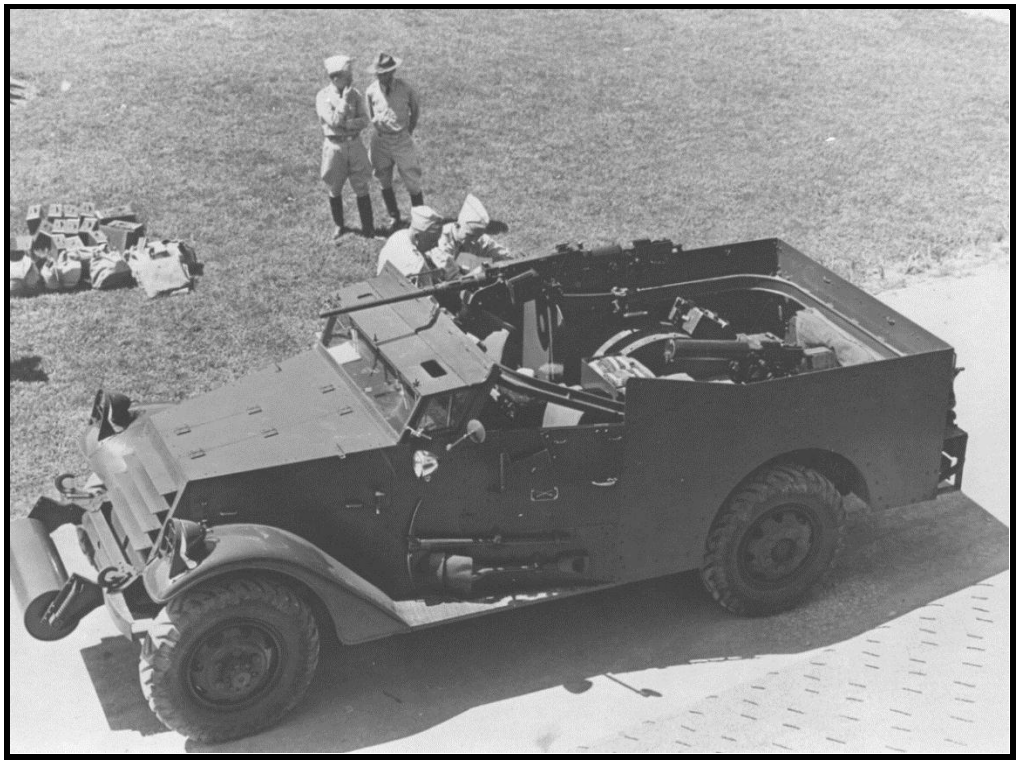
M1A1 Combat Car platoon with winter paint scheme on a field exercise at Fort Knox.
(National Armor and Cavalry Museum)



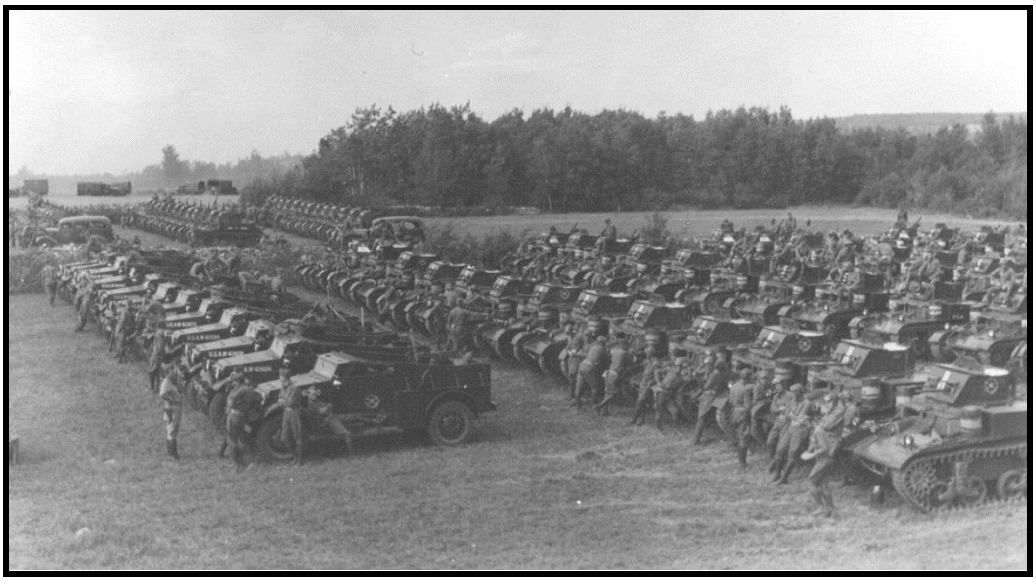
M1 Combat Car headed to the field for winter training at Fort Knox.
(National Armor and Cavalry Museum)



A column of 1st Cavalry Regiment (Mechanized) combat cars during the 1938 Cavalry maneuvers held at Fort Riley.
(U.S. Army Signal Corps)



Mechanized cavalry 4x4 M3 Scout Car. The machine guns could be moved anywhere along the skate ring on the interior of the vehicle.
(National Armor and Cavalry Museum)



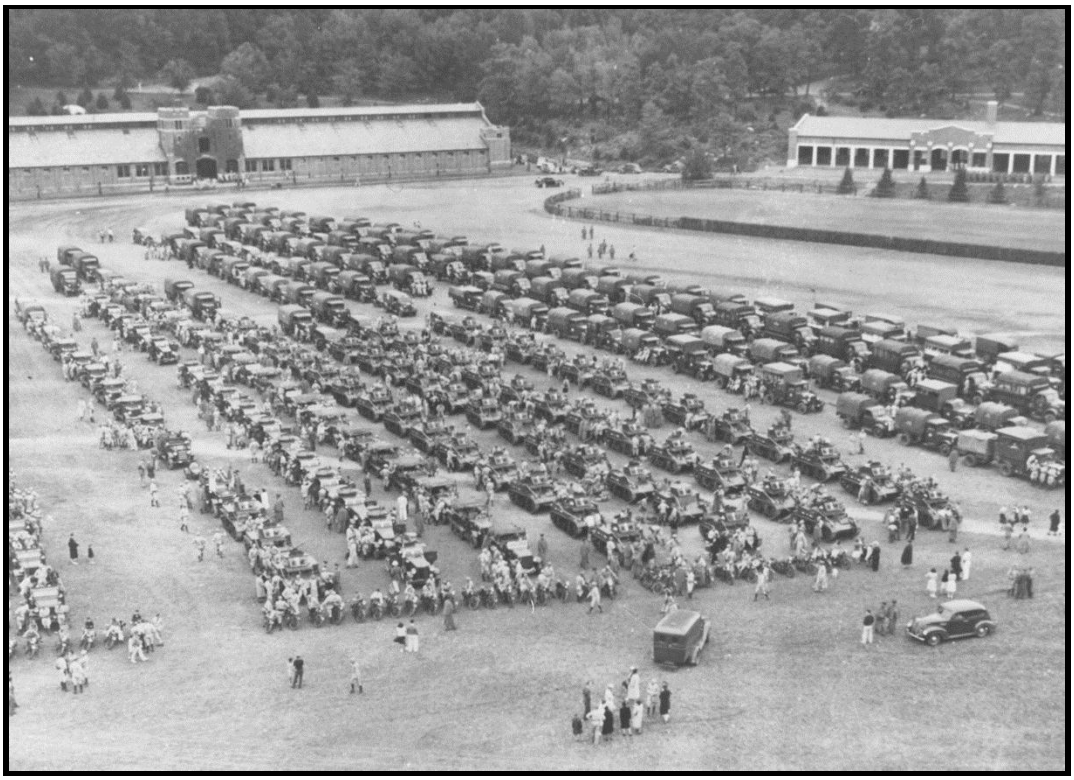
The 13th Cavalry Regiment (Mechanized) assembled for review.
(National Armor and Cavalry Museum)



M1 Combat Car of the 1st Cavalry Regiment (Mechanized) in 1938.
(National Armor and Cavalry Museum)



Combat cars of the 7th Cavalry Brigade (Mechanized) advancing during the First Army maneuvers of 1939. (National Armor and Cavalry Museum)



The 7th Cavalry Brigade (Mechanized) at the United States Military Academy at West Point, following the conclusion of the First Army maneuvers. (National Armor and Cavalry Museum)

The Armored Force



Headquarters sign for the Tank Brigade (Provisional) during the Third Army maneuvers of May 1940. (National Armor and Cavalry Museum)



The 66th Infantry Regiment (Light) passes in review at Fort Benning in 1940. (National Armor and Cavalry Museum)



M2 Medium Tank attacks trench defended by infantry during field training at Fort Benning in February 1940. Although the M2 possessed similar armor protection to the light tanks then in use, it possessed much more firepower, carrying a 37mm gun, two machine guns in the lower hull operated by foot pedals, four machine guns in sponsons covering each quadrant, and two antiaircraft machine guns. (U.S. Army Signal Corps)



Column of M2 Medium Tanks of the 67th Infantry Regiment (Medium) during field training in 1940. (National Armor and Cavalry Museum)



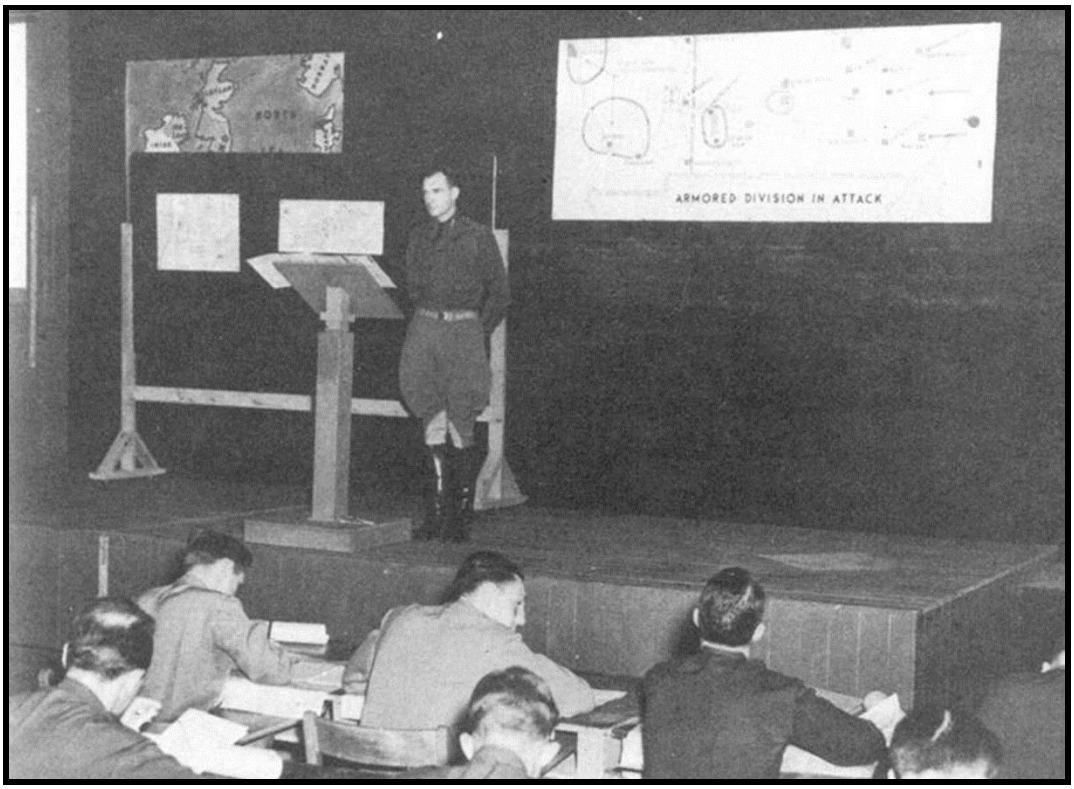
Conducting field maintenance on an M2 Medium Tank during the Third Army maneuvers in May 1940. (National Armor and Cavalry Museum)



Medium tank of the 67th Infantry Regiment (Medium) during the Third Army maneuvers in May 1940. (U.S. Army Signal Corps)



13th Cavalry Regiment (Mechanized) combat cars halted alongside elements of the 68th Field Artillery, while an infantry unit awaits orders on the roadside during the Third Army maneuvers of 1940. Scenes such as these reflected the lack of air defense awareness.
(U.S. Army Signal Corps)



Early classroom instruction in the Armored Force School at Fort Knox.
(National Armor and Cavalry Museum)



Elements of the tank brigade, 1st Armored Division, in 1940.
Note the mix of medium tanks, light tanks, and combat cars.
(U.S. Army Signal Corps)



Tanks and combat cars of the 1st Armored Division
conducting a tactical movement at Fort Knox in March 1941.
(U.S. Army Signal Corps)



Roadside refueling at Fort Knox in March 1941.
(U.S. Army Signal Corps)



A mix of light and medium tanks of the 1st Armored Division demonstrating their cross country mobility in 1941.
(U.S. Army Signal Corps)



Mixed tank force moving toward assembly area at Fort Knox, 1941.
(U.S. Army Signal Corps)



M2A4 Light Tank of the 66th Armored Regiment (Light)
during the Second Army maneuvers in Tennessee, June 1941.
(U.S. Army Signal Corps)



M2A4 Light Tank of the 66th Armored Regiment moving through wooded area near Mount Carmel, Louisiana, in September 1941 during the General Headquarters maneuvers. (U.S. Army Signal Corps)



M2A4 Light Tank in action during the Louisiana phase of the 1941 General Headquarters maneuvers. (U.S. Army Signal Corps)



Light tank crew cutting communication lines of the opposing force and refueling during Carolinas phase of the 1941 General Headquarters maneuvers.
(U.S. Army Signal Corps)



1st Armored Division light tanks en route to the Carolinas phase of the 1941 General Headquarters maneuvers.
Note the small gasoline tanks carried on the vehicle's rear hull to extend its range during operations.
(U.S. Army Signal Corps)



The face of the Armored Force in 1940.
(National Armor and Cavalry Museum)



The tanks are coming! Light tanks of the 1st Armored Regiment at Fort Knox in 1940.
(National Armor and Cavalry Museum)

The Roots of Armor

Editor: This chapter focuses on the experience of the 7th Cavalry Brigade (Mechanized) at the apex of its development in 1939 during the First Army maneuvers. The inclusion of this chapter reflects the foundational influence of the 7th Cavalry Brigade (Mechanized) upon today's armor and cavalry organizations.



Armored car of the 1st Cavalry Regiment, 7th Cavalry Brigade (Mechanized) 1936
(National Armor and Cavalry Museum)



The 7th Cavalry Brigade (Mechanized) at the 1939 World Fair in New York City
(National Armor and Cavalry Museum)

The Seventh Cavalry Brigade in the First Army Maneuvers

BG Adna R. Chaffee, Seventh Cavalry Brigade (Mechanized)

Editor: Published in the November-December 1939 issue of the *Cavalry Journal*, the following article depicts the operations of the 7th Cavalry Brigade (Mechanized) in the First Army maneuvers conducted in August of the same year. Written by the unit commander and supported by excerpts from a maneuver umpire/observer, this article showcases the apex of interwar mechanized cavalry development.

The 7th Cavalry Brigade (Mechanized) pioneered the foundational principles of the Armor Branch. It evolved from a single mechanized cavalry regiment in 1933 into a complete brigade by 1939 with attached observation aircraft, field artillery, and engineers. Responsible for a cavalry mission set much broader than today's focus upon reconnaissance and security, the 7th Cavalry Brigade (Mechanized) became characterized by a high operational tempo, organizational flexibility built upon nonrigid combined arms task organization, mission command principles, and the innovative use of radio communications. These qualities made it unique in the interwar U.S. Army.

The 7th Cavalry Brigade (Mechanized) functioned as a collection of teams maneuvering independently toward common objectives. These teams were structured around the combat car, the term for tanks issued to the mounted branch. Mortars and cavalry rifle teams carried in scout cars accompanied the combat cars, providing fire support and security for the vehicles.

These combined arms groupings operating independent of one another posed a command and control problem overcome through innovative use of the radio. Before an operation began, commanders briefed their subordinates on the overall plan and objectives, the role of each unit, and the assets available. Once the operation began, information updates occurred via short, fragmentary messages sent in the clear. It was assumed that all such transmissions would be intercepted by the enemy. However, while the intended recipient understood the message context from the earlier briefing, it would take time for hostile intelligence personnel to determine the message's correct meaning. The mechanized cavalry believed they could maneuver faster than the rate of such interpretation and get inside the enemy's decision cycle. The 7th Cavalry Brigade (Mechanized) therefore had the highest concentration of radios of any unit in the Army.

As early as December 1938, information was received to the effect that at least part of the Seventh Cavalry Brigade would engage in the First Army Maneuvers which were scheduled to take place during the month of August 1939. Whether or not the Brigade would participate in its entirety was predicated upon the amount of funds which were to be made available.

Later on in the winter it was announced that the whole brigade would take part in the maneuvers and that the maneuver area would be in the vicinity of Plattsburg, New York, instead of at Pine Camp as planned originally.

As plans for the maneuvers progressed it was found that the funds allowed the First Army for gasoline and oil expenditures would be insufficient to permit the track and half-track vehicles of the Brigade to march overland to and from the maneuver area, but that an ample allotment for rail movements did exist. Therefore, it would be necessary to ship the above vehicles by rail.

During the first part of June two Brigade Staff Officers made a reconnaissance of the proposed route of march from Fort Knox to the maneuver area. En route the suitability of roads was determined, camp sites were selected and arrangements made for the purchase of supplies. While in the maneuver area the Brigade Commander, who had flown to Plattsburg, and these officers selected the camp site which the Brigade was to occupy during the maneuvers. Although the First Army Supply personnel were not present at Plattsburg so far in advance, it was found possible also to make preliminary contracts for gasoline and oil to be supplied during the maneuvers, and to make arrangements with the railroad authorities for the unloading of the track and half-track vehicles upon arrival at Plattsburg.

Since the railroad loading facilities at Fort Knox were inadequate for such a movement, it was decided to load all vehicles to be shipped in Louisville. Accordingly, on August 1st, 112 Combat Cars from both cavalry

regiments, 21 half-track Machine Gun Personnel Carriers of the 1st Cavalry and 28 Half-track vehicles of the 68th Field Artillery with the eight 75-mm. Howitzers belonging to the two half-track batteries, were marched to Louisville and loaded for shipment on 77 flat cars.

The next day, August 2nd, the Brigade commenced its march overland to the Plattsburg Area with all of the wheeled vehicles, and with the personnel of its track and half-track vehicles carried in trucks. There was a total of 480 vehicles in the column; and the total distance of 1,010 miles was completed in six marches. The strength of the Brigade was approximately 2,300 officers and men. The following was the itinerary:

August 2nd-Fort Knox to Hamilton, Ohio—188 miles.
August 3rd-Hamilton, Ohio, to Ashland, Ohio—175 miles.
August 4th-Ashland, Ohio, to Erie, Pennsylvania—166 Miles.
August 5th-Erie, Pennsylvania—Layover.
August 6th-Erie, Pennsylvania, to Rochester, New York—164 miles.
August 7th-Rochester, New York, to Pine Camp, New York—172 miles.
August 8th-Pine Camp, New York, to Black Brook, New York—145 miles.

Terrain of the Maneuver Area

The Maneuver Area was a strip of land approximately 20 miles from east to west and 30 miles from north to south located west of Lake Champlain. The eastern portion along Lake Champlain was gently rolling country gradually sloping away and upward into the Adirondack Mountains to the west. The mountainous section which constituted about two-thirds of the area, was heavily forested and extremely rough and broken. Three more or less parallel river valleys-the Ausable, Salmon and Saranac ran east and west through the area. (*See Map 1.*)

All in all this country, with its extremely limited amount of free maneuverable area, surrounded as it was by dominating mountains, and with its numerous rivers and lakes, constituted about as difficult a locality as could have been chosen for mechanized operations.

Units Participating

The following units participated in the 1st Army Maneuvers:

Provisional Blue Corps:
- 1st Division
- 18th Infantry Brigade
- 7th Cavalry Brigade:
  - Brigade Headquarters and Headquarters Troop
  - 1st Cavalry
  - 13th Cavalry
  - 68th Field Artillery
  - 12th Observation Squadron
  - 19th Ordnance Company, Maintenance
  - Co. E, 5th Quartermaster Regiment, Maintenance
  - Detachment Medical Corps
  - Co. E, 1st Engineer Regiment (attached for Maneuvers only).
- 97th Observation Squadron
- 2nd Battalion, 25th Field Artillery

I Corps:
- 26th Division
- 43rd Division

II Corps:
- 27th Division
- 44th Division

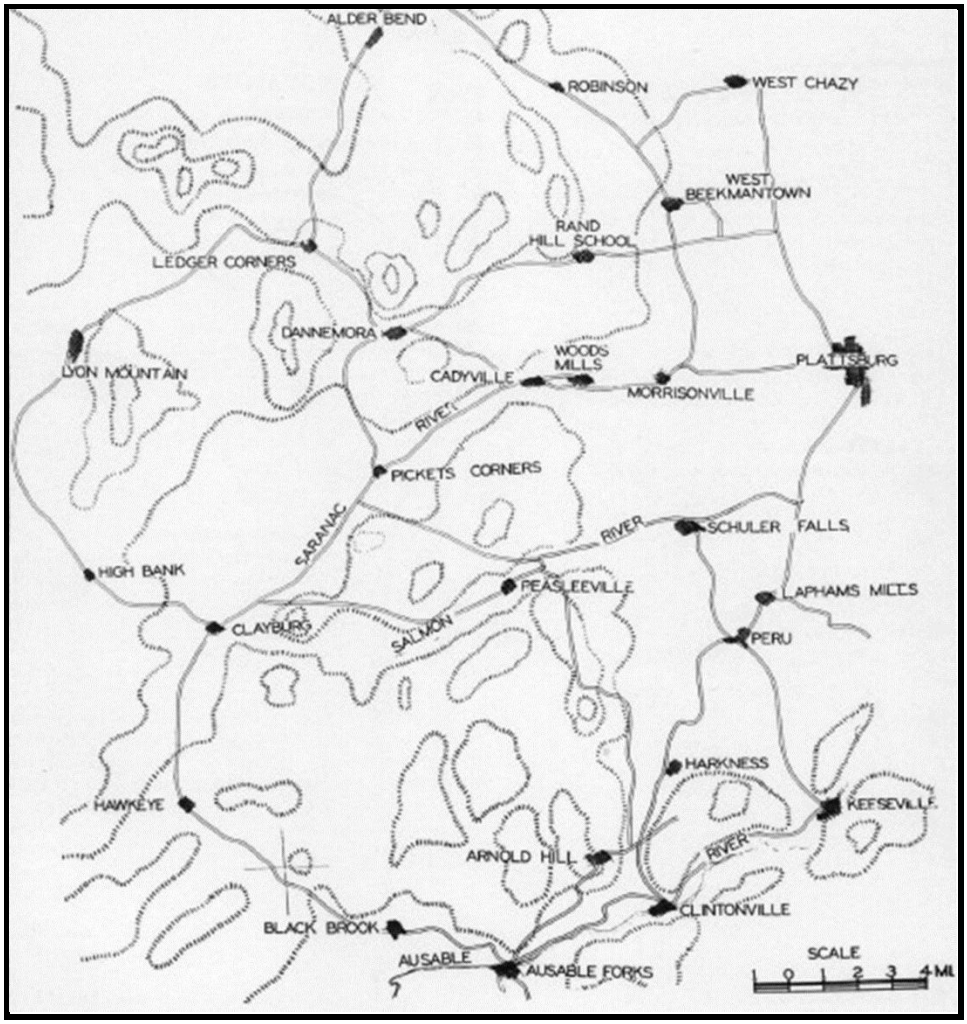
Miscellaneous Army and Corps Troops:

101st Cavalry
101st Signal Battalion
197th Coast Artillery (AA)
212th Coast Artillery (AA)
Battalion 66th Infantry (Light Tanks) 29th Ordnance Company
8th Photo Section
1st Radio Intelligence Company
51st Signal Battalion

On account of the expansion requirements of the Air Corps there was no combat aviation of any kind available for the maneuvers.

Only arms and equipment as authorized by the Tables of Basic Allowances were used. No assumptions were permitted.

After the arrival in the maneuver area the period August 9th to 20th inclusive was spent by the Brigade in establishing camp and conducting Troop, Squadron, Regimental and Brigade problems. In addition the Brigade gave demonstrations for the 1st Division, the 18th Infantry Brigade, and the 26th, 27th, 43rd, and 44th Divisions.



Map 1: First Army Maneuver Area

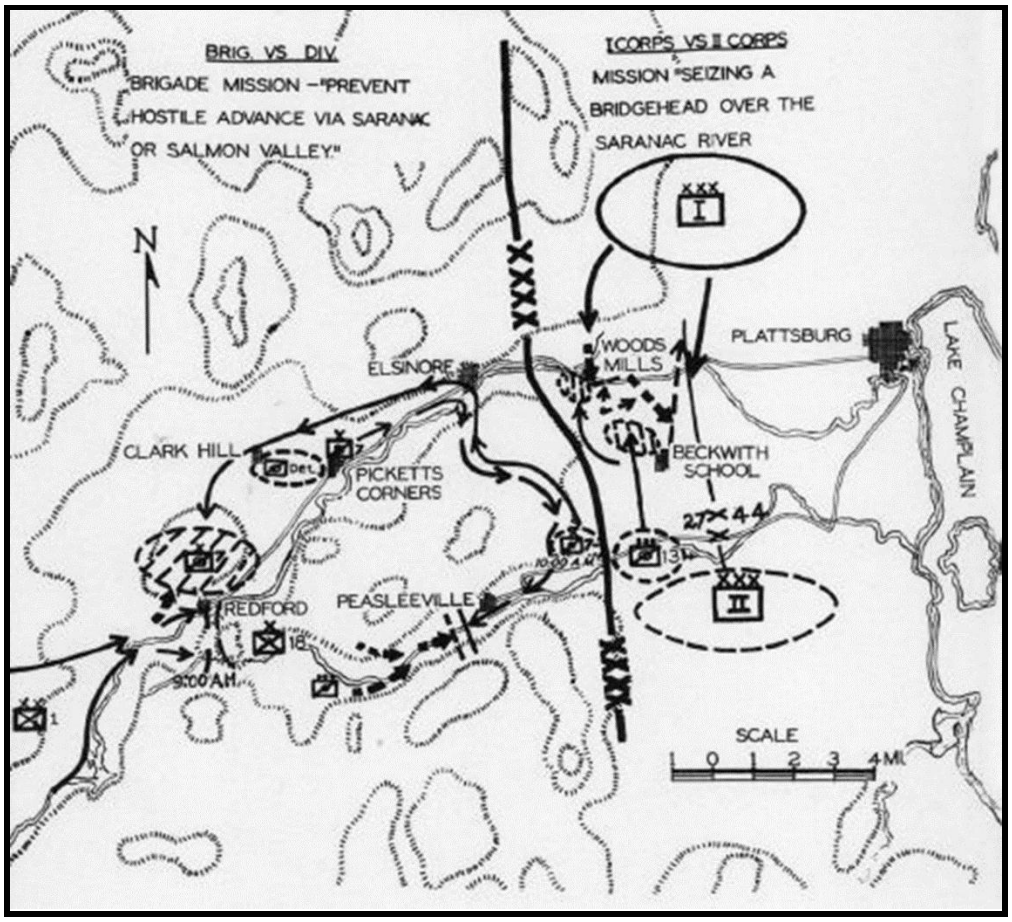
Corps Exercise

August 21st and 22nd

Two separate Corps Exercises were held simultaneously on August 21st and 22nd. One exercise was confined to the western half of the maneuver area and the other to the eastern half. Elements of the 7th Cavalry Brigade participated in both problems. *(See Map 2.)*

In the Western Portion

The 18th Brigade, with the mission of preventing the advance of a hostile force into the Saranac and Salmon Valleys, opposed the 1st Division (Motorized) as shown in the sketch. By 9:00 A.M. 21 August the 18th Brigade was heavily pressed.



Map 2: First Army maneuvers—Corps exercises 21-22 August 1939

The 7th Cavalry Brigade (less the 13th Cavalry, reinforced), on being made available to the Commanding General, 18th Brigade, made a rapid 18 mile march from its assembly area via Elsinore, and attacking at 10:00 A.M., secured the high ground north of Redford, closing the Saranac Valley to the hostile advance. Two batteries of the 68th Field Artillery were attached to the 25th Field Artillery to augment the artillery support of the 18th Brigade. Initially, mechanized reconnaissance elements only operated on the south of the 18th Brigade, the bulk of the Mechanized Brigade being held on the north flank.

During the afternoon it was found that the hostile main effort had developed on the south and was pushing east along the Salmon River Valley. The Commanding General, 7th Cavalry Brigade, was directed to leave a strong detachment in the Saranac Valley to hold the line Clark Hill-Picketts Corners and to move rapidly with the remainder of the command and check the hostile advance on the south flank.

After initial successes around Peasleyville, the situation became stabilized at dark. About midnight, persistent infiltration by the enemy through the wooded rough slopes flanking the valley threatened our artillery position, and the Brigade withdrew four miles to the east to a delaying position which it was occupying at the termination of the exercise. From this position it was prepared to counterattack to the south.

In the Eastern Portion

During the same period the 13th Cavalry, with a battery of field artillery and detachments of engineers, air, maintenance and Medical Corps attached, was operating with the II Corps against the I Corps. The mission of each Corps was to secure a bridgehead over the Saranac River. (*See Map 2*.)

The 13th Cavalry (reinforced) with the 101st Cavalry attached, was released from its assembly area west of Schuyler Falls, one hour after the infantry was allowed to move. It quickly overran advance hostile motorized elements and seizing the high ground northwest of Beckwith School, held this dominating terrain until relieved by friendly infantry sent forward in trucks. It then moved to the northwest and operated against a hostile force which was supported by tanks in the vicinity of Woods Mills.

After dark the regiment withdrew into a night bivouac. At dawn it moved again to the north and located the hostile main effort advancing southwest against the II Corps which had succeeded in securing crossings over the Saranac River and was marching to the north. One squadron was dispatched immediately toward Woods Mills to assist friendly infantry in delaying the hostile advance at that point. The remainder of the regiment, consisting of one squadron of combat cars, part of the Machine Gun Troop, the Mortar Platoon, with one battery of field artillery and a regiment of horse cavalry (less 1 squadron) attached, made a coordinated surprise attack against the exposed west flank of the hostile marching column just as the exercise terminated.

Army Exercise—23-25 August, 1930

(See Map 3.)

General Situation: Without going into all the background, the General Situation for the Army Maneuvers was as follows:

A Black Army of two Corps which had penetrated to the west shore of Lake Champlain was preparing for further advance to the west. The Blue 18th Brigade, which had been gradually falling back in front of the Black Force, was reinforced by the highly motorized 1st Division and a Provisional Corps was formed.

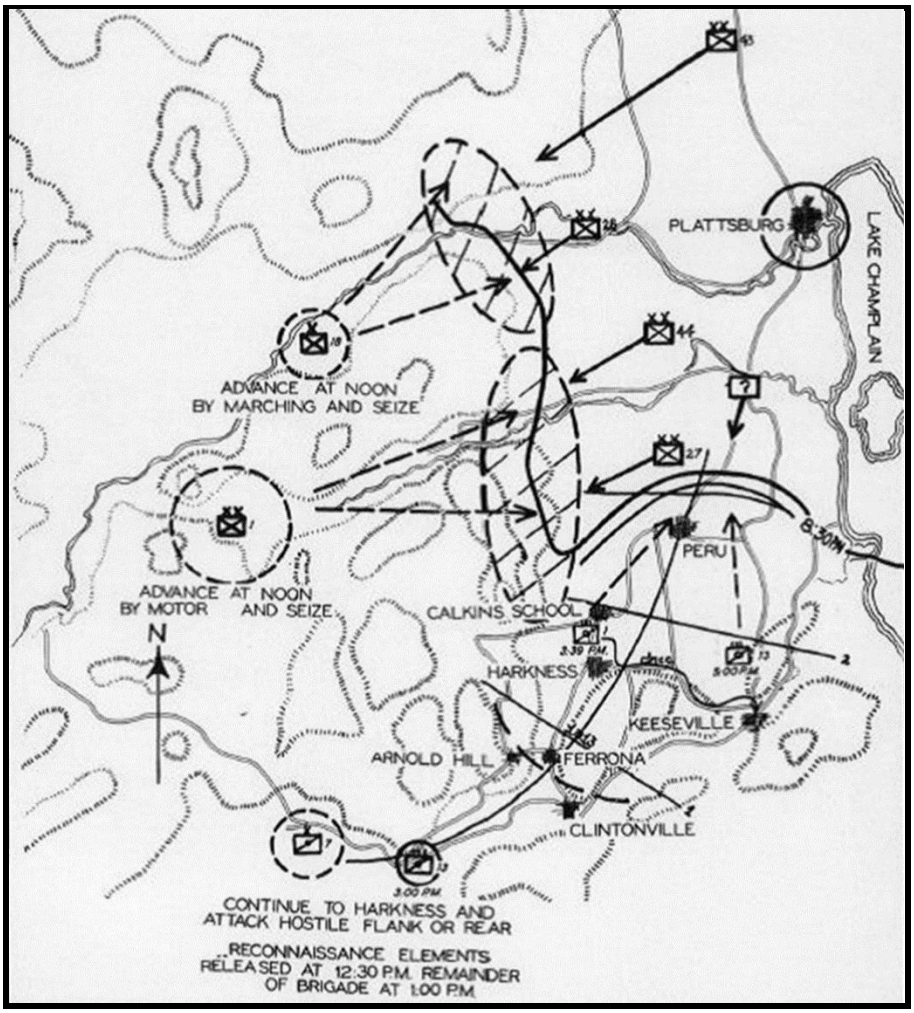
At the start of the maneuver the 18th Brigade was near Saranac and the 1st Division in the region south of Redford. The Corps decided to march to the east and attack to gain the high ground on the line Woods Mills-Mt. Etna. The Corps moved out at 12:00 Noon, 23 August. Elements of the 1st Division in motors were soon near Peasleeville. Under the conditions of the problems, the 7th Cavalry Brigade arrived at Black Brook at 12:00 Noon, 23 August and came under the control of the Provisional Corps. The mission given the 7th Cavalry Brigade was to march to the northeast prepared to attack the hostile left (south) flank or rear.

As to the operation of the 7th Cavalry Brigade in the Army maneuver, it is thought that it would be more interesting for this account to come from a source other than a member of the Brigade. Major Rufus S. Ramey, Cavalry, an instructor at the Command and General Staff School, was detailed by the War Department for duty both as an umpire and as an observer, and has kindly given his consent for the following extract from his report to be quoted in this article:

> It had been anticipated that Black would make a strong thrust north of the Saranac. Since a river crossing in the vicinity of Elsinore was required as a training exercise it became necessary to stop, arbitrarily, the rapid advance of elements of the 18th Infantry Brigade north of the Saranac. Immediately south of that river, however, the Black 101st Cavalry moved rapidly to the west, gained contact with the 18th Infantry Brigade and very effectively delayed its advance throughout the afternoon.
>
> On its front the 1st Division made very effective use of motorized detachments by way of the Salmon River Valley, Patton School and Calkins School, at which point junction with the 7th Cavalry Brigade was established about 2:30 P.M., 23 August. (*See Map 3.*)

In its front the 7th Cavalry Brigade reconnaissance elements quickly made contact with Black motorized detachments in the vicinity of CLINTONVILLE, to the north thereof and near HARKNESS: and developed the fact that the CLINTONVILLE-HARKNESS defile was effectively blocked by demolitions, where Black had apparently concentrated his antitank efforts. However, the parallel trails to the east and west of this defile, over COLD SPRING MOUNTAIN and ARNOLD HILL were neglected and permitted the mechanized cavalry to debouch into the more favorable terrain to the northeast of HARKNESS.

While reconnaissance elements had cleared the CLINTONVILLE-KEESEVILLE defile of hostile motorized and antitank detachments and were operating well to the north toward LAPHAM MILLS, the Mechanized Brigade Commander determined late in the afternoon to concentrate his effort to the northeast towards PERU and eventually against the south flank and rear of the hostile main force. The afternoon had seen a succession of isolated actions against enemy delaying detachments operating in the almost continuous defiles of this section.



Map 3: First Army maneuvers—army exercise 23 August 1939

Shortly before dark on the 23rd, the 13th Cavalry was moving to the northeast of COLD SPRING MOUNTAIN and covering the brigade right flank by detachments in and north of KEESEVILLE. The 1st Cavalry, by a double envelopment was successfully occupying PERU. At this time (about 8:00 P.M.) the Commanding General, 7th Cavalry, by means of staff officers, directed that the combat elements withdraw at once, and move without lights, to concealed bivouacs in the general area:

CLINTONVILLE-ARNOLD HILL-RJ 984-ROGERS for reservicing, rest and feeding in preparation for the following day's operations. (*See Map 4*.) The bivouac area was outposted and liaison with 1st Division maintained.

Instructions had already been given by messengers for kitchen and fuel trucks to proceed to the bivouac areas when orders were received (as the troops were arriving in the bivouac areas) directing the Brigade to move to the west, thence to the north flank (north of the SARANAC RIVER) prepared for new operations at daylight 24 August. This movement called for the assembly of the brigade over difficult mountain trails, a night march of some 60 miles, all without lights, and after some 9 hours of strenuous operations.

Previous orders were countermanded and new orders carried by staff officers. Assembly of march serials was completed and the march initiated at 11:15 P.M. (preceded by reconnaissance) with an amazing lack of confusion and minimum of delay. (*See Map 4*.)

About 2:00 A.M., 24 August the Brigade was halted in march column between REDFORD and SILVER LAKE; kitchen and fuel trucks joined organizations to provide a hot meal and refuel. The march was resumed about 2:45 A.M. over a narrow road along the SARANAC, which was rendered hazardous by frequent temporary bridges and fills on a road which flanked the river.

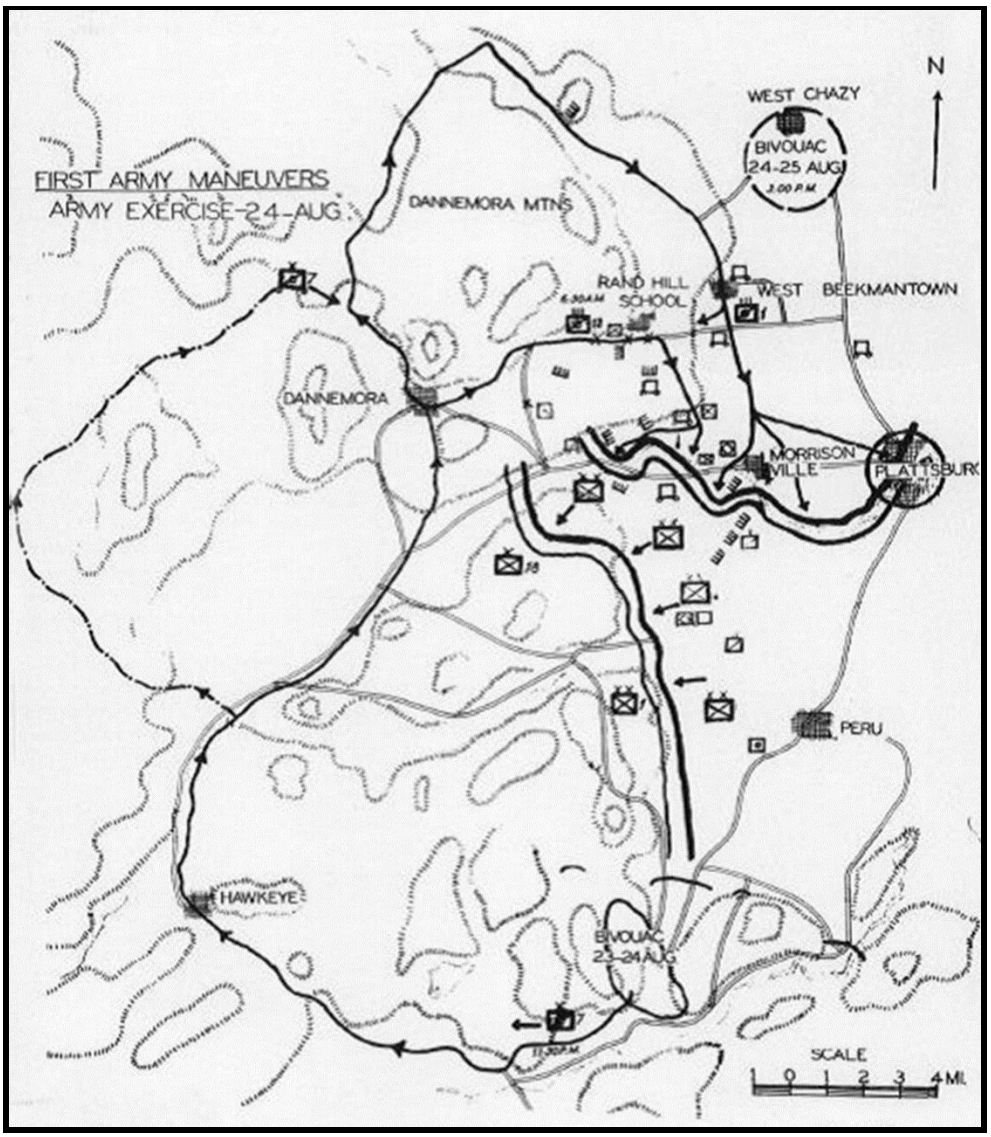
At SARANAC, regimental and similar commanders joined the Brigade Commander who issued instructions calling for the following:

The Brigade to march via PICKETTS CORNERS to DANNEMORA. From there the Brigade, less the 1st Cavalry, reinforced by a battery of artillery and platoon of engineers, to march on RAND HILL; the 1st Cavalry to turn north at DANNEMORA, move via LEDGER CORNER on the line WEST BEEKMANTOWN-BEEKMANTOWN, where it would report arrival and receive orders (a further wide swing of about 30 miles).

On resumption of the march there occurred one of those contretemps which can so easily occur at night with all troops and especially with fast moving columns. A guide stationed at a cross roads near PICKETTS CORNERS became confused and directed part of the column on the wrong road. It was some time before the error was discovered and as a consequence the planned operation was delayed for more than one hour. Elements of the Brigade which had taken the correct route reached DANNEMORA at 5:15 A.M., but it was after 6:00 A.M. before the remainder of the column arrived.

The unfortunate delay had two immediate consequences. Information was received about 6:30 A.M. that Black troops were crossing the SARANAC on two bridges to the west of ELSINORE and CADYVILLE respectively and that there was a large truck movement in the same vicinity. (This was the 43rd Division, the Black Army reserve, which was undertaking an envelopment directed against the north flank and rear of the Blue position.) The 13th Cavalry moved east from DANNEMORA in the direction of the hostile river crossing. About 2 miles east of DANNEMORA progress was effectively halted by hostile demolitions and anti-tank dispositions hastily provided after daylight. Earlier an armored car platoon had been in possession of the defile at CR 1161 (over CANFIELD BROOK) but for some reason had been withdrawn. As a consequence the advance of the 13th Cavalry for the next two hours was a succession of limited objective flanking actions against antitank dispositions in a continuous defile. Combined trains and service parks were halted at DANNEMORA whence they operated until late in the afternoon of the 24th.

By 9:00 A.M. the 13th Cavalry had succeeded in pushing to RAND HILL but was held up by a Black battalion strongly supported by artillery. The 1st Cavalry was ordered to assist by flanking action from the east, then resume its advance.



Map 4: First Army maneuvers—army exercise 24 August 1939

Following the combined attack to complete the occupation of RAND HILL, a terrain feature which dominated the entire northeast of the SARANAC, the 1st Cavalry was directed to seize the high ground about 2 miles northeast of WEST PLATTSBURG in order to assist the movement of the 13th Cavalry to the southeast, (in a zone immediately east of SANDBURN BROOK). There was another purpose behind this plan-to clear the area in order to permit the movement of the fuel trucks which were urgently required for the replenishment of fuel.

By the middle of the morning it was apparent that the entire area north of the SARANAC was infested with Black anti-tank detachments ranging from single 75-mm guns supported by infantry to entire batteries supported by battalions of infantry. These detachments were installing road blocks and completing assumed demolitions at the frequent defiles. From this time to the end of the maneuver the impression was gained that the Black efforts were directed more to protection against the mechanized cavalry than to any offensive action. Actually it is believed that close to fifty per cent of the Black 75-mm artillery was dispersed as antitank guns in his rear areas. By 10:30 A.M., the Blue Mechanized Cavalry was deep in the Black rear area, moving rapidly from north to south across the rear installations.

By 12:30 P.M., 24 August, the main body of the 1st Cavalry had reached the road: MORRISONVILLE-PLATTSBURG, with reconnaissance elements south of the SARANAC (which was readily fordable in a great many places southeast of MORRISONVILLE). About 12:30 P .M. the 1st Cavalry surprised a Black tank company going into what would have been an excellent ambush. In the ensuing action, the hostile tanks were ruled out. *Undoubtedly this head-on engagement would have been costly to both groups of vehicles*.

By this time (shortly after noon the 24th) the Mechanized Cavalry Brigade had been continuously in action since 1:00 P.M. the preceding day. Only part of the units had had one hasty meal. Necessary refueling and maintenance had been most limited. All ranks, but especially combat vehicle drivers, were fast approaching exhaustion though still filled with admirable enthusiasm and aggressiveness. Accordingly, orders were dispatched to withdraw all elements of the Brigade well to the north to the vicinity of WEST CHAZY for rest, reorganization and refueling. (Actually it is believed that this move was in conformity with the desires of the Maneuver Director in order to prevent the complete collapse of the remaining scheduled exercises-the extension of the Black envelopment combined with a night attack, Blue night withdrawal, and a daylight attack by Black on the 25th.) (*See Map 4*.)

The 7th Cavalry Brigade completed its assembly in the WEST CHAZY area late in the afternoon in a torrential rain, trains joined units, all elements refuelled, the area was outposted, much needed rest was gained, and plans were announced for a resumption of the advance early the 25 August.

The plan of operations for the 25 August provided:

The Brigade to advance to the south, force a crossing of the SARANAC, seize the high ground as far as the SALMON RIVER, then turn to the southwest to strike the Black left flank and rear. (*See Map 5*.)

Regiments to advance abreast in more than one column, the 13th Cavalry on the right; advance guards to cross the outpost line at 5:00 A.M.; reconnaissance detachments to move at 2:00 A.M.

One Combat Car Troop 13th Cavalry to follow the 1st Cavalry as reserve.

Trains to assemble and await orders in bivouac area (vicinity of WEST CHAZY).

The advance to the south was initiated as planned. By daylight, reconnaissance elements had crossed and were south of the SARANAC. North of the SARANAC the main Brigade columns encountered frequent antitank 75-mm. guns and groups of machine guns which were promptly reduced by flanking maneuver and by artillery fire. By 6:30 A.M. the 1st Cavalry was crossing the SARANAC at the bridge immediately northeast of BM 294 (about 5 miles southwest of PLATTSBURG). Shortly afterwards the 13th Cavalry encountered serious resistance at the bridge at MORRISONVILLE (consisting. of two batteries of 75-mm. guns and machine guns) which was being reduced when the exercise terminated. Here at MORRISONVILLE the 1st Cavalry surprised and captured important Black Army headquarters installations. The 1st Cavalry and reconnaissance elements were moving to the south of the SARANAC deep in the Black rear. The exercise was terminated shortly after 7:00 A.M., 25 August.

Since the 7th Cavalry Brigade assembled promptly and marched immediately across the Black rear in returning to the base camp at BLACK BROOK, an opportunity was presented to observe Black protective dispositions in his rear areas. In addition to the bridge defense at MORRISONVILLE, there was a large concentration of all arms just north of BECKWITH SCHOOL with 75-mm. guns disposed for antitank defense. A similar disposition was observed northwest of SCHUYLER FALLS and frequent 75-mm. guns and infantry detachments observed as far south as PERU. This is mentioned to indicate the psychological effect of the mechanized cavalry as well as to emphasize the dispersed nature of the Black antitank defense.

The following comments on the Army Exercise are deemed important:

The rapid night march of the 7th Cavalry Brigade, without lights, from the south to the north flank, demonstrated the great strategical mobility and value of the unit.

Continuously demonstrated was the serious need for a reconnaissance and support echelon for the Mechanized Cavalry Brigade-to consist of reconnaissance elements and a fire support group of machine gun and rifle units. Such a composite unit would provide the necessary brigade reconnaissance elements, protection for trains, and required mobile fire support.

Night movement of the Brigade without lights (except for concealed indirect rear wheel illumination) demonstrated that rates as high as 15 miles per hour on fair roads (except in dust) is feasible.

While the total lack of suitable antitank weapons exercised a decided influence, yet one lesson stood out-that was the necessity for careful coordination of antitank protection and the maintaining of mobile antitank units. Piecemeal demolitions, road blocks and dispersal of antitank means is entirely ineffective.

The rapidity of mechanized cavalry action, the speed with which units energetically led may disperse against targets of opportunity, was recognized by the Brigade Commander who guarded against such action by assignment of successive objectives and frequent phase lines from which units reported, then advanced therefrom only on Brigade orders.

Experience in these maneuvers demonstrated the need for a greater number of trained assistants in the operations section of Brigade Headquarters who may be used as liaison officers. The kaleidoscopic change of the situation in mechanized cavalry operations makes necessary the dispatch of orders, frequently by officer messenger. Also, adequate, timely and correct appreciation of the existing situation can be gained only through staff officers' conferences with advance commanders and reports of observations.

While the maximum mobility and effectiveness of mechanized cavalry is only obtained in favorable terrain, the broken terrain of the PLATTSBURG area demonstrated that terrain must be difficult in the extreme to constitute a complete barrier to mechanized units.

The umpiring of mechanized cavalry operations is a difficult problem. In this maneuver, umpires were provided down to include the squadron. It is believed necessary that sufficient umpires be provided with mechanized cavalry to include the troop unit because of the many isolated actions which develop in reconnaissance and in maneuver against antitank dispositions.

Similarly umpire communications with umpire headquarters and contact umpires is a difficult problem in mechanized cavalry operations. Pigeons were used by the senior brigade unit umpire as a means of communication with Umpire Headquarters.

In conclusion, it is desired to pay tribute to the high degree of training and leadership demonstrated during the operations of the 7th Cavalry Brigade. The enthusiasm, the devotion, and efficiency of all ranks and units, displayed throughout an arduous period of one month, was an inspiration. The existing mechanized cavalry brigade is an extremely well trained unit which, in the First Army Maneuvers, forcibly demonstrated its effectiveness in mobile exercises-though operations were often in terrain far from favorable to the exploitation of mechanized cavalry capabilities.

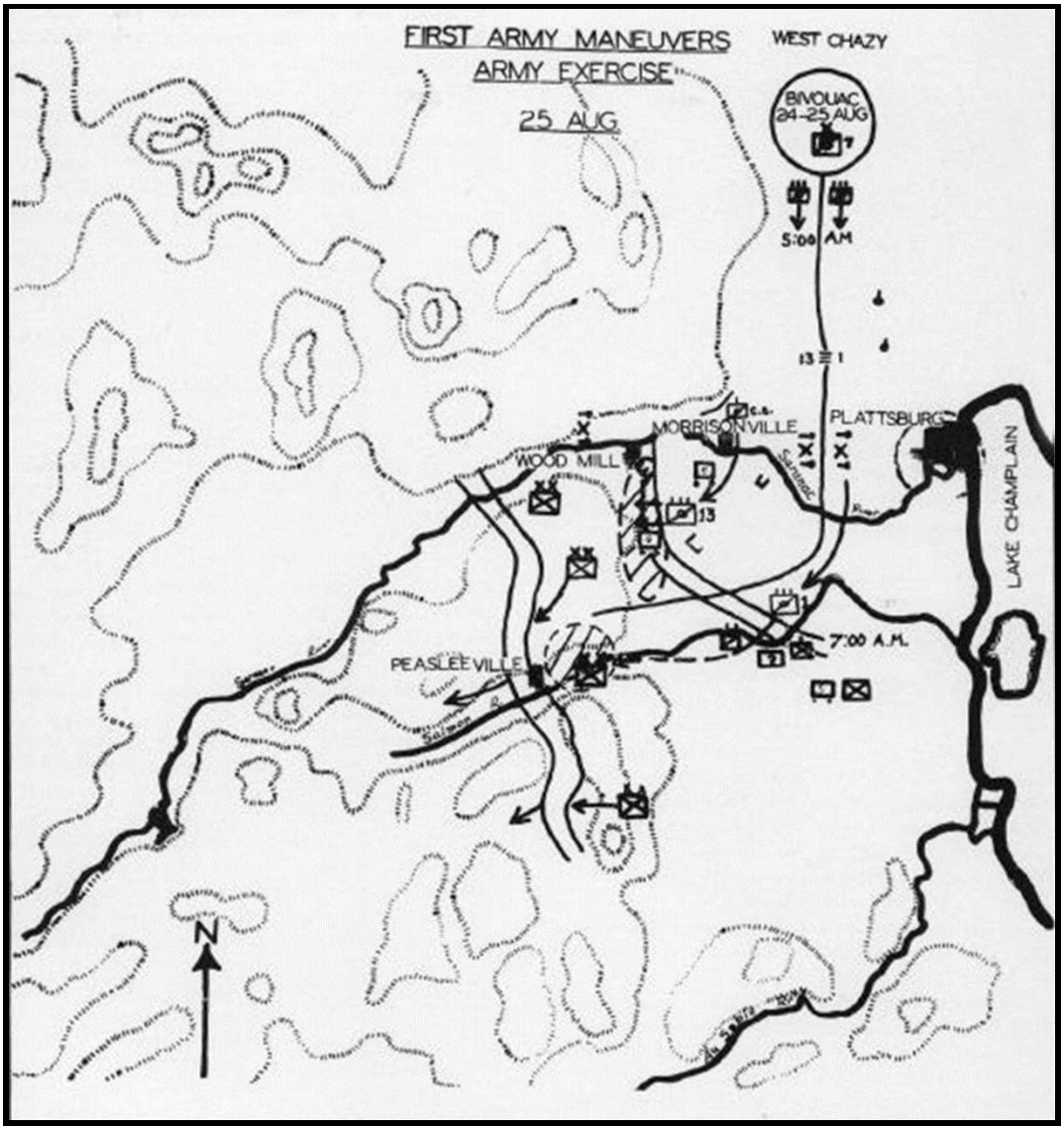
During the maneuvers, Mayor La Guardia of New York City made a request for the presence of the Brigade at the New York World's Fair. This request was approved by the War Department and on August 28th, three days after the close of the Maneuvers, the Brigade, including its track and half-track vehicles, commenced its march of 350 miles to New York City where it was to camp just outside of the World's Fair. En route it passed through West Point where it was reviewed and inspected.

The entire column of over 600 vehicles was received in New York City by the Mayor and Lieutenant General Drum. From the George Washington Bridge it marched down the west side of New York, north up Broadway and Fifth Avenue and over the Queensboro Bridge.

Leaving the camp at the World's Fair at 1:00 A.M., September 8th, after again loading its track and half-track vehicles, the Brigade reached its home station, Fort Knox, on the 13th of September.

During the last 36 hours of the march the brigade travelled 390 miles. This included a short bivouac at Hamilton, Ohio, and five-hour halt in Jeffersonville to unload its track vehicles and reorganize. The last 40

miles of the Journey were made by the brigade with all its vehicles. Upon arrival at its home station, the Brigade, exclusive of maneuver operations, had marched a distance of 2,238 miles in 15 marching days.



Map 5: First Army maneuvers—army exercise 25 August 1939

Conclusions

Mechanized Cavalry is a highly technical weapon, and in order to function efficiently requires experienced, well trained personnel in all grades. Due to its high mobility and great radius of operation, its supporting troops must be familiar with its tactics and technique. This familiarity can be attained only by constant combined training.

Mechanized Cavalry is a powerful striking force capable of operating effectively even over very difficult terrain. It is also capable of making long strategic moves rapidly, under cover of darkness, and without lights.

A Mechanized Cavalry Brigade should be employed as a combat team in order to realize the full value from its air service, ground reconnaissance, combat car, machine gun and artillery elements. It is a mistake to divide the Brigade and a greater mistake to divide the regiment which is the basic combat unit.

Mechanized Cavalry should be assigned to those missions of mobile combat which are most important to the success of the Army. Its successes or failures are capable of affecting the operation of the entire Army.

Mechanized Cavalry must be preceded by adequate, reconnaissance, both ground and air in order to locate obstacles, ambushes and anti-mechanized weapons. Likewise it must be covered by security detachments to prevent surprise and provide freedom of action when hostile forces are encountered.

Mechanized Cavalry must leave roads and move cross country when within the range of hostile artillery.

Mechanized Cavalry should not be assigned the mission of holding extensive sectors during darkness, particularly in terrain which severely restricts vehicular maneuver. It should be relieved at dusk and withdrawn for the purpose of feeding the personnel and the refueling and maintenance of vehicles. Under cover of darkness it should then be moved to a point from which it can launch an offensive blow at daylight. *The personal rather than the mechanical factor controls the limit of endurance*.

Mechanized Cavalry gains surprise by—

- Secret marches at night without lights.
- The use of feints and demonstrations while the direction of the main effort is kept concealed.
- Rapid movement even though observed. Time and space factors often do not permit the enemy to make or change dispositions in time to counter a mechanized thrust.

Mechanized Cavalry, due to its great fire power, rapidity of action and striking ability, has a decidedly adverse effect on the morale of other ground troops who realize the comparative ineffectiveness of their small arms fire against rapidly moving armored troops.

Not only infantry regiments and divisions, but the rear areas of Corps and Armies must possess adequate means for anti-mechanized defense.

In order to provide for defense against the threat of the Mechanized Brigade in the recent maneuvers the Black Army was forced to use its organic artillery. This resulted in the supporting fire of many battalions being lost to the front line units at times when their fire support was sorely needed.

When infantry is equipped with adequate means for anti-mechanized defense, and makes dispositions which would afford protection against mechanized attacks from any direction, such as a cordon defense, it is in danger of losing its mobility and becoming defensive minded. The same may be said of horse cavalry.

Infantry tank units do not possess the auxiliary means of reconnaissance and support to successfully oppose a strong force of mechanized cavalry.

Reconnaissance from unarmored vehicles is often of doubtful value and very liable to be most costly in men and vehicles.

The majority of the road blocks encountered during the maneuvers were not sufficiently extensive or defended strongly enough to be more than temporarily effective. The bulk of the mobile anti-mechanized units should be held centrally located and in readiness for quick dispatch and employment in previously reconnoitered positions upon receipt of timely information from air and ground reconnaissance.

The best defense against a powerful mechanized cavalry is a similar mechanized unit.

Both horse cavalry and motorized infantry are ideally suited to support mechanized cavalry and to operate in conjunction with it. Horse Cavalry is capable of operating more rapidly when the distance is short; motorized infantry when the distance involved is long.

Prior to September, 1939, the question as to what part mechanization was destined to play in large scale modern warfare was largely an academic one. This question, however, was answered most conclusively on the battlefields of Poland within a few days after the close of the 1st Army Maneuvers, when the German Army, using its mechanized divisions so successfully and decisively conquered a valiant army of a million men in the amazingly short period of two weeks. The lessons brought out by the maneuvers of the 1st Army and other such maneuvers have been confirmed by war.

Editor: In the First Army maneuvers of 1939, the 7th Cavalry Brigade (Mechanized) utilized its unique combination of mobility and firepower coupled with aggressive reconnaissance to maneuver around and through the opposition forces. Its ability to maneuver rapidly over mixed terrain with wooded hills, defiles, and river valleys generated a shock effect, leading the opposing commander to divert artillery support from forward combat echelons to static antitank positions that were rapidly outflanked or destroyed. In general, the 7th Cavalry Brigade (Mechanized) demonstrated the effectiveness of a capability set that characterized subsequent armored combat organizations, further enhanced by aggressive and effective reconnaissance.

Despite the successful actions of the 7th Cavalry Brigade (Mechanized), senior leaders considered the unit's doctrine, tactics, techniques, and procedures largely theoretical and unlikely to succeed in combat. This viewpoint reflected the unique nature of the mechanized cavalry in the interwar Army. However, the unit's cross-country mobility, its ability to redeploy rapidly at night, to apply mobile firepower where needed, and to paralyze the opposing force through rapid action, became standard hallmarks for future armored formations. Moreover, the unit's unique capability set received critical validation when employed on a much larger scale by the German army during the Polish campaign of 1939, which began within days of the maneuver's conclusion.

When the Army directed the establishment of the Armored Force in 1940, by intent it bore the strong imprint of the mechanized cavalry. The selection of the 7th Cavalry Brigade (Mechanized) commander as the first Armored Force chief embodied this intent. The home of the mechanized cavalry became the home of the Armored Force, mechanized cavalry officers assumed key leadership positions in the newly organized armored divisions, and mechanized cavalry concepts provided the foundation for armored doctrine. The organizational flexibility and combined arms nature of the 7th Cavalry Brigade (Mechanized) resonated in the armored division composition and the later combat command structure.

World War II

Editor: This chapter offers insights into the combat operation of armor units in the European, Mediterranean, and Pacific theaters of operation. It offers detailed perspectives on combat actions in North Africa and at Arracourt. It also assesses the factors necessary to ensure effective coordination of tanks and infantry at the small unit level. Overall, the selections underscore the effectiveness of combined arms operations and the related leadership challenges.



Tankers of the 1st Armored Division in Italy
(National Armor and Cavalry Museum)

Armor in North Africa

Editor: The following items depict combat operations of elements of the 1st Armored Division in January and February 1943. In the closing days of January, elements of the 1st Armored Division sought to secure Faid Pass, but the effort failed. In mid-February, the Germans opened a major offensive with an armored thrust through Faid Pass that overwhelmed American forward positions, overran Sidi Bou Zid, and isolated American infantry positions on the nearby heights. A subsequent counterattack to recapture Sidi Bou Zid failed with heavy losses.

These engagements marked the first in a series of battlefield reverses for American forces that culminated in the fighting for Kasserine Pass. The initial fighting involved Combat Command A with the 1st Armored Regiment and supporting troops. Although the 1st Armored Regiment included three armored battalions, only one (3rd Battalion) was present for these actions. Similarly, only a portion of the 81st Armored Reconnaissance Battalion was present, since much of its strength was dissipated to cover a broad frontage. When the main German thrust began on February 14, the American forces near Sidi Bou Zid quickly found themselves under attack from multiple directions by superior enemy forces with ample armor and air support. The resulting action marked the steady erosion of American combat power, followed by a retreat.

The document excerpts below chronicle the action from the perspective of 1) Combat Command A, 2) the 1st Armored Regiment, and 3) the 3rd Battalion, 1st Armored Regiment. A final segment includes impressions and lessons learned from combatants in the 1st Armored Regiment. For a narrative of these engagements, see George F. Howe, *United States Army in World War II: The Mediterranean Theater of Operations: Northwest Africa: Seizing the Initiative in the West* (Washington, D.C. 1957: Office of the Chief of Military History, Department of the Army). Also available online at the following website:
http://history.army.mil/html/books/006/6-1-1/index.html

1) Operations Report of Combat Command A Headquarters, 1st Armored Division

13 February 1943

About 1330 hours, our forward observer on Ksaira reported about 125 trucks moving SOUTH behind the ranges DJ [Djebel] KRALIF- DJ KRECHAM- DJ GOUBRAR- DJ BOUDINAR. Two air missions destroyed 25 trucks and reported that the trucks were loaded with Infantry. Enemy aerial reconnaissance was active in our sector. Enemy artillery shelled our positions around LESSOUDA during the afternoon and evening. All troops were alerted and notified to expect a large scale attack. All train elements were ordered to SBEITLA. General Eisenhower and General Ward visited our CP [command post] at 2300 hours. General Eisenhower listened to a description of our situation and dispositions without comment. Before departure, he decorated Col. Drake, 168th CT [combat team] with the silver star.

14 February 1943

The start of the German attack was indicated by heavy fire in the LESSOUDA area at 0630 hours.

It appeared that an envelopment of our NORTH flank was in progress. Hostile debouchment was apparently made either at FAID pass or the pass to the NORTH of FAID. Listening posts apparently were either surprised or failed to perform as ordered. There was no call for the FAID pass artillery barrage as far as was observed (Rocket signal from listening posts).

There was a heavy ground haze and the firing could be followed only flashes. A duel between tanks seemed to be in progress just EAST of LESSOUDA.

0650 hours—Lt. Col. Waters, NORTH sector Commander, reported that LESSOUDA was being attacked by tanks but that he could not tell much about it due to poor visibility. He stated that his tank company ("G" Co, 1st AR), had moved to counter-attack.

0800 hours—As many as 30 tanks were reported in a wide sweep around DJ LESSOUDA, which apparently was being overrun. The 3rd Bn, 1st AR (--), moved toward LESSOUDA with the remainder of the 91st FA Bn in support.

0820 hours—"B" Btry, 91st FA was withdrawing to the WEST of LESSOUDA. German tanks were on the NORTH flank of "B" Btry.

0830 hours—enemy tanks overrun "B" Btry, 91st FA, WEST of LESSOUDA.

0833 hours—Twenty enemy tanks which had passed WEST of LESSOUDA were along LESSOUDA-FAID road facing SOUTH. These tanks were engaged by the remainder of the 3rd Bn, 1st AR (--), from positions between SIDI BOU ZID and the OASIS, LESSOUDA.

0840 hours—A total of 39 hostile tanks were now SOUTH and WEST of LESSOUDA.

No friendly aviation seen as yet. (Observation had been requested at 0100 hours from daylight on).

0920 hours— The number of the 1st AR tanks still in action was not known; but four or five tanks had been lost from Lt. Col. Hightower's mobile reserve.

0930 hours—The 2nd Bn, 168th Inf (--), was reported to have withdrawn into the foothills of DJ LESSOUDA.

The 17th FA Bn was ordered to the vicinity of SIDI BOU ZID to go into position there.

0950 hours—the forces on DJ LESSOUDA completely surrounded.

Division reported Kern going into position at CR T-5267.

0955 hours—another request was made for air support. Enemy planes overhead continuously.

Enemy tanks reported moving NORTH from vicinity MAKNASSY pass.

Situation reported to Division. Repeated Col. Drake's report of threatened cut-off and his request that II Corps reserve be asked to attack and relieve situation. No reply except "Roger" (G-3).

1015 hours—Tex's (LTC Louis V. Hightower, commanding 3rd Battalion, 1st Armored Regiment) tanks heavily engaged in a fire fight NORTH of SIDI BOU ZID—falling back slowly. Several tanks lost. It was apparent that the enemy was using some Mk 6 (Tiger) tanks.

1030 hours—Co "C," 16th Engrs ordered from reserve to vicinity mine field on SOUTH flank between DJ KSAIRA and DJ GARET HADID. Orders to protect SOUTH flank and to cooperate with Col Drake, 168th Inf.

Co "A," 81st Recon Bn, had bivouacked back of the mine field. They worked SOUTH from there into the valley during the day and protected the mine field at night.

1036 hours—Thirty tanks coming from MAKNASSY pass and moving NORTHWEST in V formation (Co "A" 81st).

Tex's tanks were slowly falling back toward SIDI BOU ZID. The 91st FA Bn began displacing WESTWARD on order. The 17th FA Bn, still in the process of displacement, was delayed by heavy dive bombing.

At **1126 hours**, reported to division the 81st Reconnaissance Battalion report that thirty tanks moving towards right rear SOUTH of DJ KSAIRA. 81st reported that they were delaying them but unable to stop them.

At about **1130 hours**, situation reported to Division: "Enemy tanks closing in and threatening both flanks and cut off Drake. Any orders?" First we were told to "Wait." Then came the answer: "Continue on your mission." (G-3)

1200 hours—Axis of possible withdrawal announced to units: SIDI BOU ZID-ZAAFRIA-NORTHWEST to SBEITLA road.

1208 hours—The enemy was right on top of us. We were moving CP on ZAAFRIA. All except command elements had been dispatched in advance.

1230 hours—Artillery displacing SOUTHWEST from SIDI BOU ZID. Considerable dive bombing. CP HQ tanks sent to help Tex cover withdrawal of artillery as ordered.

1240 hours—Tex reported that he was being heavily pressed and withdrawal should speed up. No friendly air support. Situation reported to Division. Communication ineffective with units.

1250 hours—Movement of CP being made cross country to SOUTHWEST—slow.

1400 hours—Our CP temporarily established about five miles SOUTHWEST of SIDI BOU ZID.

Tex forced back about two miles SOUTHWEST of SIDI BOU ZID and his flanks were being threatened. At this time three CC "A" Hq tanks joined the 3rd Bn, 1st AR (--), which had only five or six tanks left.

Col. Drake's request for permission to withdraw from DJ KSAIRA was relayed to Division.

1408 hours—Message from Division: "Too early to give Drake permission to withdraw."

Last orders to Drake: "Continue to hold your position" was acknowledged about this time.

The 1st Bn, 17th FA was destroyed by bombing and finally by tank attack.

1430 hours—A group of enemy tanks, which eluded elements of the 81st Reconnaissance Battalion which was protecting the right flank, advanced from the SOUTHWEST and attacked some combat train vehicles and an advance detachment of CP CC"A" which was moving towards ZAAFRIA. These tanks also later engaged our withdrawing artillery and CC "A" CP between SIDI BOU ZID and ZAAFRIA.

1450 hours—Withdrawing units moved NORTHWEST cross country, covered by elements of 3rd Bn, 1st AR. Some long range tank fire and dive bombing was received; causing vehicle losses en route. Some vehicles had difficulty crossing wadi WEST of ZAAFRIA. There was considerable disorganization, although there was no great congestion, as vehicles moved in open formation across country towards CR 5266.

1700 hours—CP was established at T-4668, NORTH of SBEITLA road, at about this time. Reorganization of units proceeding along road WEST of CR at T-5266 was started. Nine guns of 91st FA in position supporting 1st Bn, 6th Inf. Remainder of 3rd Bn, 1st AR, and 3 CP light tanks, were placed in reserve and moved to vicinity of CP. Enemy did not pursue. Enemy aviation had been apparently unopposed. Ten attacks on CP and its vicinity had been made during the action. Enemy air attacks appeared to be most effective against the 17th FA. They caused little loss to other troops, although they did slow up their movements considerably.

1800 hours—Orders issued to units to arrange for all possible recovery of vehicles in battle area during night. Few of the troops that had been engaged were available to function in recovery operations. Assistance from Division Maintenance was requested.

Editor: This report marks the collapse of American positions around Sidi Bou Zid from the perspective of Combat Command A, who was responsible for the sector. Evident throughout is frustration at the lack of air support in any form, including aerial reconnaissance flights, underscored by the frequent mentions of German air attacks throughout the battle zone. Similar dissatisfaction is indicated with the largely unresponsiveness of division headquarters, which offered little in terms of support or guidance. In fairness, the 1st Armored Division had been dispersed over a broad frontage and was not well postured for a rapid reaction to the German offensive. The dire straits of the American forces is indicated by the steady loss of tanks, rapid displacement of command posts, the loss of an artillery organization, reliance upon light reconnaissance vehicles to delay a flanking thrust by enemy tanks, and the sudden eruption of hostile armor among a maintenance company. All of these indicators suggest a force caught off guard and an inability to either seize the initiative from the Germans or significantly disrupt their actions. The inability of reconnaissance assets to provide timely and accurate information regarding German movements proved central to this development. Dependence upon a forward listening post to fire rockets and trigger an artillery bombardment into Faid Pass failed when the Germans overran the position before the warning rockets could be fired.

2) North African Campaign, November 8, 1942 to May 9, 1943; First Armored Regiment, United States Army

Beginning January 17 the Regiment began overland movement eastward and via TELERGMA, AINE MLILA, AINE BEIDA arrived in assembly area at BOU CHEBKA January 21, 1943.

On January 23 the Regiment (less 1st and 2nd Bns) moved from BOU CHEBKA to SBEITLA as a part of Combat Command "A" where it remained, carrying on reconnaissance, until it, as part of Combat Command "A," moved to vicinity of FAID PASS prepared to counter attack enemy who had driven French troops from FAID PASS. On January 31, the 3rd Battalion (less Companies G and I) with supporting troops attacked east towards FAID from DJ LESSOUDA with a mission of driving enemy from the place and securing it. Company "G" was attached to a force composed of 1st Bn., 6th Armored Infantry (-2 companies) with supporting troops which had a mission of attacking east toward REBAOU PASS from SIDI BOU ZID, taking and securing REBAOU and high ground to the north towards FAID PASS. Company "I," attached to 26th Infantry (-2 battalions) was in reserve in vicinity of DJ LESSOUDA. The force which attacked FAID PASS at 0830 hours January 31, 1943 met very heavy resistance in the form of anti-tank guns and 18 enemy tanks and were unable to gain their objective. Combat was broken off at 1000 hours, remainder of "H" Co. withdrawn; 1 platoon of "I" Co. covering artillery positions as "H" Co. withdrew. This force was also subjected to intensive aerial bombardment. Nine of our tanks were lost, 4 men killed, 80 wounded and 15 missing. The force known as the maneuvering force, to which Company "G" was attached, attacked REBAOU and after stubborn resistance gained the foothills of the mountains extending north from REABOU, but under strong counter-attack were forced to withdraw to DJ KSAIRA where a strong position was consolidated. The attack was supported by two platoons of Company "I." Combat Command "A" took a defensive attitude and took up positions generally on a north and south line about four to five miles west of FAID – REBAOU; occupying DJ LESSOUDA and DJ KSAIRA. The Command Post of Regimental Headquarters was at SIDI BOU ZID.

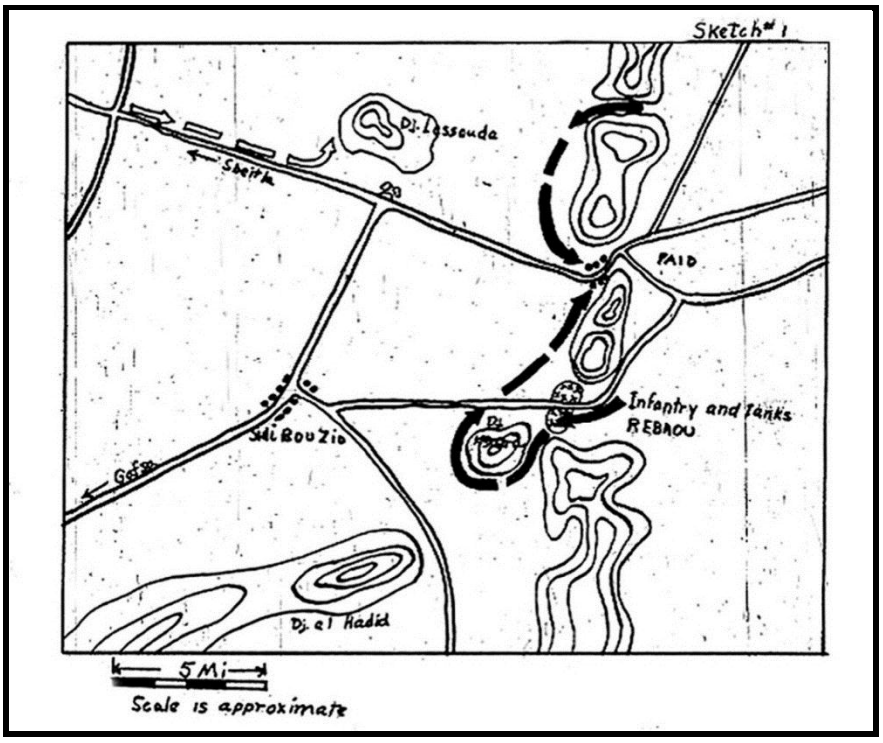
From February 1 to February 14 the Regiment (-1st and 2nd Bns) remained in vicinity of SIDI BOU ZID as a part of Combat Command "A" at which time intensive patrolling, reconnaissance, and preparation of defensive works was carried out. Company "I" was in the area of DJ LESSOUDA with part of Reconnaissance Company to prevent a surprise debouchment of the enemy from FAID. A platoon of tank destroyers and a battery of artillery formed part of this force. The rest of the regiment (less 1st and 2nd Bns) were assembled in the vicinity of SIDI BOU ZID. During this time the 2nd Battalion had had various assignments. The 1st Battalion was still at Oran.

Editor: The 1st Armored Regiment included three armored battalions and a reconnaissance company, supported by a headquarters staff, supply, maintenance, and medical service components. However, neither the 1st nor 2nd Armored Battalions were present and the reconnaissance company was split to cover more area. Hence, much of the combat power normally available to this regiment was unavailable when the Germans attacked.

On the morning of February 14 the Germans began strong offensive action in our sector which nearly resulted in the complete annihilation of the Regiment as well as Combat Command "A." During the afternoon of 13 February our forward observers reported large convoys of enemy vehicles moving south just east of DJ KRECHEM. Air missions on this movement destroyed some vehicles and the returning planes reported enemy tanks east of REBAOU. Forward troops reported noises of additional tank engines during the night of 13-14 February and all troops prepared for the attack which we knew must be coming. General Eisenhower visited our Command Post at 2300-2400 the 13th of February. The enemy attack began at approximately 0630 hours the morning of 14 February by a tank debouchment from FAID PASS towards LESSOUDA which attack was preceded by an artillery bombardment of that place. LESSOUDA had been previously occupied by 2nd Battalion, 168th Infantry which had become part of Combat Command "A," Company "G" had replaced Company "I" at LESSOUDA and Company "I" rejoined the remainder of the 3rd Battalion. Company "G," the artillery battery, and the tank destroyers at LESSOUDA were nearly overcome before the remainder of the 3rd Battalion could come to their aid. In all, enemy tanks debouching from FAID and the north, together with those that appeared approaching from the southwest must have totaled well over one hundred fifty, of which a part were the Mark VI (Tiger) type. The 3rd Battalion engaged

these enemy vehicles until depleted to the point of ineffectiveness. During the action the 2nd Battalion, 17th Field Artillery Regiment (a part of CC "A") was destroyed, the 2nd Battalion, 168th Infantry with Reconnaissance Company, 1st Armored Regiment was isolated on LESSOUDA, Battery "B," 91st Field Artillery Battalion lost practically all its vehicles when overrun by tanks, Company "A," 701st Tank Destroyer Battalion lost practically all its vehicles, the 168th Infantry Regiment (less 1st and 2nd Bns) with Company "A," 81st Reconnaissance Battalion, Company "A," 16th Armored Engineers was surrounded in the vicinity of DJ KSAIRA. The enemy tanks approaching SIDI BOU ZID from the southwest encountered our Maintenance Company and that organization suffered heavy losses. The remainder of the 3rd Battalion and Regimental Headquarters retreated towards SBEITLA, delaying as it fell back. A defensive line was established on the 1st Battalion, 6th Armored Infantry about seven miles west of DJ LESSOUDA the night of February 14. The 2nd Battalion, as part of Combat Command "A" attacked February 15 with a mission of relieving our forces marooned on LESSOUDA and KSAIRA. Reconnaissance Company and other troops on LESSOUDA got off under cover of darkness, however the troops on KSAIRA were eventually captured by the enemy. The remainder of the Regiment, still a part of Combat Command "A," engaged the enemy successively on the road from LESSOUDA to SBEITLA and that town was held until 1300 hours February 16 at which time the regiment was withdrawn to SBIBA and thence to TEBESSA for refitting. The few remaining M4 tanks were turned over to Combat Command "B" and a provisional battalion, composed of remaining tank personnel, together with replacements was formed and equipped with M4A2 tanks borrowed from the British. This battalion was used as Division reserve and placed in readiness about seven miles southeast of THALA, however, its use was unnecessary as the enemy was defeated and withdrew to the east of KASSERINE PASS.

From February 27 until March 12 the Regiment bivouacked in the TEBESSA area and proceeded with its reorganization and re-equipping.



Sketch of fighting at Rebaou on January 30, 1943, showing double envelopment of French defenders by German forces, shown in dark. Action triggered the abortive counterattack by the American 3rd Battalion, 1st Armored Regiment,which left the Germans in control of Faid Pass. Map drawn by unidentified member of 1st Armored Regiment staff and included in unit's historical report of action.

Editor: This report highlights the destruction of the 1st Armored Regiment as an effective fighting force. Although the 2d Battalion rejoined the regiment for combat actions on February 15, these failed to relieve the isolated forces on DJ Ksaira and resulted in additional, substantial armored losses. Note that much of the regimental reconnaissance company became stranded on DJ Lessouda and DJ Ksaira, unable to assist the regiment or track the evolving tactical situation. In effect the reconnaissance asset lost its freedom to maneuver. Consequently, the regiment fought its single armored battalion against the multiple German armored threats. It lacked the combat power to defeat these threats or prevent artillery and support assets from being destroyed.

3) Operations of 3rd Battalion, 1st Armored Regiment From January 1, 1943 to February 21, 1943 [Excerpt]

February 14 (Valentine's Day) —0600 hours, battalion alert and "standing to"; all quiet. At 0630 hours evidence of considerable activity to east of Djebel Lessouda. Attempted to contact Major Parsons and Company "G," all attempts unsuccessful. Received information from CC "A" (which had established contact with Lt. Colonel J.K. Waters, who had taken command at Lessouda the previous day) that the enemy was attacking Lessouda in force with tanks, infantry and artillery. Company "I" with Assault Gun platoon, ordered out to counter-attack parallel to the road from Sidi Bou Zid to Lessouda. The right flank of Company "I" was to be covered by a sweeping movement by Company "H" (less one platoon on reconnaissance). Both companies moved out leaving company maintenance and command half-tracks, which were collected in the vicinity of the Battalion C.P.

Lt. Colonel Hightower, who had moved out with Company "I," reported that the enemy was in possession of Lessouda and was assembling his tanks, apparently for a move on Sidi Bou Zid. He estimated the number of tanks as fifty-three (53) and asked for a bombing mission; none was received, except from the Germans. Enemy air appeared in force; Stukas, Me 109's and FW 190's bombed and strafed Company "I" and other troops of CC "A"; no friendly air present.

Company "H" ordered to move immediately to left (west) flank of Company "I" to meet an enveloping attack by enemy tanks. The missing platoon of Company "H" rejoined that company during the move to the new position.

Since the enemy's position at Lessouda threatened our position on the flank, the company maintenance and command half-tracks and several trucks from Company "A," 701st T.D. Battalion were ordered to move to a suitable assembly point well outside the perimeter of the battle, which was fast becoming a melee, on the road to Sbeitla (on Faid-Sbeitla road) and to report their whereabouts when this had been accomplished. The Battalion command half-track and entire Mortar Platoon, moved to a point along the Sidi Bou Zid-Gafsa road about three (3) miles south-west of Sidi Bou Zid (T5852).

Enemy air activity increased in intensity and Sidi Bou Zid received a pounding with five hundred (500) pound bombs. All withdrawing troops were forced to detour to the south around the town. The company maintenance and command half-tracks were caught in this bombing and received a number of casualties. The Stukas seemed to be shuttling their loads from very close air fields.

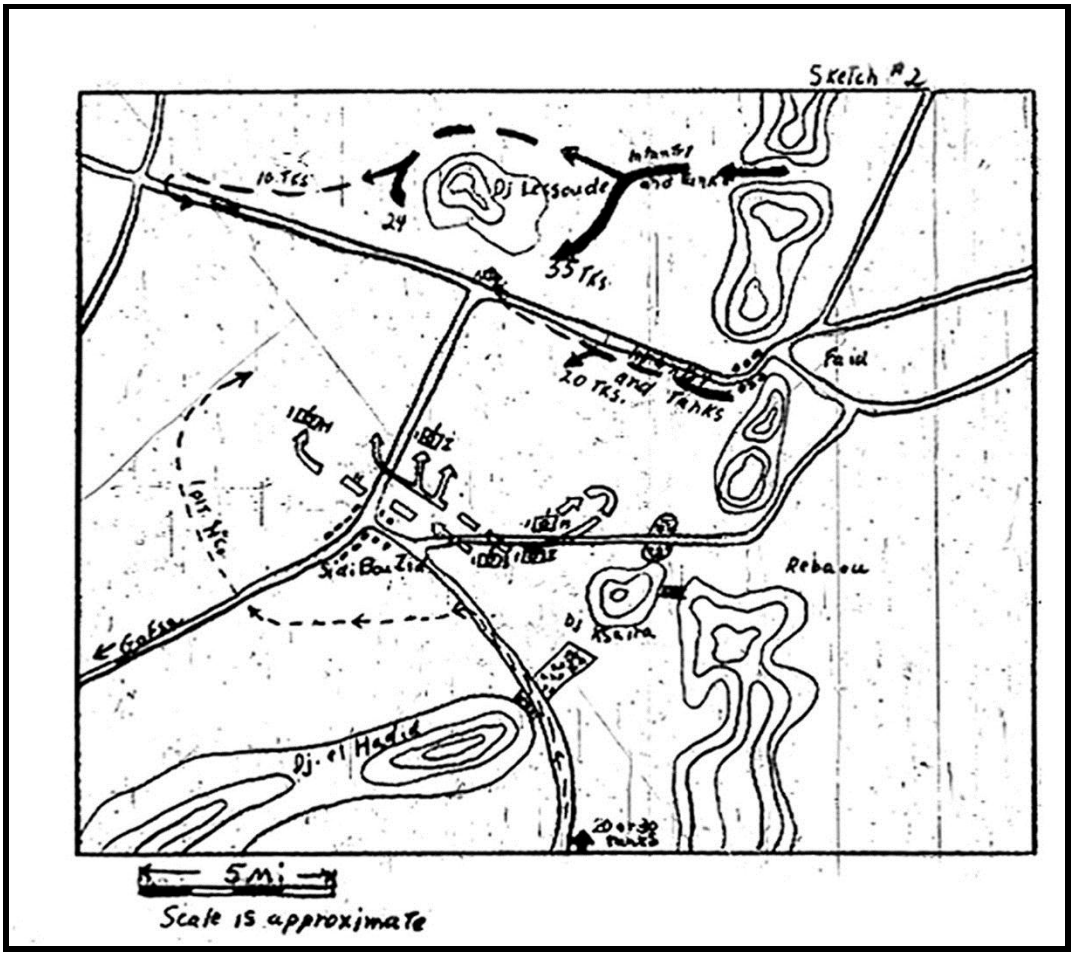
By this time (approximately 1400 hours), we had lost all but about twelve (12) or fourteen (14) tanks and were being ambushed hard by the enemy from the flank. Germans used about six (6) of the new Mark VI tanks in a deliberate push on Sidi Bou Zid and made repeated envelopments of both flanks with the lighter and faster Mark IV's and III's forcing our tanks to withdraw. (*See sketch map below*.)

Reports of enemy movement through the Maknassy pass was verified by the cutting of the road to Gafsa by a force of about thirty (30) tanks, supported by infantry and artillery. The entire combat command was ordered to withdraw through the infantry-artillery reserve units located at the crossroads ten (10) miles west of Lessouda at Djebel el Hamra (T5166) and to select rally points to their rear in the direction of Sbeitla. The remnants of this battalion were to protect the flanks and rear of this movement.

The Battalion command half-track moved cross-country following the Assault and Mortar Platoons and flanked on the right (at about 1000 yards) by Lt. Col. Hightower's tank, "Texas," and about four or five other

tanks. The entire group received continuous fire from enemy artillery and tanks which were seeking to cut off the withdrawal. One group of about ten (10) enemy tanks succeeded in closing on the column from the south (left flank) and seriously threatened the success of the withdrawal. Upon receiving information of this danger, Lt. Col. Hightower swung his tank to the opposite flank to engage the enemy tanks at short range. He succeeded in stopping them completely in a daring attack, destroying four (4) of their tanks and finally losing his own.

The remainder of the move to the R.P. (rally point) was made without incident and immediate steps were taken to reform what remained of the battalion.



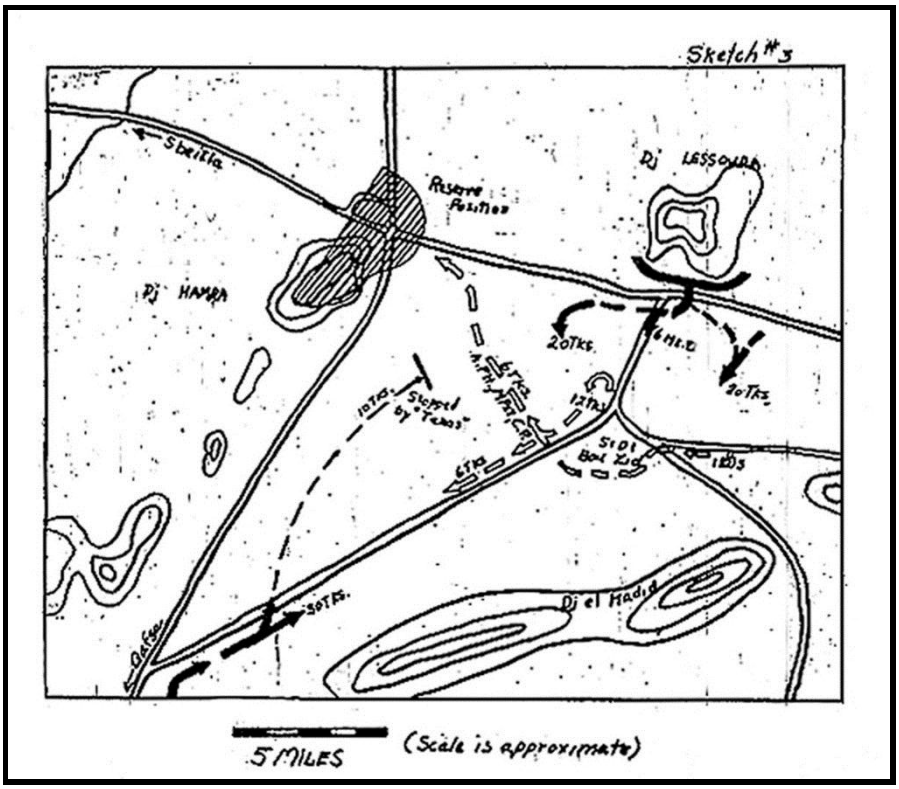
Sketch map of fighting during morning of February 14, showing German forces moving through Faid Pass, encircling Dj Lessouda and threatening Dj Ksaira and Sidi Bou Zid from southeast. German forces shown by dark arrows. Map drawn by unidentified member of 1st Armored Regiment staff and included in unit's historical report of action.

Six tanks were assembled and ordered forward to the cross-roads at Djebel el Hamra to support the 1st Battalion, 6th Armored Infantry, in outposting that point. Battalion C.P. set up in a cactus patch to the north of the Faid-Sbeitla road about five and a half (5.5) miles west of the outposted cross-roads (T4669). Assault, Mortar, and R&I platoons, assisted by personnel of the battalion trains, set up defensive positions for the night.

Received rations, water, and blankets during the night from the Bn. Combat trains.

Casualties:

Personnel:	K-W-M	Tanks	Half-tracks
Officers:	2-1-12 (2 return at Tebessa)	44-total loss	4-total loss
EM:	4-21-124		2-missing (recover)



Map showing withdrawal of 3rd Battalion, 1st Armored Regiment through Sidi Bou Zid toward the rally point at the crossroads (shaded area) on the Faid-Sbeitla Road. Dark arrows show movement of German forces. Map drawn by unidentified member of 1st Armored Regiment staff and included in unit's historical report of action.

Editor: The casualty and vehicle loss figures highlight the intense combat experienced by the 3rd Armored Battalion. The high number of enlisted men missing in action reflected the realities of armored combat and also the continuously moving nature of the battle. Since American forces did not control the battlefield, they were not immediately able to recover the bodies of fallen soldiers, nor confirm whether any of the missing were injured or captured. The destruction of this battalion effectively eliminated the only armored asset initially deployed near Faid Pass. Forced to fight outnumbered with limited situational understanding, no air support, and limited artillery support, the 3rd Armored Battalion expended itself trying to slow the German advance. However, it could not cope with multiple threats alone. The desperate situation resulted in the battalion commander functioning essentially as a tank commander. It did not prevent the displacement of command and supply vehicles or the periodic relocation of the mortar platoon and assault guns. Hence, although the battalion lost much of its combat power, it retained its combat support and combat service support elements that proved critical to supplying the surviving tankers and later rebuilding the unit.

4) Tankers in Tunisia

Editor: The following interview extracts were taken from *Tankers in Tunisia*, compiled in 1943 by the Armored Force Replacement Training Center at Fort Knox, Kentucky. The interviews were conducted by Brig. Gen. T. J. Camp in North Africa amid ongoing combat operations. The interviews targeted a mix of ranks and unit types to provide a broad range of assessments and lessons learned for incorporation into training. The interview extracts included below address armored operations in North Africa in general, and the fighting for Faid Pass and Sidi Bou Zid in particular. The accounts below offer insights, lessons learned, and brief accounts of combat actions from the perspective of different command echelons from battalion to tank commander.

Battalion Command

Lt. Col. Louis V. Hightower, Executive Officer, 1st Armored Regiment, First Armored Division. (Commanding Officer, 3rd Battalion, 1st Armored Regiment, during battles of Faid Pass and Sidi bou Zid.):

In tank fighting nothing is more important than expert reconnaissance of your routes of advance and withdrawal. Several times both we and the Germans have moved up on what we thought was a good clear route only to find a dry wash, nine or ten feet high, blocking our way, causing us to withdraw. In this country, too, we've learned to move slowly so as not to reveal our position. You can't boil up to battle at high speed without broadcasting your coming in a big cloud of dust.

German antitank gunnery has made our reconnaissance a particularly tough job. They drag their big 88-mm guns up behind their tanks and drop them in position. Usually the crew digs the gun in a hole, twelve by twelve by six feet deep, practically covering up the shield and exposing only the barrel of the gun. We've found those guns particularly hard to locate and they can break up your entire show if you don't pick them up in time. Apparently they use mats to hide the muzzle blast. Once we hunted a gun within a thousand yards for three days and then only found it by spotting the personnel approaching the gun position.

Generally they try to suck you into an antitank gun trap. Their light tanks will bait you in by playing around just outside effective range. When you start after them, they turn tail and draw you in within range of their 88-mm guns. First they open up on you with their guns in depth. Then when you try to flank them you find yourself under fire of carefully concealed guns at a shorter range. We've just got to learn to pick those guns up before closing in on them.

The basic training they had in the States means a lot to our boys over here. Every time they hit the ground you'll find them digging a helluva big hole. I have yet to see one man get hit in a properly dug slit trench. One of my lads dug a shallow one and he came out with a bullet hole clear through the cheeks of his tail. You don't have to mention light discipline to them. They'll hoop and holler at anyone who uses a light at night, regardless of rank.

We've also learned that it's important for everyone to know what to do with wounds, especially shock. Although I saw one man die of shock from a simple hand wound, I've also seen our men save almost five hundred casualties by prompt treatment of their wounds with sulpha drugs and proper treatment for shock. Most of the sulpha drugs are administered by the men themselves. A couple of weeks ago one of my sergeants fixed up a man who had been severely wounded on the head and neck when he was blown off a tank. Today, the man is back in action.

The support artillery gives us is only as good as their observer. Commanders must get in the habit of assigning their best men as artillery observers.

Our 37-mm guns will knock out tanks if the crews will only camouflage their guns perfectly and then hold fire until the enemy comes in at point blank range. German camouflage is excellent; it's hard to believe they can hide a gun as well as they do. The rifle grenade is a good weapon at close quarters and will knock out anything under a Mark VI.

When the Germans go into position they'll hide their guns and tanks in anything, including Arab huts. And then they dress their personnel in Arab garb while going to and from their positions. Usually they'll try to suck you inside of a 1200 yard range. They frequently use machine guns to range themselves in and you can

duck their shells by watching their machine gun fire. When they're moving they'll shoot at anything that looks suspicious and they'll generally knock down every Arab house in sight. We think that's a good idea and are beginning to follow suit. Sometimes they'll get the range with high burst smoke shells. But when we see three of those in a line we take off — that's the high sign for the Stukas. When firing, we always shoot low — even the ricochets will hit them. Most of our misses have been high.

We also need a good system for identifying friendly tanks. Once when my radio was knocked out I heard my own tanks turning their guns on me — and I really sweated out that approach. At dusk it's always hard to tell which vehicles are friendly, and we're always afraid to shoot until they're right on top of us. When the Stukas come over, the German tanks send up a line of rockets and orange smoke to show their positions.

One evening several Mark IV's followed a British tank column right up to their tank park until a 25 pounder battery spotted the strangers on the tail of the column and blew them off the road.

In using tanks in action, take it very slowly. Germans do it that way all the time. Do not shift gears once you start, particularly in the dusk, because the backfires will give you away. Keep the tanks out of column at all times. Never travel in column, travel in V, line, wedge, but never in column. Stay off the roads. Get off the roads and never use them. You don't need an assembly area for a reinforced battalion. You can go right into action without first using an area. Push your tank destroyers well forward, and keep your infantry ahead.

It is according to the situation whether the infantry goes ahead of the tanks. If it is a defense position that has had a chance to organize positively and definitely, I would most certainly have the infantry with the tanks. I would have them follow the tanks on foot, but I would have the infantry right there. Once those 88-mm guns start to bark, you can't pick them up in your tank. Attack them with infantry. Get the infantry out of the half-tracks. Don't take any thin-skinned vehicles with the tanks, they open on them the first thing. Don't take your assault guns or mortars with your tanks, because they will smash them in open country.

The artillery observer has got to be right with the assault company commander or the tank battalion commander, and I mean not more than 35 or 40 yards away. Of course that is standard operating procedure. I just mention it because it is so necessary.

Teach your commanders to stay out of the fight until they are the last tank or thereabouts. They are too prone to become interested in a personal duel, and forget about their control of the units.

A reconnaissance of the field, if you are lucky enough to be able to make it, is the most important thing I can think of.

Medium tanks don't get bogged down so easily. If you come to a bog, don't ever let them try to shift gears, shift before.

The Germans bring their 88-mm guns towed behind their tanks (maybe 75-mm guns, or both — I know they bring 88-mm guns). They tow them up and dig in. Their tanks come out and get your attention and, unless you know their tricks, they lead you right between their guns and they get behind you and get you. Don't always bite at the first 88-mm guns which shoot at you. There will be several up much closer. The first 88-mm gun that barks and the first tank are generally bait and you shouldn't plunge at them. If they stage any night attack or late evening attack and neither side stays there, they will come out and put their 88-mm guns in no-man's-land away ahead of where their tank positions are. Their tanks were within 1000 yards of the Pass, but their guns were 4000 yards ahead of the Pass.

Four 88-mm guns, if dug in, are a match for any tank company. They are the most wonderful things to camouflage I have ever seen. They are very low to the ground. You can watch the fire coming in, little dust balls on the ground give them away and show how low they are. They just skip along the ground. The pit is 12 by 12 by 6. The gun looks like a pencil or black spot. The shield is level with the piece and all you can effectively see is the tube. The crew is even dressed in Arab clothes, and they do everything to camouflage their position. You can get them out with high explosive ammunition, with your artillery. If a tank gun can find them, you can get them out. Over 1200 yards there is no use worrying about them. Their shells bounce off the medium tank at that range. Under 1200 yards, watch out. The enemy's gunnery stinks at long ranges. I feel that our men are better. If we can fight a tank for a tank and a gun, I think we can do it, and that is giving them great odds, because I would say the gun is worth four tanks, but we can do it.

You can see the shells coming. You can watch the adjustments they are making. They all seem to be short and behind. Then they get up and begin to shoot under the tank. During this time, we knocked out four tanks. We picked off the leader. You can tell after a while which is the leader by the difference in the vehicles. They pick at such things as half-tracks with two antennas, etc., and we caught on after a while. When you get one of their commanders they stop and seem sort of dazed.

The ten German tanks were sitting on a ridge shooting at half-tracks. They had been at my left rear and I hadn't seen them. There was a Mark VI, Mark IV's, and some Mark III's. They stopped on the crest and did a right flank and started to get in column. They will put a Mark VI in the middle and the others on the flanks, always making one flank heavier than the other, however. We picked out one and hit him and he stopped. We burned the next one. Then the Mark VI, which I thought was a Mark IV, came close. They are hard to identify, but have a more or less square outline, with an offset box on the side. You cannot identify their guns. We bounced four off the front of him. Then another tank came up right along side of him, and it was easy to move a hair to the left and pick him off. We had no armor piercing ammunition so I know a high explosive shell will crack a Mark IV. You should shoot low and it will ricochet and kill them in the turret, or damage them so they will be of no use.

Our 105-mm gun is good against tanks. I watched one gun hit three tanks coming in a big mass of tanks, approximately thirty tanks, and with high explosive ammunition he collapsed three of them like taking shoe boxes and shoving them flat. The rest of them scattered or moved up to the right. We had to leave because more were moving up.

The 50-mm gun is almost the same as to amount of powder as the 88-mm gun. I think their antitank guns are mostly 88-mm and 75-mm. The only 50-mm I have seen are in Mark III's and Mark IV's. Just go slow and watch them. Get your reconnaissance out in front, men on foot. If you rush right out there you will rush right into it. You want some artillery well forward. 105-mm guns shooting at over five thousand yards aren't much value. I think they shouldn't ever be over 4000 yards in ether direct or indirect fire.

I worked against hostile infantry some. We got a few of them and they went in their foxholes. We shot at them and don't know whether or not we got a lot of them. They will stand there and use those 20-mm cannon at you, but it doesn't bother you. I did run across a small German or Italian tank and found the tail end of a rifle grenade near it and the tank was burned and blasted to pieces.

Stukas with 500 pound bombs really don't hurt the tanks unless there is a direct hit, except for the dust. You have to move out of it. When the Stukas appear the Germans shoot green and white, or green and red, flares, changing every day — they also shoot a blast of orange gas to identify themselves. Another thing, they mark a target with three smoke shells. After these three bursts you had better clear out, for they will be over in about one minute.

They use a lot of high burst ranging. The artillery will shoot one, apparently getting the range from a map, and they will hit one overhead and then drop right down on you. It is easy to dodge an 88-mm gun because they start with machine gun bullets. When they begin hitting you, turn suddenly right or left to avoid it.

Bore sight to beat hell but don't let the boys try to do it at 1000 yards so the axis of sight and tube coincide, because when you are shooting at 6000 yards there is no telling where it will hit. Keep your sights parallel. Bore sight on a distant object; the more distant the more effective. We had one tank which threw a track which we couldn't possibly get started, and we had a lot of ammunition. That commander stood there with his glasses and proceeded to throw a lot of high explosive shells. German tanks went in all directions. That quadrant is very worth while; and glasses are necessary.

Before we put a single round of ammunition in our carrying racks we try them in their guns. A lot of them won't fit, and the battlefield is a bad place to find it out, although I know of two sergeants who climbed out under fire and rammed the shells out.

At Sbeitla it was the tanks that bothered us more than the antitank guns. There were just too many. With a detached air, we were just seeing how many of them we could get before they got us. The Germans will come up about 60 yards at a time, sitting there looking, then moving again. The Mark VI was the main threat. Our boys always came out of the top of the tank, not the escape hatch. Sometimes the Germans machine gun the crews and other times they don't bother. I was very thankful for my good physical condition. We had to run about half a mile before even halting. The country was very flat and they could have got us with machine gun

fire. Our losses were from burning gasoline. Shells seemed to end up in the gas tank invariably. The projectile goes streaking through the whole tank dragging the gasoline out with it, and the first thing you know, the whole thing is aflame. It burns very fast. They hit my tank 6 times before they got the gas. An 88 shell went in right behind the left rear bogie and hit the gas tank.

Company Command

1Lt. Harry T. Holtzman, Company "D," 1st Armored Regiment:

This battalion tried twice to crack the pass east of El Guettar. The start for Gabes was made too late. The first day we reached a mine field at dark and had to stop; you can't operate tanks after dark without infantry in front. The second try — we were the third of three companies — I put one platoon in front and two in reserve to meet 88-mm guns or counter attack. This is best, to put platoons in the formation which can best be controlled. This is dependent on terrain. Give the platoon leader his objective, sector, and the position of the company commander and of other platoons, and let him work to the objective as best he sees fit. Keep in contact by radio. The old teaching of over-running antitank guns is impossible here; 88-mm guns are almost always protected by tanks, mines, and other antitank guns.

My tactics in an attack: Platoon in inverted wedge to proceed when it sees fit. Move cautiously. Company commander behind company working from observation post to observation post, even up to 100 yards from leading platoon.

During this attack on the Pass protected by the mine fields the tanks had to proceed in column through the mines. The Germans let the entire company go through the mines. One tank was lost by fire from a Mark IV tank, but the remainder pressed on. Having gone through the mine field I engaged a Mark IV tank. The description of the engagement will demonstrate some of the Germans' tactics and some of ours. The Germans opened fire from a well camouflaged position, 2000 yards on the flank, with a 77-mm gun; supporting artillery fired an air burst to keep the tank 'buttoned up' and thus obscure vision. I was able to observe the flash. Immediately we turned this tank, which had been caught from the vulnerable flank, head into the gun, thus placing the heaviest armor towards the enemy. The enemy's shot was short. I began to back up, the only thing to do when caught in the open. After I reached better ground, the German and I both started maneuvering against each other among the low hills. Finally I caught the German coming around a hill the correct range to which I had already found by firing two rounds of high explosive ammunition. My first round of armor piercing ammunition immobilized him. I fired several more into his Mark IV tank. He did no more damage. We expended altogether 18 rounds on his tank.

Our tank track had been hit twice and the tank was limping. Jerry always picks a command tank. When you are being shelled by indirect fire, as we were then from 88-mm guns, keep moving in a circle to throw his range and deflection off. In the meanwhile a second platoon had come up as requested of Col. Talbott by me, and got into position to do indirect fire. The 88-mm guns were spotted at 6000 yards. The platoon began to fire high explosive ammunition, semi-indirect fire (by guess and by God), and dumped in 200 rounds. Results were not clear. In the meanwhile a platoon of M10 tank destroyers had arrived. Then two German Mark II tanks appeared near the knocked-out Mark IV tank. They were destroyed by the fire of the tank destroyers and of our tanks.

In teaching tactics the terrain board training is most valuable. We made a board of the Sidi bou Zid battle area and reviewed ours and the enemy's movements. The terrain board need not be elaborate. Give students model tanks, give the platoon leaders objectives, and let the entire crew solve problems. Give the situation and let them dope it out.

If you run into one of the 88-mm guns, there will be two more. You can't crush those antitank guns. They are employed in depth and are protected by mines, tanks, and smaller antitank guns. When an 88-mm gun is located, leave one tank to engage it and send the rest of the platoon to the flanks to locate other guns. These antitank guns are employed in depth with 88-mm guns in the rear. The 88-mm guns open fire first, drawing the tank commander's attention. The tank will make this gun his objective and, if possible, advance on it, until he is caught from the flanks by 47-mm guns and/or tanks. Tanks will draw our armor towards the 88-mm guns. Solution at El Guettar was to send two reserve platoons to the flanks and call for artillery support.

At El Guettar no high ground was available to artillery observers. Tankers did observing for from one to five battalions at one time. I would have every man in the battalion a forward observer able to give initial data and adjust fire.

Platoon Command

1Lt. Herbert F. Hillenmeyer, Commander, Company "H," 1st Armored Regiment, 1st Armored Division. (Platoon Leader, Company "H," during battles of Faid Pass, Rebaou, Sidi bou Zid.):

Sir, if we're going to get anywhere, we must put greater emphasis on good reconnaissance. I know of one instance where we went into battle not knowing what was there. We saw the enemy tanks go into Faid Pass and that night we had a dry run back in our concentration area. Next day when the attack came off we found the thing was a blind — the Pass was covered with deadly antitank stuff. It plastered our one company that went in.

The Germans always seem to know what's there before they attack. They use air-photo reconnaissance. For several days before an attack we can set our watches by the JU-88 that comes over each morning and evening taking pictures. If we fire on him he'll hurry home and come back with a pack of Stukas.

Those 88-mm guns have been causing us trouble because it's hard for us to knock them out with our flat trajectory weapons. They're dug in too deeply and we need real artillery support with good observation to root them out. When you fire on the German tanks, they play a bag of tricks. First they stop, causing you to think you knocked them out. When you turn around on something else — wham! They open up on you.

As a platoon leader, I learned that you've got to lead your men. When you get out in front, they'll follow you easily. If you're moving in sections, the platoon leader must go in the forward section. And what's almost as important is the fact that every man must know what's going on. You've got to take them into your confidence and explain the show to them. They'll always respond with better fighting.

You've probably heard this too, before, sir — but the smaller units are simply not given enough time to prepare their individual plan of attack or maneuver. Higher headquarters should realize that we need some time to get the show running.

It would really be worth the time, over in the States, for the men to shoot at night with tracer bullets. The Germans use all tracers and sometimes they raise hell with the troops. Tracers throw a helluva scare into you anyhow; every one looks as if it's headed straight for you. The Germans are cracker-jacks at night fighting — our men need more training in it.

In a scrap we throw high explosive stuff until the enemy comes in range and then we change to armor piercing. Sometimes we set the high explosive for delay, fire low, and watch the Germans duck wildly as it ricochets over the ground. I'm also concerned, sir, with another question of tactics which is probably none of my business. But we had always been taught that the Germans attacked at dawn or in the early morning light. Actually, however, they're even more apt to hit at dusk with only half an hour of light left in the sky, just to confuse you. Then they'll throw everything they have at you — including their star shells and Very lights — in an attempt to put you on the run. We don't fire on planes until they start firing. If we did, we would have had the Stukas on our necks every time.

It's extremely important that we keep our star markings. Several times we were about to open fire on our own tanks, until we saw their markings.

Platform Command

Sgt. Baskem Bennett, Tank Commander, Company "H," 1st Armored Regiment, 1st Armored Division:

I almost lost my driver and assistant driver once when the tank caught fire as the turret was turned to the rear position. They were able to get out only when another man in my crew jumped back in the burning tank and turned the turret, allowing these two to get away.

(Asked to give an account of his experiences in the battle of Faid Pass, Sergeant Bennett continued):

We had started across the field, sir, when suddenly ten German tanks came up on our flank. They opened up on me and hit me three or four times before they came through. Meanwhile we were firing continually.

About that time two 77-mm shells went through the turret and I discovered that my tank was on fire. I called down to the driver and radio man, but they must have been hit, because they didn't answer. The tank was burning badly now so I jumped out with the remainder of my crew. Our tank was burning yet, but it just kept going forward, and we jumped into a ditch and watched it go.

Soon we were surrounded by German tanks. We lay in the ditch for several hours until one of the German tanks started toward us. We thought he was going to run us down so we stood up with our hands over our heads. The German officer in the tank spoke good English. He asked me where our side-arms were and we told him we didn't have any. He asked where our carrier was and we pointed to our tank which had traveled several hundred yards down the field before burning out completely.

The German officer then pointed towards our lines and told us to go so we took off quickly. All together we fired about 20 shells. We hit two tanks and I know one was really knocked out because I saw it go up in flames.

Sgt. Butler, Company "I," 1st Armored Regiment:

I was the tank commander of a medium tank. We did reconnaissance work. I was in action at Faid Pass.

At Faid everything was vague. We didn't have enough information concerning where the enemy was. If we could get correct information in this respect, we could do a better job. For example: (pointing to a map) When we first moved up here (southeast of Sidi Bou Zid) we were told that there would be one 105-mm gun and several 88-mm guns, and that is all. Then we went on a reconnaissance (north of Sidi Bou Zid) and found many heavy mortars and ground guns, probably 47-mm guns. This was in the Pass. When we left and tried to get out we were attacked by Messerschmitts and Stukas. This shows that the German air and ground forces are well coordinated. Finally we got out and withdrew to the vicinity of Sidi Bou Zid. We were told that we'd have an alert the next day. They seemed to know something was going to happen, but they didn't know what. Then after the fireworks started we went towards the oasis along the North road. My tank was the point, in support of the colonel. We were told to pull off the road because we had been fired upon. Here is where we lost most of our tanks, because we pulled off the road and stopped. I believe that tanks should keep on moving, even if slowly. Thus, for example, the other day we were in a scrap near the bridge. We tried moving around and didn't get hit at all.

The tactic we use is to have one section of the platoon advance while the other section covers it.

I'd say one must act on his own a great deal of the time. You can't wait to be told when to fire or where to fire. When you see something which you think worth firing upon, take the chance. The function of the officer is to keep the men together and tell them what is going on. The soldier has to use his individual judgment. You should keep your troops on the alert always, ready for quick movement.

At Faid we were too close to the Pass. We didn't get a chance to maneuver. They came around on the left and cut us off in retreat. We ran through the German lines and up into the mountains. Most of the company did likewise. We were pretty much depleted.

Sgt. James H. Bowser, Tank Commander, Company "H," 1st Armored Regiment, 1st Armored Division:

Yes sir, this is my third tank but I've still got all of my original crew with me. We were burned out of our other two tanks under fire.

Our ammunition supply has been good — we've always gotten the stuff we needed although we had to quit our two tanks long before we used up our ammunition. A tank commander has got to remember that he can knock the track off a Mark IV long before he can hit it with armor piercing ammunition. The high explosive ammunition might be OK against the Mark VI's, but we always saw too many of them to give it much of a try.

The Germans usually open up with their machine guns while they're ranging you in with their heavier stuff. The driver can tell when they're coming close so he keeps moving and ducks them. I hardly ever talk to my driver in battle — I just let him keep driving. We always stopped to shoot but we did turn the stabilizer on when we were moving. I guess the stabilizer's all right for what it was built.

Editor: "Stabilizer" refers to the gyrostabilizer fitted to U.S. tanks. It helped to keep the gun set along the vertical axis, which facilitated target acquisition and reengagement, particularly when the tank moved. It made firing while moving slightly more accurate, but this practice was generally discouraged in doctrine.

The gunnery instruction they gave us in the States was good. No sir, I wouldn't change it. There's just one thing you must remember when you're fighting Germans. When you shoot at them they stop and try to kid you into thinking you knocked them out. Then when you turn your back on them, they open up again. Sir, we shoot until they stop and then keep shooting until they burn up.

Sometimes we've attacked with the sun in our eyes and that makes it pretty tough on the gunner. He can't see where he's shooting while the Germans sit back there and pop anywhere they want to.

It's a good idea, too, to check your ammunition closely. Once I had to climb out of a tank during an action to ram a bent shell case out of my gun, and then hurry back in before the machine guns got me.

Asked to give an account of his experiences in the battle of Faid Pass, Sergeant Bowser continued:

I'm on the right of my platoon leader and he's in the center. I've got another tank on my right. We start in at daylight, move down the Pass between the mountain and the marsh, and pretty soon at nine o'clock we run into the Germans. They started in with their machine guns but we just let it rattle by and then they opened up with their heavy stuff. I looked to the center and saw the lieutenant's tank go up in fire. So I turned my gun on the antitank gun that knocked him out and smashed it with my first shot of high explosive ammunition. We knew that it was really hot; nine of our tanks had been cleaned out. They knocked my track off but I said, 'Hell, we'll sit here and use her as a pillbox.'

Then one of my boys said our tank was burning. I didn't know how long it had been on fire. Still the fire didn't look too bad, so we stuck by our guns and kept shooting until an explosion almost rocked us out of the tank. One of my crew was wounded but the others were all right, so we took off towards our own lines. We walked for two hours and carried the wounded man with us. Several times along the way German airplanes strafed us.

Sgt. Neal, Company "I," 3rd Battalion, 1st Armored Regiment, Maknassy, 4 April 1943:

I am a platoon sergeant. In the action at Sidi Bou Zid I was the driver for the platoon leader.

During the first week we were near Sidi Bou Zid guarding the Pass. We were equipped for indirect firing. All of our tanks were in the vicinity of the Pass — set back about 5 or 6 miles. We'd come within 2000 yards of the Pass every morning, fire into the Pass, and pull back. We were just back of Lessouda Mountain. On the morning in question, we were in the cactus patch southeast of Sidi Bou Zid. We got up and had orders to be on the alert. Suddenly we saw firing where 'G' Company was. We fired back. It lasted one hour. Then we pulled up towards the north and along the road in line formation. At this time hell broke loose and we continued to fire. When we first opened up the targets were hard to see. Then we saw firing from the mountains to the east. We fired until we had orders to pull out and go back to Sidi Bou Zid. We went back and remained there. Tanks kept coming. We pulled out and were met by a line of tanks from the southwest. That's where we lost four other tanks, including our tank. We were fired on by Mark VI tanks and 88-mm guns. Our tank was hit in the turret. It listed and caught on fire. I believe it was a Mark VI tank which hit us. We all got out of the tank and lay in a ditch all night while German tanks passed us. Then we went into the mountains and walked to Kasserine. We lived with the Arabs and ate their food and water.

What I've learned here in Africa is that it is important to respect, not fear, the 88-mm guns. You must keep in turret defilade. They can knock you out at 3000 yards. I have also learned that tanks must have support. If we had air and infantry we could have done a good job. If the infantry had been ahead of us at the Pass, they could have helped quite a bit.

We should have plenty of reconnaissance. We will have a much better chance if we know what we are doing.

Sgt. Becker, Company "G," 1st Armored Regiment:

Don't lose your head; being jittery in battle ruins a lot of communications. Keep your head — main thing.

Don't button up your tank or you can't see anything.

Sgt. Sipes, Company "G," 1st Armored Regiment:

New men need more training. They haven't enough gunnery and no driving instruction. I am a tank driver and was in action in Faid Pass. I didn't get my tank out. I button up my tank when not in bad terrain. I fire as a part of the platoon if possible; if not, I fire individually. I fire in hull defilade and fire both while moving and still. I have learned not to rush into anything you can't see. We fight too fast, should go slower and be sure of ourselves. The best way is to fight as a platoon. Cover each other as they move forward. I haven't been able to use the blitz tactics they taught us. Our tactics is for some in hull defilade as the others move forward. In my tank an 88-mm shell came through the turret and set fire to the powder; only four got out, two out of the door and two out of the turret. I don't think the door should be locked. If the gun is to the rear, you can't get out the door. I have an M4. There should be a larger opening hole, so in case the turret is to the rear, you can get out. As a driver, I pick out targets and maneuver into position with the help of the tank commander. I know never to pull up over a hill without stopping in hull defilade and observing first.

Maintenance

Question: How close up is your maintenance company?

Maj. Mills, Regimental Motor Officer:

Just back of companies and battalion when in combat.

Col. Peter C. Hains III, Commander, 1st Armored Regiment, 1st Armored Division:

The Battalion had crossed 500 or 600 yards across a bridge which was under fire. The maintenance was also across. A message came in to the Command Post: 'Need some of Pappy's boys'. *(Pappy is the motor officer and Pappy's boys are his men.)* I asked if any big boys were needed; the answer was, 'not just yet.'

Brig. Gen. Camp: This was a perfect radio message. Here is an example of a bad radio message: 'Colonel, my command post and command half-track are 100 yards down from that tank burning on top of the hill. Jerry is shooting everything that moves in or out here. I am going to wait and move out when I think he can't see me.' I was beside this half-track which had been hit by a splinter when the shot hit the tank. —TJC]

We have two pappy's, but we don't think the Germans know them, or what each does.

The medium tank had damaged a track. We sent a wrecker over under cover of darkness — a distance of thirty miles. The wrecker was not needed, but it did escort the tank back, as it was thought that track would not hang on. The tank had 31 track connection guides broken loose and the tank was started back to the service park on its own power without repair with the wrecker following in case needed. The tank came in without repair.

***Question*:** Where do you change engines?

Maj. Mills:

Back with rear echelon maintenance if situation warrants it, closer if situation is possible — in regiment.

Col. Hains:

The maintenance company got cut up at Sidi Bou Zid. They are now doing swell military police duty and guarding mine fields.

Training Recommendations

Col. Hains: We don't wear tin hats in tanks, but they are never out of hand's reach.

Make your training program include more battlefield tactics. The driver is less important than the gunner. The gunner should have a higher rating. More training in:

1. Physical conditioning.
2. First aid (men have saved and can save each other's lives).
3. Marksmanship in major weapons.
4. Observation with field glasses.
5. Estimation of terrain, range, etc.
6. Personal reconnaissance.
7. First and second echelon repair for all crew.
8. All ranks should know how to set up, use, and maintain communications.

Lt. Col. Hightower:

A lot more and better target practice is needed for tanks. It is better to miss 500 rounds in the United States than one round here.

Col. Talbott:

We have now learned to move over normal dry bunch-grass terrain without dust. During the February 15th Sidi Bou Zid battle, part of our reconnaissance trapped on top of Lessouda Mountain observed dustless German tanks creeping at very low speed, for many hours, to reach proper position for a surprise attack.

Radio instruction should get to the point where every ordinary soldier can check and use every set. Procedure is important. No extra chatter. Everyone in the company can operate sets.

German planes will wheel overhead and pretend to 'peel off', thus attracting attention of the ground troops. While this distraction is taking place, German tanks will attack the flanks. We call this the 'Smith Brothers' Act.

1Lt. Harry T. Holtzman:

An officer is a school teacher before and during combat. Talk constantly over the radio to the men you lead. Most of the 1st Armored Division is well-trained, but one must keep reminding them of their training. During our training we jump from one thing to another too much. This is thought to hold interest, but really accomplishes nothing. We need longer, more interesting periods. Men who have been in combat want more training.

The major training subjects we need are, first, all kinds of gunnery. In small arms we stress too much correct position and range procedure. We need training under combat conditions at longer ranges and especially 'pot shots' and fire and movement combined.

Try to arouse interest in learning first aid. The most valuable asset when a tank is hit is to know the use of sulpha powder and pills and the treatment of burns, puncture and laceration wounds. In a JU 88 bombing April 1st, the men were caught outside of the tanks.

Everyone in the Armored Force should be able to drive a tank properly. Everyone should be able to do everyone else's job so that he can carry on under casualties. The higher gears on a tank are seldom used in combat. One gear is used during approach and attack. Slowly moving, dustless tanks have a terrifying aspect.

Sgt. Hagler:

Every man must know his job and the tank commander must know them all. The most important thing I have learned here is the German employment in depth of antitank guns. In tank versus tank, our M4's can handle them two to one, and everyone here will tell you the same. We're learning. The last battle, El Guettar, went better than the one before (Sidi Bou Zid). When going into a battle where you expect to lose 10 tanks, take 25 extra.

Sgt. Becker:

It's a funny thing, being tank commander. You have got to run the crew, be stern, and show leadership. I had a new driver for an M3 tank. I told him to drive up a slope to a certain place and then stop. He got excited and went all the way up the hill. I told him to back up to the right place. He got excited again and went all the way back down the hill. He wouldn't listen to the inter-phone communication so I hollered to the 37 gunner to stop him, as I had my head out. Finally we stopped him and we drove up to a safe firing place and I asked him why he didn't pay attention to me. Over night, I explained how I wanted him to drive and how I wanted him to pay attention, and I told him if he didn't I would close his slot up completely and make him drive blind. That fixed him. I think I have a good driver now. You can't do nothing unless you have a good driver. He must go where you want him to go.

I am lucky, as I have never lost a tank, but how I don't know. We saved two tanks out of the company. When our platoon leader told us to withdraw, we withdrew by backing up. He became confused, perhaps because his gun was pointed to the side. Instead of backing up he turned at right angles and ran up on a ridge. He didn't come back.

Editor: The views expressed in these passages are generally self-explanatory. Tactical guidance stresses the importance of reconnaissance and the resultant failures when combat units simply "move to contact" with little understanding of the situation facing them. Other tips emphasizing the importance of tactical movements at low speed to avoid dust and detection, movement by bounds, gunnery, and tactical leadership reflect the lessons learned the hard way by American tankers in North Africa. Repeated descriptions of the power of the German "88" reflect the impression made by this weapon, which repeatedly devastated U.S. tank formations. The views concerning German tanks reflect a mixture of respect and comprehension that enemy armor was not invincible. The references to heavy American tank losses, especially during the fighting at Faid Pass and Sidi Bou Zid, came as an unpleasant surprise to the 1st Armored Regiment.

Moreover, continued engagements with German tanks and antitank guns soon eroded confidence in the M4 Medium tank (Sherman). Its tendency to catch fire after being hit resulted in soldiers dubbing it the Ronson or Zippo, after popular cigarette lighters. Most personnel considered the gasoline engines the cause, but subsequent analysis in the United States attributed the tendency to burn to ammunition detonation. German armor piercing rounds tended to pierce the armor and then explode. When this occurred inside the M4's turret, detonation of the main gun's 75mm rounds followed and a catastrophic kill resulted. Later models of the Sherman moved much of the ammunition into the hull and adopted wet stowage to reduce the chance of detonation should the vehicle's armor be pierced. The final comments of officers and NCOs regarding training recommendations reflect a number of common sense ideas that retain their relevancy in the 21st century.

Arracourt, September 1944

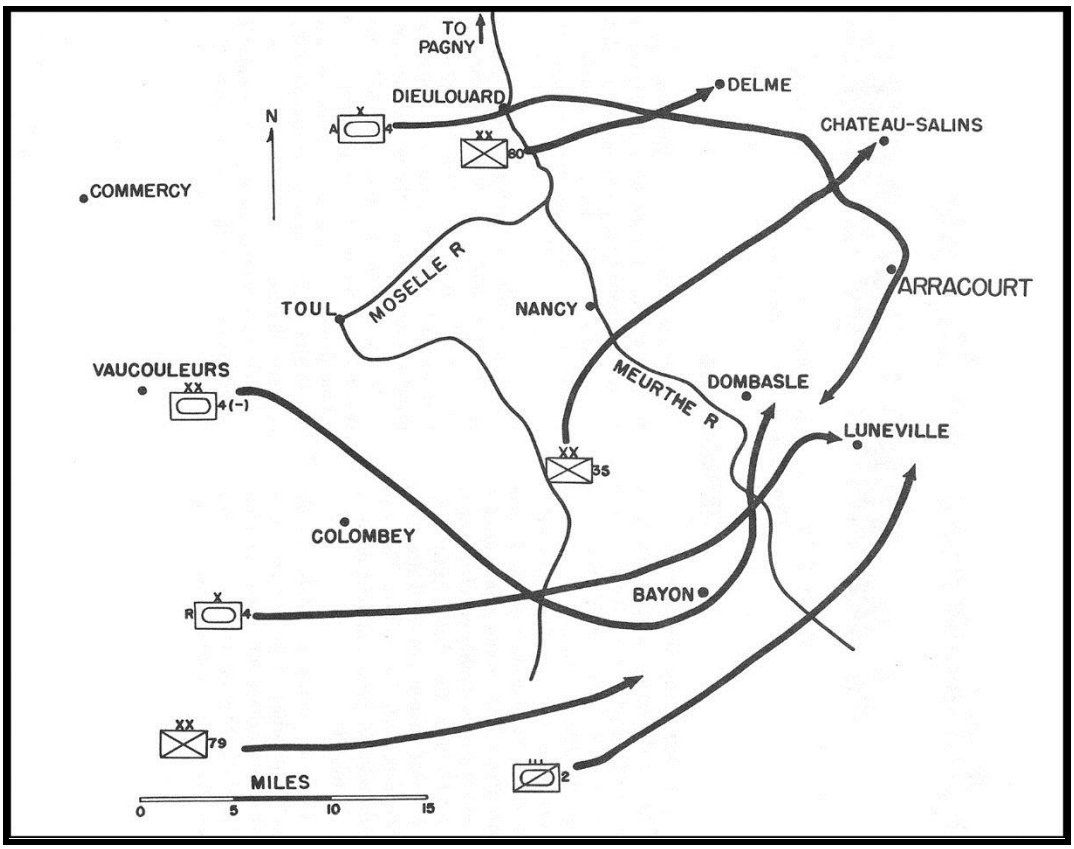
Editor: If combat operations in North Africa in early 1943 constituted a nadir for US Armor, then the actions of Combat Command A, 4th Armored Division, at Arracourt in September 1944 represented a high point in armored effectiveness. The tank battles near Arracourt proved some of the largest U.S.-German armor engagements of the war. In these actions, American armored combined arms teams outmaneuvered and outfought their enemy generally without the benefit of air support and with inferior platforms. The document excerpts below include 1) an overview of the operations of Combat Command A from 12-26 September compiled by the commanders and staff of Combat Command A, 2) an extract from the 37th Tank Battalion diary for 18-20 September during which it conducted a mobile defense against multiple German attacks, 3) company leadership and operations from the perspective of the B Company commander (Jimmy Leach), and 4) an Armor School student paper based on an interview with the C Company commander (Kenneth Lamison).

1) The Establishment and Defense of the Nancy Bridgehead (Fort Knox, KY: U.S. Army Armor School, 1985)

In the past war many fine armored units emerged before the termination of hostilities; one of the early exponents of daring thrusts through the enemy lines into his rear areas was the 4th Armored Division. For weeks on end in 1944 it had been the "farthest east" of the allied divisions swarming across France. This move across France was culminated in mid-September by its double envelopment of Nancy, establishing the bridgehead from which the winter offensive of the Third Army was launched in early November. This narrative deals with the part Combat Command A played in this action.

There are many missions suitable to the characteristics peculiar to the armored division. This action brings out several of these "typical suitable" missions and at least one that is not generally considered proper employment for armor. All of which may prove nothing at all, but does serve to give weight to the arguments advanced by some of the exponents of armor, that it can operate anywhere and perform any mission that other troops can.

This particular action began with an attack on a narrow front to achieve a breakthrough to be followed by a period of exploitation (during part of which time the combat command operated while isolated behind enemy lines); then came an attack against enemy armor as a matter of self-preservation, an active defense of an area against superior forces, and finally a protracted period of dug in static defense. This last is one that an armored unit would rather not engage in, but is one that it can do if the necessity arises.



Map 1: XII Corps mission, 13 September 1944

Situation and Mission, 12 September 1944

Situation

The XII Corps was drawn up on the west bank of the Moselle River with the 2d Cavalry Group covering the south flank, the 35th Infantry Division in the vicinity of Toul, the 80th Infantry Division at Dieulouard, the 4th Armored Division, less CC A, at Vaucouleurs, and CC A at Pagny (*Map 1*). After twelve days delay, imposed by a shortage of gasoline and other vital supplies, the corps was poised to continue its drive to the east. It will be seen later that this twelve day delay was to contribute much to the benefit of the German forces and to the discomfort of the Allied forces.

Mission

The mission of the XII Corps for the immediate future was to cross the Moselle River on a wide front, capture Nancy, and continue on to the east to establish a bridgehead over the Saar River in the vicinity of Sarreguemines. The corps advance was set for early morning of 13 September. *(See Map 1.)*

The 2d Cavalry Group was to protect the south flank of the Corps.

The 35th Infantry Division was to advance through the Foret de Haye, capture Nancy, and continue to the east in the direction of Chateau-Salins.

The 80th Infantry Division was to expand its shallow bridgehead over the Moselle River at Dieulouard and continue to the east in the direction of Delme while covering the north flank of the corps from the strong German forces defending Metz, which was under attack by the XX Corps.

The 79th Infantry Division was to move to the east in the direction of Luneville but was not scheduled for serious commitment in this attack. Not long after this action, the 79th came under control of the Seventh Army and saw very heavy fighting in the Foret de Parroy (due east of Luneville).

The 4th Armored Division was to by-pass Nancy in two columns to the north and south, seize the high ground in the Chateau-Salins area to block the exits from Nancy, and be prepared to continue the advance across the Saar River in the vicinity of Sarreguemines.

Combat Command A Mission

CC A was to pass through the bridgehead of the 80th Infantry Division with the objective the high ground in the vicinity of Arracourt. There it was to cover the roads leading east from Nancy to prevent the escape of German forces retreating from that city in the face of the assault by the 35th Infantry Division. Since CC B (which was to be followed by the rest of the division) had many river crossings to make on its route south of Nancy, it was felt that CC A had a much better chance of getting to the east of the city first, hence the choice of objective.

The Penetration Phase, 13-14 September

When CC A received its order late on the afternoon of 12 September, it was engaged in preparations for a separate Crossing near Pagny. Upon receipt of the order mentioned previously, these preparations had to be broken off and new plans perfected on short notice. First of all, Captain Trover, who commanded Troop D of the 25th Cavalry Reconnaissance Squadron, the mechanized cavalry troop attached to the combat command, was sent for and given the mission of moving his troop to the bridgehead and of establishing contact with the infantry already there. D Troop started this movement at about 1800 in the afternoon, arriving at Dieulouard at about 2100. Along with Captain Trover went Captain Burns, liaison officer of the combat command, to establish liaison with the headquarters of the 80th Division, acquaint them with the plans of the combat command, and complete the arrangements for passing it through the bridgehead at 0600 on the following morning. Also with Captain Trover went guide parties from the other units of the command to mark the route for the night march which was to follow.

The troop composition and order of march used on both the 13th and 14th was approximately as follows:

Reconnaissance

- Troop D, 25th Cavalry Reconnaissance Squadron (Mechanized)

37th Tank Battalion Column

- 37th Tank Battalion (-)
- Company B, 53d Armored Infantry Battalion
- 66th Armored Field Artillery Battalion
- Combat Command A Headquarters
- Division Artillery Headquarters
- Platoon, Company C, 24th Armored Engineer Battalion
- Battery, 191st Field Artillery Battalion (155-mm How)

53d Armored Infantry Column

- Reconnaissance Platoon, 53d Armored Infantry Battalion
- Company C, 37th Tank Battalion
- Company C, 53d Armored Infantry Battalion
- Battery A, 94th Field Artillery Battalion
- Battalion Headquarters, 53d Armored Infantry Battalion
- 94th Field Artillery Battalion (-)
- 191st Field Artillery Battalion (155-mm How) (-)
- Company A, 53d Armored Infantry Battalion
- Company C, 24th Engineer Battalion (-)
- Service Company, 53d Armored Infantry Battalion

166th Engineer Column

- Company A, 166th Combat Engineer Battalion
- 1st Battalion, 318th Infantry Regiment (Motorized)
- Company A, 46th Armored Medical Battalion
- Combat Command Trains and Company A, 126th Ordnance Battalion

Note: *The Commanding Officer of the 166th Combat Engineer Battalion was placed in command of the 166th Engineer Column, which included a battalion of infantry from the 80th Infantry Division. This engineer officer had worked with the combat command before, and his capabilities were well known. The battalion of infantry was unknown to the combat command commander; hence the seemingly strange command setup.*

The main body of the command started its movement to the bridgehead at 0400 on the morning of the 13th. Soon thereafter the combat commander received word from Captain Trover that he had not been permitted to cross into the bridgehead during the night, and had then planned to cross at 0600. But shortly after 0400, a German force of infantry, reinforced with some light self-propelled guns, had launched an attack against the American infantry holding the bridgehead and were driving it back toward the river. He would keep the combat commander informed of the situation in the bridgehead and would continue to press for permission to cross the river into the bridgehead as soon as possible, in order to get firsthand information on the situation. The combat commander's reply was to approve this plan and to add that he would proceed at once to the bridge sites, where Captain Trover was to be prepared to report to him on request. The combat commander then worked his way up the column, picking up on the way the commanding officer of the 37th Tank Battalion, the leading battalion in column. These commanders reached the bridge site shortly before 0700. At Dieulouard the Moselle has two channels and a barge canal running parallel to the river, making three bridges necessary for a crossing at that point.

In the meantime, the main column continued its march and by 0700 had begun to pull off the road between Griscourt (west of Dieulouard) and Dieulouard to await clarification of the situation in the bridgehead and orders from the combat commander. Part of the artillery of the command went into firing position just west of Dieulouard to support the crossing of the main column if it became necessary to fight in the bridgehead.

At this point it may be well to briefly outline the organization of the staff functioning and chain of command as applied in Combat Command A. It had been found early in the campaign that, due to the swift movement of events, it was necessary to establish a division of responsibility and permit a latitude of decision to staff officers and subordinate commanders that at first glance appeared radical. On closer examination, however, the advantage of this system became apparent. It permitted the officer on the spot and in full knowledge of the situation to make a decision quickly and take action when it was most needed and when it would do the most good. This was the teamwork that resulted from training closely together and becoming fully acquainted with each other.

Within the Combat Command Headquarters, the commander looked forward while the executive officer looked to the rear. The intelligence officer, S-2, worked directly under the operations officer, S-3, and both were directly responsible to the commander. Thus when the commander was forward along the column, he kept in direct communication with the S-3 and transmitted through him most tactical instructions to subordinate commanders. In some cases he gave orders direct to the subordinate commanders and notified the S-3 of his actions. When the instructions of the commander were general in nature the S-3 worked out the details to fit the situation and transmitted them to the units without further confirmation from the commander. The executive officer was responsible for the marching of the column, keeping it closed up or "coiled" off the road and dispersed when the head was halted or stopped, and for all the administrative work of the command, such as the general supervision of the trains, supply, maintenance, and evacuation. He kept in direct communication with division headquarters, forwarding reports and receiving orders for the command, and in the absence of the commander became responsible for the tactical operation of the command. The executive, S-3, and S-2 were close together in the column, and during the course of every day consulted frequently. The supply officer, S-4, was in direct command of the trains, marched them at the rear of the combat column, and handled the general supervision of the attached units. In his column he had the service companies of units, the attached maintenance company, and as protection a platoon of antiaircraft artillery. He reported to and received his orders directly from the executive officer. The plans of all the staff sections were correlated at the start of each operation, and each night adjustments were made in the projected plans in accordance with results of the day's actions and the prospects for the following day.

Subordinate commanders were allowed the greatest amount of responsibility. The commanders were given assignments and allowed to carry them out as the situation dictated. They were given a job to do and, knowing what was expected of them, they never hesitated doing what was necessary to get the job done with no delay because of checking with the commander over details.

Thus when word was received that there was trouble in the bridgehead the combat commander was able to move immediately to that troubled spot without waiting to discuss the situation with his staff members or to give them instructions. The S-3 notified the units of the situation and instructed them to be prepared to fight in the bridgehead. The leading force would make the initial attack if required and would be supported by the next force in column if help should be needed. The division artillery commander moved the rear artillery elements forward and put them in position on the west side of the river to support the attack, leaving the forward battalion free to follow immediately into the bridgehead for support there if needed. As the head of the column approached Dieulouard without being able to cross as yet, the executive officer moved each succeeding element off the road into assembly areas to free the road and have the command gathered for any contingency.

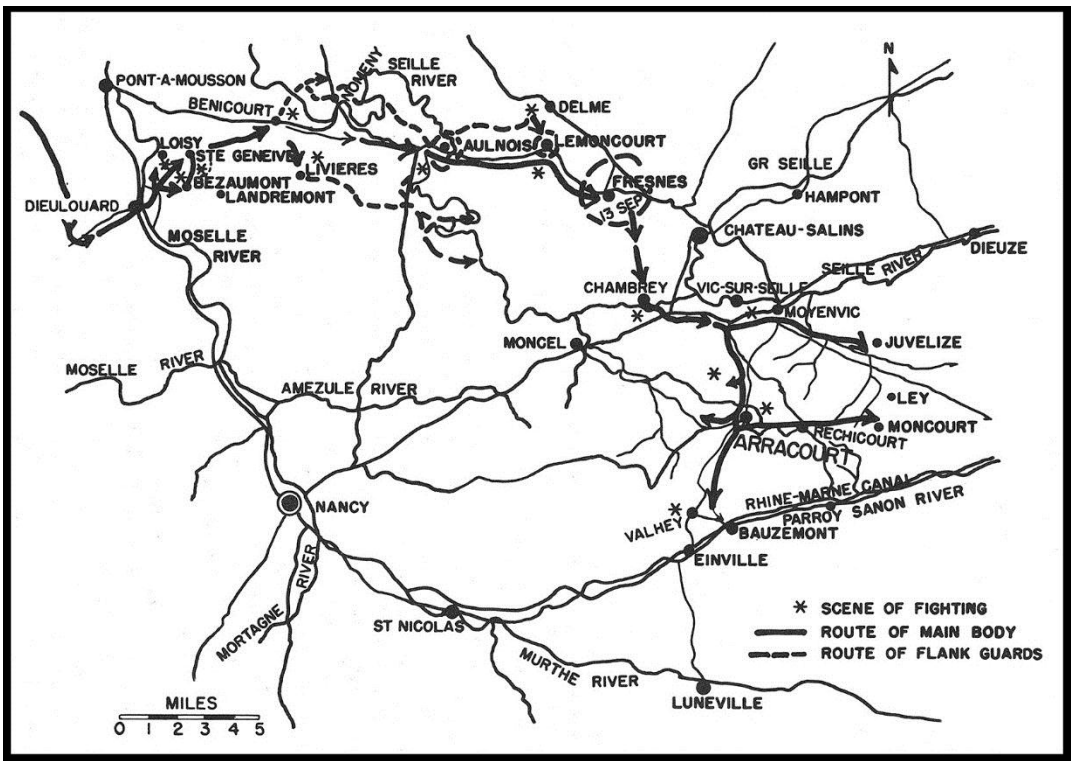
At the bridge site the situation was tense! By 0615 German infantry was fighting for control of the easternmost of the three bridges, and it appeared probable that the bridgehead would be lost. Under these conditions the corps control officer at the bridge gave his reluctant consent for Captain Trover to take his troop into the action. Already alert and ready to go, it moved at once. Attacking viciously across the bridges it drove the German infantry in flight across the valley and up the heights of Ste. Genevieve and through the towns of Loisy and Ste. Genevieve. *(See Map 2.)* In the latter place the fighting was hot, and German self-propelled guns were met which outgunned the light armored cars of the cavalry. Captain Trover took cover with his troop on the reverse slope of the heights and reported to the combat commander that he would hold his ground until the main body came through.

While this action was taking place a council of war was under way at the bridge. The combat commander and the commanding officer of the 37th Tank Battalion had arrived shortly after Captain Trover had initiated his attack and were soon joined by the commanding generals of the XII Corps, 4th Armored Division, and 80th Infantry Division. The combat commander asked for and received permission to move on across the river and continue his mission. Accordingly, the 37th Tank Battalion column was ordered to attack at once, clear the bridgehead, and assemble preparatory to continuing the advance towards Chateau-Salins.

At approximately 0800 the 37th Tank Battalion, reinforced with a company of infantry from the 53d Armored Infantry Battalion, began crossing the bridges. Moving rapidly and deploying from march formation, this force stormed up the precipitous heights of Ste. Genevieve and soon had cleared all of the bridgehead area, which included the towns of Ste. Genevieve and Bezaumont in addition to Loisy, already cleared by the cavalry troop. During this action our troops were under constant fire from German artillery and heavy mortars from the vicinity of Pont-a-Mousson to the north. There the ground was even higher than at Ste. Genevieve. The German defenders had perfect observation on our attacking forces and continued to pour punishing fire into the CC A column all during the day as it passed over the bridges and through the breach in the German lines.

Assembling rapidly, the 37th prepared to launch its second attack of the day with Benicourt as its objective. This town lay five kilometers to the northeast and on the main highway between Pont-a-Mousson and Chateau-Salins. Its capture would clear the way for the continued advance toward the combat command objective, as well as threaten the German positions at Pont-a-Mousson. The 66th Armored Field Artillery Battalion had by now crossed into the bridgehead and was in position to support the attack on Benicourt. The combat commander had joined the 37th commander, and the order to attack was given.

This attack jumped off at about 1100, drove the Boche back through the woods to the east of Ste. Genevieve, and cleared the town of Benicourt by noon. As this attack drove home, observers from the CP, which had moved to Bezaumont in the meantime, could clearly see columns of German troops leaving Pont-a-Mousson at a rapid rate. They left their artillery behind to shell the bridgehead and fight their delaying action. Later, when the armored attack swung in another direction, the Germans returned to their positions at Pont-a-Mousson and launched several heavy counterattacks from there against the infantry.



Map 2: Route of CC A, 4th Armored Division, to Arracourt, 13-14 September 1944

With Benicourt captured and the way now clear to continue the advance, the remainder of the column began to cross the river more rapidly. It was hindered but not stopped by the German artillery fire which from time to time damaged a light vehicle or one or the other of the bridges. But the column continued to move, putting into practice the axiom of General Patton, "The safest thing to do when under artillery fire is to keep advancing; the enemy seldom shortens his range." By 1300 the bulk of the combat elements were across the bridges and the order was given to continue the advance.

By now the situation was vague, and knowledge of what might be expected as the advance continued was totally lacking. Accordingly, the combat commander went up in an artillery liaison plane to conduct personal reconnaissance and to better control his column.

As the forward elements of the main body neared Nomeny a force of German tanks of unknown strength was reported by a Cub liaison plane to be in the vicinity of Lixieres, about three kilometers to the south of the route of advance. The 37th Battalion Commander detached his leading infantry-tank team to deal with this threat. With the remainder of his force he investigated Nomeny, found it to be heavily mined, by-passed it to the south, and returned to the highway about a kilometer to the east of the town. There the force was rejoined by the Lixieres force, which had found the reported tank threat to be the motor park of a German infantry unit, guarded with a few self-propelled guns. About half of this material had been destroyed, and the rest had escaped to the south.

The column was now "rolling'! It stormed through Aulnois-sur-Seille, scattering the personnel of a German regimental supply installation and seizing intact a valuable bridge over the Seille River. A squad of engineers was left to guard the bridge temporarily because the column was now in the Province of Lorraine, where many of the population were sympathetic to the Nazi cause. As the column neared Lemoncourt, German infantry, in considerable numbers, were surprised in a close formation. The tanks ran through and over them without stopping and with all guns firing. The terrified Boche attempted to hide in haystacks and in farm buildings, but the incendiary bullets of the .50 cal machine guns set these refuges afire and sent the victims to a flaming death. Few if any of this force escaped, and almost none were taken prisoner. The column pressed on to Fresnes, from which a German replacement battalion fled towards Chateau-Salins. Some who

failed to escape hid in the buildings of the town and were captured during the night while trying to escape. The high ground overlooking Chateau-Salins from the west was reached at a little past 1700.

One of the few prisoners taken at Lemoncourt was an SS colonel. His unsolicited comments as a result of watching the command move into position for the night is of interest. For the sake of accuracy, the official report of Lt. John H. Prussner, in charge of the prisoner of war interrogation team, is quoted: "This PW, an SS colonel (Standartenfuhrer Theodore Werner, possessor of the German Cross in Gold) who commanded a division in Russia for a period of over two years, is only a short time with the SS and while waiting in the PW enclosure for evacuation he watched our units move up and made the following remark: 'having been a commander of Army units in Russia covering an area of approximately 1500 miles, I must admit that the American troops are not only equipped with the best material, but what strikes us especially is the excellent organization under which these men function. I would be pleased to know the commander of this particular division, and I am sure that it must be a part of General Patton's Third Army. General Patton is for the American Army, what Rommel stands for in the German Army, but to know the commander of this armored division would explain to me how this Army managed to achieve such a speed of advance which in many instances caught us completely unprepared'."

While the main body of the command was making this rapid advance, two light forces were performing valuable work on the flanks. As Benicourt was cleared, Captain Trover moved D Troop through the town and to the north flank to protect the command from that direction. Much of the time moving across country he passed through Clemery (to the north of Nomeny), reduced defended road blocks in Aboucourt, Letricourt, and Craincourt (not shown on map), and passed on to Delme, where he found the town too strongly defended to be successfully attacked. From Delme he returned to the route of the main body at Lemoncourt, where the direction of advance had turned sharply to the southeast. There he was placed for the night to protect the "elbow" on the route until the advance could continue on the next day.

When C Company of the 37th Tank Battalion had gone to Lixieres to deal with the German motor park, it had been followed by Captain McMahon with his D Company of the 37th Tank Battalion. His light tank company had been reinforced with the assault gun platoon of the battalion. From Lixieres he had moved east on roads parallel to the route of advance till he reached the Seille River. At three towns, bridges over the Seille had been blown, and the ground was too marshy to make fording of the river feasible. Accordingly he returned to the axis of advance at Aulnois and held that town and its valuable bridge until relieved by a platoon of Captain Trover's troop about noon of the next day.

The column closed slowly, and it was not until nearly daylight of the 14th that the last combat elements had taken their place on the perimeter of the bivouac area. The trains of the combat command did not reach Ste. Genevieve until nearly midnight. The combat commander flew the column once more just before dark and saw the last elements of the trains still on the west side of the Moselle. Since they had very little protection with them and the route of the main body had taken several detours, it was decided to have them bivouac within the protection of the lines of the 80th Infantry until daylight. However, as the leading elements of the trains had become lost due to a break in the column and had moved down onto the plain east of Ste. Genevieve, the combat command S-4 and trains commander placed all his vehicles together in laager and fought off small German patrols throughout the night. The damage to the bridges previously mentioned and congestion in the bridgehead had broken the combat command column many times during the day and caused much nerve-racking delay.

As was customary the artillery of the command was placed in position to fire around the entire 360 degrees of the compass. During the night harassing fire was placed on crossroads and towns, both close by and to the limit of the range of its guns. This· helped materially in confusing the enemy as to the exact position of the command and was one of the principal factors in the strength of its perimeter defense. It also restricted the use of the roads to the enemy and aided materially in concealing the probable direction of advance the following day. This practice of placing three battalions of artillery in position for all-round defense paid big dividends on this and the nights to follow.

At daylight on a cold rainy day the trains were brought up and the command resupplied in readiness for further movement. During the night some artillery fire had been received from Chateau-Salins, and as that town was a rather large one it was decided to by-pass it in the movement towards Arracourt. Accordingly, at 1200 on the 14th the column struck straight south from its bivouac and moved, by a woods trail, towards the

town of Chambrey, which lay close by the main highway leading from Nancy to Chateau-Salins. The combat commander again flew the column in a Cub plane during the advance and until the leading elements had taken Arracourt. Scattered German vehicles were met at Chambrey and destroyed. Turning east past Vicsur-Seille, which was bypassed, the column again turned south through Arracourt to Valhey and then to Einville and Bauzemont, on the Rhine-Marne Canal. At Arracourt and Valhey the headquarters of the German 15th Panzer Grenadier Division was overrun and most of its personnel captured or killed. At Valhey the first Congressional Medal of Honor to be won by a member of the division was won by Sergeant Sadowski when the column overran and destroyed a nest of eight 88-mm antitank guns which were manned by former members of Rommel's Afrika Korps. The award to Sergeant Sadowski was made posthumously. At Einville and at Bauzemont the bridges over the canal were found blown, and the head of the column swung back east to Ley, the easternmost part of the outpost system that night.

By 1900 the entire command had closed in the Arracourt area and all units were disposed to carry out the assigned mission of exploitation: to block the roads east of Nancy to prevent the escape of the German defenders of that city. On the first night dividends were taken! By daylight more than 300 prisoners had been captured, many vehicles destroyed, and several German columns forced to retreat to try another way out of the trap.

As the trains closed on the night of the 14th a small task force consisting of one medium tank company from the 35th Tank Battalion plus one infantry company from the 10th Armored Infantry Battalion joined the combat command. It had been sent by the division commander to reinforce CC A on its mission of exploitation. The commander of this force reported that there had been no sign of the enemy along the route of advance. Because of this report and since it was expected that friendly infantry units would follow up the advantage gained by the breakthrough of the combat command, D Troop was relieved of its mission of guarding the supply route and ordered to move from positions at Lemoncourt and Aulnois to rejoin the main body in order that it might conduct reconnaissance to the east. D Troop had relieved D Company of the 37th at Aulnois early on the 14th, and this light tank company had made up the rear guard for the movement from Fresnes to Arracourt.

Discussion

In this first phase of an operation which was to extend over a period of two weeks the command had, in 37 hours, advanced more than 45 miles into enemy territory. In so doing, it had re-established a bridgehead that was in imminent danger of being lost, had forced a breakthrough of a strong enemy defensive position, had captured the command installation of a German division charged with the defense of the Nancy sector, and had also captured the map depot of the sector as well. This had been accomplished with negligible losses of personnel and equipment. CC A was in position to exploit its advantages. In the trains was a supply of gasoline, ammunition, and rations sufficient to carry it through at least seven days of operations should it become cut off.

Very early in the game it was learned that the only sure way to have supplies when you needed them on an operation of penetration or exploitation was to take them with you. Accordingly, the command had made a practice of carrying along every available truck loaded with supplies. Every kitchen truck was stripped of its mess equipment and loaded with gas or ammunition. Rations were carried on the combat vehicles. Every supply truck was loaded to more than 100% overload, and indeed some trucks carried as much as seven to eight tons of supplies. Whenever possible, as it was in this case, an extra truck platoon from an attached truck company was attached to the trains. The trains were never left behind to be brought up later; they followed immediately behind the combat column, and that proved to be the safest place for them. They could follow along in the vacuum created by the shock of the combat column and be safely through the enemy resistance before it could recover.

In the two days of this phase of the operation, much had been learned. For the first time in its combat history the command had been passed through the bridgehead of another unit. Always before it had established its own bridgeheads. On this occasion it was learned that to make such an operation work smoothly it is necessary to have very close control, by members of the command itself, at the bridge sites, and that all vehicles of the command must have priority over all other units until the crossing is completed. It was proved that any force passing through a bridgehead must be prepared to fight its way out if necessary, and to accomplish this it must be able to attack from march formation. The penetration of the command and its

taking up position behind the German defenders had a decisive effect upon the operations in the Nancy area. Similar results, from similar operations, were to be gained many times in the future by this and other armored units in the closing phase of the war.

It also soon became apparent that to gain full benefit from armored thrusts, infantry must follow up quickly to exploit the advantage before the enemy can recover.

Exploitation Phase, 15-18 September

The period of 15-18 September was devoted to a true operation of exploitation. Strong outposts were stationed on all main roads from Chambrey on the north to the Rhine-Marne Canal on the south. Raids by small infantry-tank teams were made on towns to the east to the limit of supporting artillery range. Reconnaissance was conducted by Troop D of the 25th Cavalry to a distance of approximately 15 kilometers to the east of the Moyenvic-Bourdonnay highway. *(See Map 3.)* In addition to this, a perimeter defense was maintained on the high ground surrounding Arracourt on the south, east, and north.

On 15 September there was no heavy fighting, but large numbers of prisoners were taken and much enemy materiel was destroyed. At 1130 word was received from division headquarters that the 80th Infantry Division was receiving a heavy counter-attack near Ste. Genevieve and that the 1st Battalion of the 318th Infantry was to be returned to the 80th Division at once. It was further ordered that this infantry battalion be escorted by at least one company of medium tanks. At about 1500 the battalion started on its return to Ste. Genevieve, escorted by Company "C" of the 35th Tank Battalion. The operations officer of the 35th Tank Battalion was placed in command of this entire force for the return movement. The empty trains of the combat command, carrying approximately 600 prisoners of war, accompanied this task force. Adjustments were made in the perimeter defense to compensate for the loss of the infantry battalion and tank company.

At 1830 word was received from this departing force that it had encountered enemy tanks near Nomeny and had suffered some damage. It planned to attack west in the direction of Ste. Genevieve. Shortly thereafter radio contact was lost, nothing further being heard from the force until nearly 1200 on the 16th.

About 1200 on the 16th Captain Strong, who had commanded the column of combat command trains accompanying this task force, returned to the bivouac area at Arracourt with his trains intact and carrying nearly 100 more prisoners than he had departed with the day before. Escorting him was a platoon of the reconnaissance troop of the 80th Infantry Division. This platoon had been cut off by the enemy near Aulnois and had joined the task force late the afternoon before.

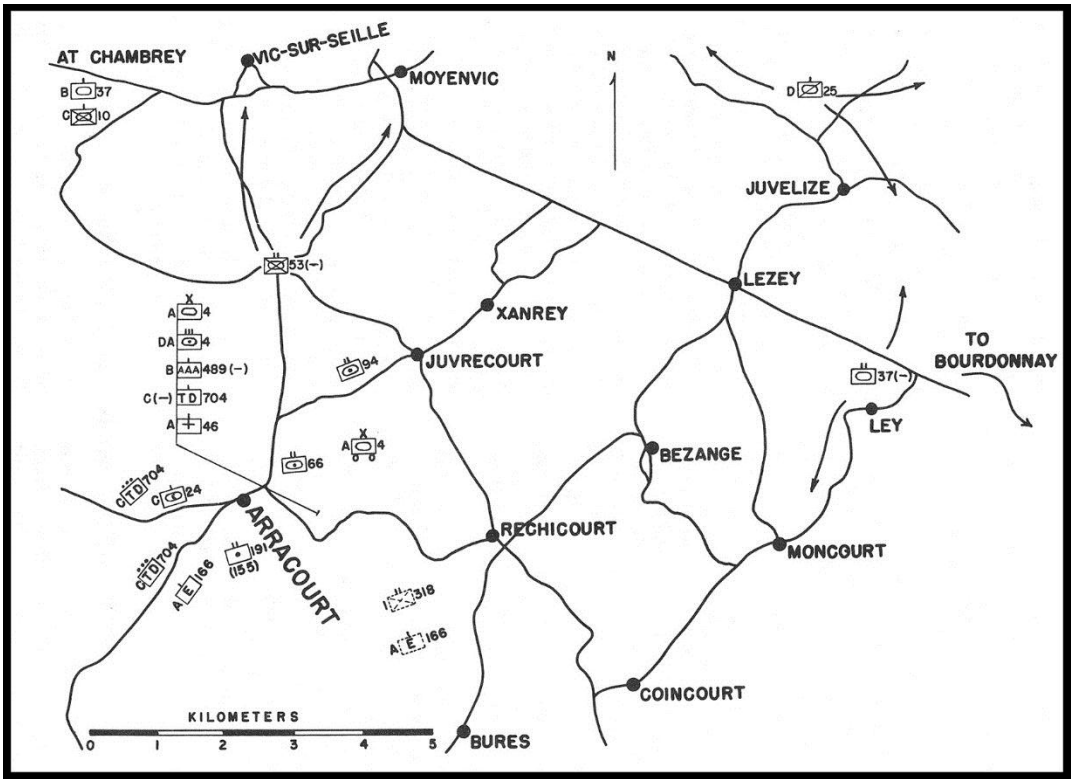
Captain Strong brought word that the task force had encountered the rear elements of the German force attacking Ste. Genevieve. The fight had begun shortly after 1800 of the previous afternoon and had continued through most of the night with each side attacking and, in return, receiving counterattacks. Just before daylight the task force commander reached the decision that the trains seriously hampered his chances of fighting through the German lines without suffering excessive losses. He accordingly ordered them to return to the combat command bivouac area at Arracourt and gave them the reconnaissance platoon, previously mentioned, as escort. He had expected to attack toward Ste. Genevieve at daylight.

At about 1300 word was received from Headquarters 4th Armored Division that the attack of the task force had been successful and that it had retaken Ste. Genevieve with heavy casualties to the enemy, while suffering only light losses itself. For the second time in three days a force from the combat command had retaken Ste. Genevieve from a determined enemy. After assisting the 80th Division in an attack toward Pont-a-Mousson, Company "C" of the 35th returned to its battalion in the vicinity of Luneville, traveling a circuitous route to the west of Nancy to do so.

In the meantime Combat Command B was meeting determined resistance in its efforts to cross the Rhine-Marne Canal in the vicinity of Maixe and Sommerviller, which is about 6 miles southwest of Maixe. *(See Map 4.)* Accordingly, division headquarters ordered that CC A attack to clear the north bank of the canal to assist CC B in its crossing. At 0500 a task force of tanks, infantry, and artillery moved west to accomplish this mission. After clearing the woods west of Einville and the towns of Serres, Hoeville, Drouville, and Courbesseaux, contact was made with CC B's 8th Tank Battalion west of Drouville at Harrucourt late in the morning. This sweep had broken the German defense, causing the defenders to retreat to the north and west. Additional contact was made with elements of CC B at Maixe. By 1300 this mission was complete and the

task force returned to its original position. CC B crossed the rear of CC A moving to the north and took up position in the vicinity of Fresnes, on the high ground west of Chateau-Salins.

From approximately 1600 on the afternoon of the 14th until CC B had completed clearing the area to the west of CC A, the command had been isolated. During this 48-hour period, 1614 prisoners of war had accumulated in the combat command PW cage. In addition to the requirement of guarding this number of prisoners, the additional problem of feeding and providing medical care for the numerous wounded became acute. Included in this bag of prisoners was one entire German field hospital with nearly 400 patients. The field hospital had been captured by the combat command surgeon late on the afternoon of the 15th, with a scalpel as his major piece of armament. When first observed, it had been attempting to escape with all wounded in ambulances. What seems at first amusing might have been disastrous to the surgeon in view of the large quantity of small arms and hand grenades which were discovered when the ambulances and personnel were searched after reaching the PW cage.



Map 3: General disposition of CC A forces, 15-18 September 1944

17 September was uneventful except for receipt of a warning order from division that the command was to move in the direction of Sarreguemines early on 19 September.

When CC B had moved to Fresnes on 16 September, the reserve command of the division had occupied Luneville after the 2d Cavalry Group had received a severe mauling at the hands of the German 11th Panzer Division in the Foret de Parroy. Now the reserve command was under heavy fire from this same famous German division, and it appeared that an assault by that division was imminent. At 1200 the command was ordered to reinforce the reserve command with a minimum force of one medium tank company, one infantry company, one field artillery battery, and a platoon of tank destroyers. A force of this composition under the command of the executive officer of the 37th Tank Battalion began moving to Luneville at 1300.

At 1500 the entire command was alerted for possible movement to the south to repel the German attack expected in the Luneville area, should it develop. The 25th Cavalry Squadron would be attached to CC A and would arrive during the night to screen to the south and southeast. The German attack did not materialize, and the command settled down for the night shortly after dark. At 2300 the 37th Tank Battalion reported hearing an unidentified armored column approaching its position from the direction of Bourdonnay and

pulling off the road approximately a mile to the south of its outpost. Soon this column was identified as enemy and dispersed with artillery fire.

Shortly before midnight the 166th Combat Engineer Battalion moved into the bivouac area and was attached to the command.

Discussion

The four days of this particular phase of the operation can be truthfully called a typical operation of exploitation. It was typified by constant movement within the enemy line and the use of fast-moving, aggressive task forces operating from a secure and easily defended base. Isolation for a 48-hour period caused no concern to any member of the command; rather it spurred them to greater alertness and activity. The flexibility of armor was typified in the ability of the command to shift the composition of its task forces or combat teams to meet such changing situations as the necessity to assist other friendly elements. Examples of this were the movement of the one such force to Ste. Genevieve, another force to Luneville, and the sweep to the west by a third. Concurrently with these activities, plans were being made to continue the advance to the northeast and preliminary reconnaissance was made toward that end.

To illustrate the comparative damage that can be inflicted upon an enemy in such a situation, the losses suffered by the Germans during these four days included 1070 killed or captured, 16 large caliber guns destroyed, 8 tanks destroyed, and 232 miscellaneous vehicles destroyed. In contrast the total casualties of the combat command during these same four days were 3 killed, 15 wounded, and 4 tanks knocked out.

Defensive Phase, 19-26 September

Following the phase of exploitation came a defensive period that was to last until 12 October, when the division was relieved in this sector by the 26th Infantry Division. Our discussion covers the first eight days of this period and can be roughly divided into two four-day periods; the first a period of active defense, the second a period of dug-in static warfare.

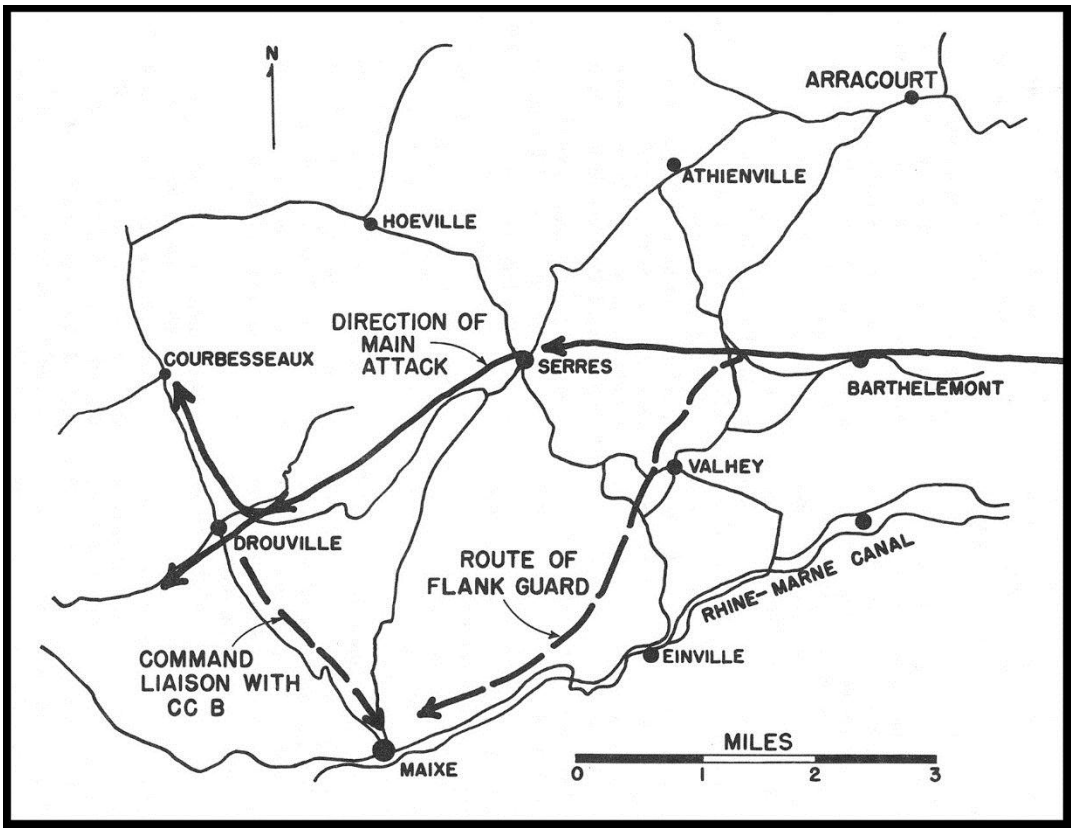
The expected order to move toward Sarreguemines had not materialized on the 18th. The return of Company "C" of the 35th Tank Battalion to its parent unit and the detachment of the task force to the reserve command at Luneville left the command relatively strong in infantry and engineers but weak in tanks and tank destroyers. The 25th Cavalry Squadron had not been relieved of its previous mission and had not joined the command as expected. The morning of the 19th found the command still scattered over a comparatively wide area and momentarily expecting orders to continue the advance. An extremely heavy fog shrouded the plains of Lorraine, reducing visibility to less than 100 yards.

Now the bill for the enforced delay of the first 12 days of September was presented for payment! This enforced delay had given the German High Command time to assemble hastily organized units and move them into the area. Additional reserve divisions from the interior of Germany had been concentrated to the east of the Rhine, and when the expected advance of the allied forces had not materialized these reserve divisions were moved into the Saar Valley. At 0800 the first blow fell! The 37th Tank Battalion, less two of its medium companies, was in position immediately north of Lezey. *(See Map 5.)* German armor, later identified as the 113th Panzer Brigade with a strength of more than 100 tanks, launched an attack against the position occupied by the 37th. Fortunately, the initial attack was made by only two tank companies. This fact, coupled with the alertness of the 37th outposts, enabled the battalion to successfully meet the attack. By 1015 ten enemy tanks had been destroyed.

As this first attack began, the liaison officer of the 37th Tank Battalion was on his way to his battalion headquarters from the combat command command post. As he moved through Bezange, he saw on the road in front of him (much to his surprise) a company of Mark V tanks. He called his battalion commander over the radio, telling him of the size and direction of movement of this German force. Being armed with nothing heavier than a pistol, he then beat a hasty retreat to the combat command CP, where he asked for reinforcements to take to the assistance of his battalion.

The only unit immediately available and capable of dealing with German armor was one platoon of Company C of the 704th Tank Destroyer Battalion. This platoon was given to the liaison officer, and he started at once for the 37th area. On the road between Rechicourt and Bezange he encountered another company of German tanks. Outnumbered three to one, he pulled off the road into a natural depression to the

west of Bezange and fought it out with this German force. During the rest of the day this platoon was heavily engaged but was so ably directed that before the day was over it had destroyed eight German tanks while having three of its four guns temporarily disabled.



Map 4: Movement of 37th Tank Battalion to Assist CC B on 16 September 1944

In the meantime the combat commander was bending every effort to concentrate his forces. The 2d Platoon of Company "C" of the 704th TD Battalion was withdrawn from its position to the southwest of Arracourt and placed on the high ground to the southwest of Rechicourt. Engineer troops were moved to this same ridge, where they dug in and placed hasty mine fields on avenues of approach to their front. They were supported by B Battery of the 489 AA Battalion (Automatic Weapons), which was equipped with nothing heavier than 37 -mm guns. The medium company of the 37th Tank Battalion, which had been in position at Chambrey, was ordered to report immediately to the combat command CP at Arracourt. An urgent request was sent to the division commander for the immediate return of the task force from Luneville. After considerable delay this request was granted, but it was not until 1300 that the task force was relieved and could begin its return movement to the command.

The first of these forces to get into position was the 2d Platoon of Company "C" of the 704th TD Battalion. As it rolled onto the ridge south of Rechicourt with Captain Tommy Evans in command, it met a company of German Mark V tanks head on. In the fast and furious fight that followed, the Germans lost heavily and withdrew to engage in an intermittent but heavy fire fight with this platoon throughout the balance of the day. Its score for the day mounted to nine confirmed kills. About 1100, Captain Leach arrived from Chambrey with B Company of the 37th and was placed in position at Riouville Farm, less than 400 yards east of the combat command CP. Within a matter of minutes the company was heavily engaged with still another force of German tanks that had slipped through Rechicourt between the two tank destroyer platoons and under cover of the fog that was only now beginning to thin. These German tanks penetrated so far into the area before they were repulsed that their fire was falling into the combat command CP, and the 66th Field Artillery Battalion, in position to the northeast of Arracourt, fired battalion volleys at them at a range of 650 yards. The combat command trains were within easy sight and close range of the German tanks and escaped

destruction only because of the furious attack launched against them by B Company. Shortly after noon this threat was beaten off. The German force continued to attack piecemeal until about 1500.

At 1400 A Company of the 37th, commanded by Captain Bill Spencer, reached Arracourt. When released at Luneville the task force commander had put his tanks on the road and moved at top speed, leaving the balance of his force to be brought at a more normal rate of march by the infantry company commander., The executive officer of the 37th was placed in command of the combined force of A and B Companies of the 37th and directed to move to the vicinity of Bezange, from which point he was to counterattack in a sweep that was to include Moncourt, Coincourt, Bures and then back north toward Rechicourt. On the completion of this sweep he was to return to the direct control of the 37th at Ley.

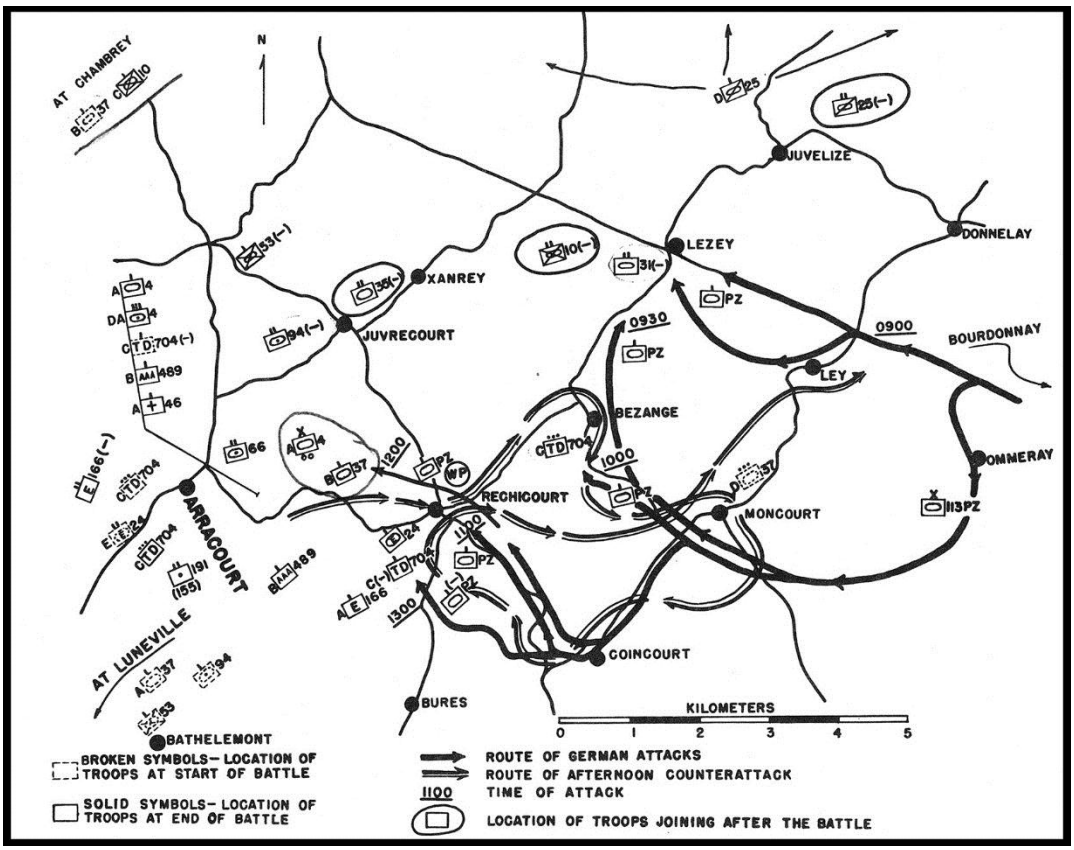
This attack was highly successful, and by 1700 the German force had broken contact and retreated to the east. During this day's action 49 burnt-out German tanks were counted on the battlefield, but prisoners captured the next morning stated that only 7 tanks of the entire German panzer brigade remained undamaged after the previous day's battle. As opposed to these heavy German losses, the material lost by the combat command was three tank destroyers disabled and four medium tanks destroyed. During the afternoon and while the battle was still raging, General Patton came to the combat command CP with the division commander to give the combat commander personal orders for an advance on Sarreguemines the following day. For this movement the command was to be reinforced with the addition of the 35th Tank Battalion, less two medium companies, and the 10th Armored Infantry Battalion, less one company. These two units arrived in the combat command area soon after dark. It was also arranged that the 320th Infantry Combat Team, less one battalion and reinforced with some miscellaneous TD units, all under control of the division reserve command, was to relieve the combat command in the Arracourt area. The command was concentrated in the general area occupied for the past five days, and orders were issued for the advance on Sarreguemines in two columns, beginning at daylight on the 20th. During the conference at the combat command CP, General Patton gave the combat commander authority to make battlefield promotions to include the rank of lieutenant colonel and to give battlefield commissions to deserving non-commissioned officers.

September 20th came with another dense fog. At 0730 the two columns were on the road but moving slowly because of the poor visibility. Because of the presence of German armor in the vicinity and the obscurity of the situation ahead, the combat command trains were moving west to the vicinity of Hoeville to come forward later with motorized infantry elements that were expected to follow the command. The 320th Infantry Regiment was moving through Arracourt to take up positions between Juvrecourt and Rechicourt. In spite of the adequate road net of the area, the forming of the two combat columns and the movement of two motorized columns caused heavy traffic congestion in the immediate vicinity of Arracourt. The 191st Field Artillery Battalion of 155-mm howitzers had remained in position until the last moment to give supporting fire to the combat columns should they meet trouble in the early stages of their movement. Under these conditions the German armor struck again. Approaching under cover of fog, German tanks skirted the woods to the south of the 191st Field Artillery position and opened fire on it just as the howitzers were going into march order. Reacting quickly, this battalion ·fought back with point blank fire, destroying two German tanks and driving the rest away. The rear guard medium tank company of the south column began reconnaissance of the south flank. It was now 0930 and the head of the south column had passed through Dieuze. The north column had reached and cleared Hampont after a sharp skirmish. *(See Map 2.)*

At 0945 orders were received from division which cancelled the movement on Sarreguemines. Intelligence from higher headquarters indicated that a German attack in force was imminent. Accordingly both columns were returned to their approximate starting points and a perimeter defense established utilizing the 320th Infantry, which had come into the area that morning. By 1200 all elements were in position.

By this time reconnaissance had established that German tank and infantry forces had moved into the area between Bourdonnay and Moncourt. Later identifications established this to be the 11th Panzer Division, with the 111th Panzer Brigade and the remnants of the 113th Panzer Brigade attached.

A counterattack against this force was planned for 1500. The division reserve tank company was lent to the command for this action and was to attack east from Barthelemont towards Bures. Simultaneously the 37th Tank Battalion and the 10th Armored Infantry Battalion, under the command of the commanding officer of the 37th, were to attack south and west through Ley, Moncourt, and Coincourt, while blocking to the east.



Map 5: Tank action 19 September 1944

The division reserve company was unable to advance across the open areas to the west of Bures, being outgunned by the heavier German tanks dug in around that town. The combined 10th and 37th force moved on schedule, and in heavy fighting cleared Ley, drove enemy tanks back through Ommeray, and in a well-coordinated night attack captured Moncourt, exacting very heavy casualties from the enemy at that point. Holding forces were left in Moncourt and Ley, and the balance of this command assembled near Lezey for the remainder of the night. The following day the attack to clean out the area south to the Rhine-Marne Canal was continued, but most of the birds had flown. During the night the bulk of the German force west of Bourdonnay had withdrawn to the east or south across the canal, to seek refuge in the Foret de Parroy.

The position of the command was better organized and reconnaissance conducted to the east for a distance of ten kilometers. Late on the previous day the 25th Cavalry Squadron had joined the command and was now screening to the south, east, and north from Juvelize. *(See Map 5.)*

The morning of the 22d brought the fourth consecutive morning of heavy fog. The combat command had still not given up hope of advancing to the east. At 0930 unit commanders were assembled at the CP discussing tentative plans for such a movement. At 0945 the Boche struck again through the fog, and this time his armor met initial success. Overrunning the 25th Cavalry positions to the east of Juvelize, he advanced to the high ground west· of Juvelize and overlooking Lezey. The 25th fought valiantly, but its 37 -mm guns were no match for Mark V tanks, and succeeded only in slowing the German advance long enough to give warning to the heavier troops behind them. At this point a valuable message was intercepted over the combat command radio. The commander of the German assault force reported to his commander that he had reached his initial objective and would continue the attack as soon as ordered. His commander replied that he would send up tank reinforcements and that supporting artillery fire would be delivered from a vicinity that was identified as being near Bourdonnay. This German attack had struck from the direction of Blanche-Eglise, which is northeast of Juvelize.

The 37th Tank Battalion was ordered to counterattack, supported by the 10th Armored Infantry Battalion. This attack struck north and east from Ley through Lezey and Juvelize, where an entire company of 16

German tanks was caught on the flank and destroyed by Captain Spencer's medium tank company of the 37th. An artillery liaison plane observed German infantry moving into Marsal, to the north of Juvelize. Fighter bombers were called in; they bombed and strafed this concentration, dispersing it and causing heavy casualties. *(See Map 6).*

It now became apparent that the Boche was closing in and preparing for a coordinated attack. To the north, in the Fresnes area, CC B was also undergoing heavy attack. Accordingly the position of the command was further improved; agents were established among the local population, and patrolling was increased. The second four day phase of the defensive operation, that of dug-in static warfare, was beginning.

23 September brought little fighting but much intelligence activity. Apparently reliable information, supplied by the agents and confirmed by patrols and air observation, led the intelligence officer of the command to believe that on 24 September the enemy would launch a coordinated attack on the CC B sector with an infantry division reinforced with armor. This information was relayed to division headquarters and to CC B. The attack on CC B did materialize and in the strength predicted.

24 September was marked by a heavy increase in artillery fire on the position of CC A. Active patrolling led to the conclusion that the enemy was closing in and concentrating for a coordinated attack. Through the agents previously mentioned, the enemy force was identified as the persistent and heretofore unsuccessful 11th Panzer Division, this time reinforced with elements of a German infantry division. It is interesting to note that reports of interrogation of the commanding general of the 11th Panzer Division, completed after V-E day, disclosed that the 4th Armored Division was, during this period, under attack by a German corps consisting of two German infantry divisions, one and a half panzer divisions, and remnants of four panzer brigades.

The only bright feature of this day of fog, rain, and bad news was the information that the 35th Infantry Division would relieve CC B in its sector on 25 September and that CC B would move to the south flank of CC A to complete a concentration of the division for the first time since 30 July.

25 September dawned cold, and a heavy rain forced the artillery observation planes to remain grounded during the entire day. Soon after daylight it was apparent that the enemy was concentrating in the vicinity of Marsal. Enemy tanks approached Juvelize from the direction of Blanche-Eglize but were driven off after a fire fight with tanks of the 37th Battalion. At 1220 a heavy attack was launched against the 37th position by German infantry supported by tanks. No sooner had this attack been repulsed when at 1330 the 10th Armored Infantry met a similar attack which was preceded by a heavy artillery and mortar preparation. At 1335 Troop A of the 25th Cavalry Squadron reported an enemy attack approaching its position from the direction of Marsal. This attack was broken up with artillery fire. At 1356 the position of the 53d Infantry on the high ground south of Moyenvic was heavily attacked by infantry and later received repeated attacks by infantry supported by tanks. None of these attacks were successful, but the enemy began to replay the same music. Attacks again hit the positions of the 37th, 10th, and 53d in rapid succession. By dark all enemy attacks had been repulsed, and there had been no change in the line of the combat command.

With the growing strength of the German attacks, it became apparent that the lines of the combat command, which extended over a front of more than 40,000 meters, might easily be broken if the enemy concentrated his attack. Therefore, the decision was reached to withdraw to a shorter line and more favorable terrain, running generally from Bezange to Xanrey. An armored unit can afford to trade untenable real estate for the advantages of terrain. To accomplish this withdrawal the 37th Tank Battalion launched a counterattack to the north and east just at dusk, while the 10th Armored Infantry Battalion withdrew to take up its new positions. When the 10th was in position the 37th withdrew behind the infantry lines to a support position. This great unit had carried the burden of the fighting for the command for two weeks and was deserving a rest.

Again it is interesting to note that the division commander of the 11th Panzer Division considered this his only successful attack in the three weeks that he was opposed by the 4th Armored Division in this area. Little did he know that the retirement to the new positions was a voluntary one, decided after careful consideration of the relative advantages of the terrain on which the old and new lines were established.

The German attack had apparently spent itself for the time being, and on the 26th the movement of CC B to the south flank of CC A was made without difficulty. Boundaries were adjusted and an adequate reserve established for the first time in two weeks.

This completes the time span of this narrative. Although the division as a whole continued to hold the Arracourt salient of the Nancy bridgehead for more than two weeks longer, the daily action was a repetition of that experienced from the 23d through the 26th-days of quiet followed by days of heavy fighting.

Discussion

This final phase demonstrates further characteristics of armored operation. A fine example of control and coordination was exhibited on the morning of the 20th when it became necessary to double two combat columns back on their tracks through territory that was definitely hostile to our forces. Both columns made their return movement quickly and without confusion to assemble around Arracourt. Only a unit with perfect march discipline could have moved so smoothly and precisely as this one did with the tremendous number of vehicles involved and with columns moving against each other on barely adequate roads.

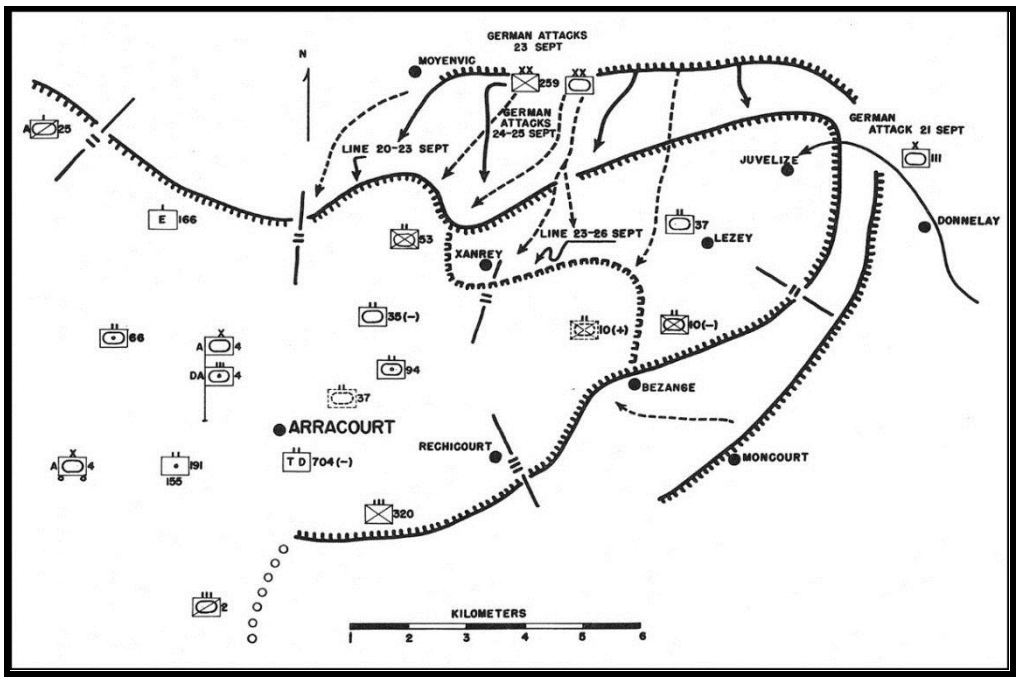
It was indicative of a high state of training and morale of the troops when they accepted without question the retrograde movement of the 22d and swung so aggressively into the counterattack to clear the area south toward the Rhine-Marne Canal.

Though passed over lightly in the narrative, the night attack of the 22d on Moncourt was a classic and was the first of many demonstrations by this unit that tanks and infantry can successfully engage in night operations.

The counterattack of the 37th Tank Battalion on the night of 25 September to effect a disengagement and cover a withdrawal was so well handled that it was late on the following day before the German forces reacted to the shortening of the combat command line. This attack was conducted under the most adverse conditions and under the cover of darkness.

The entire period demonstrates that an aggressive force can successfully engage in an active defense against a superior force of first class troops and that with good combat intelligence, close control, and the careful use of mobile reserves, this type of defense can be used to cover an extremely wide front.

The successful defense of the Arracourt salient defeated the German purpose of recapturing Nancy and reestablishing a winter defense line based on the east bank of the Moselle River. Had the Arracourt salient been lost, there was no defensible ground between there and the Moselle. For more than a week the 4th Armored Division was the only unit in a position to successfully oppose itself between the Germans and their objectives.



Map 6: Combat operations 20-26 September 1944

Summary

In this two weeks operation, which was called by Major General Eddy, Commanding General of the XII Corps, one of its finest operations of the war, CC A reestablished a bridgehead that was in imminent danger of being lost; breached a strong enemy position and penetrated to a depth of 45 miles behind his lines; destroyed the command installation of the unit charged with the defense of the Nancy sector; blocked the retreat of the German forces driven out of Nancy by the attack of the 35th Infantry Division; engaged in mopping up operations over a wide area centering around Arracourt; fought one of the bitterest tank battles of the entire war; and for a period of eight days fought an aggressive defensive action against superior forces to hold the Arracourt salient of the Nancy bridgehead from which the Third Army launched its winter offensive in early November.

In accomplishing the above, great damage was inflicted upon the enemy with comparatively light losses to the command. A summary of enemy losses for this 14 day period includes: Prisoners of war, 1884; counted killed, 1589; tanks counted destroyed, 107; self-propelled guns destroyed, 30; other large caliber guns destroyed, 32; other vehicles destroyed, 491.

During this period the division, in its advance east of Nancy and in its active defense of the bridgehead, met and defeated elements of three infantry divisions, one panzer division, two panzer brigades, five separate combat teams, six separate regiments, and 12 separate battalions (anti-aircraft, engineer, armored, and paratroop).

Editor: The actions described above illustrate the combat power and versatility of an armored combined arms team. In this case, CCA first retrieved a stalled river crossing, penetrated enemy lines, participated in a double envelopment of a major city, and dispersed to exploit further its success. In this state, it was not well disposed to respond to a major armored counterattack. Yet, the elements of CCA leveraged their mobility, combat power, and aggressive leadership to first blunt and then defeat the German attacks at great cost to the latter. In a series of freewheeling encounters, the company teams outmaneuvered and outfought their aggressor, despite the general absence of air support due to weather conditions and the presence of German tanks with better optics, ballistic protection, and main guns.

The outcome of these engagements is a testimony to the importance of tactical leadership, combined arms maneuver, and rapid action. In this instance, the CCA soldiers proved more effective than their German counterparts. Indeed, at the height of the tank battles, the CCA staff continued to plan for their next operations—a sure sign of confidence by the leadership in the capabilities of the subordinate combat teams. The fighting at Arracourt culminated a period of continuous, mobile operations conducted by the 4th Armored Division from the time of its arrival in France. The formation had honed its combined arms skills and mobile operation in operations across France, and it had reached a high degree of effectiveness by September. Experience, tactical competence, mental mobility, and a clear understanding of the capabilities and limitations of the units and weapons at its disposal proved a winning combination for CCA.

2) Headquarters, Thirty Seventh Tank Battalion, Battalion Diary, 15 October 1944

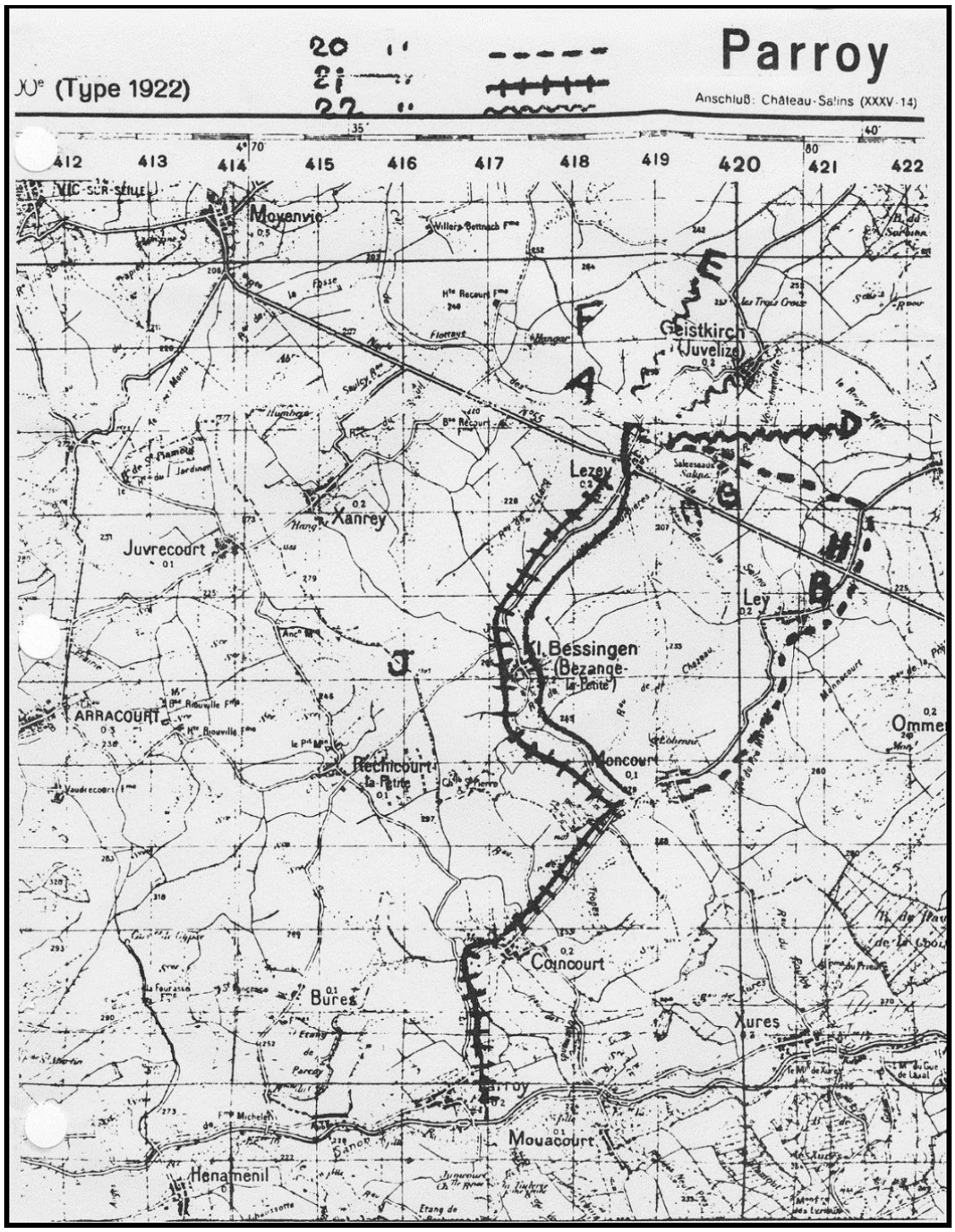
September 18, 1944

In the Battalion area a quiet day passed. There was no enemy activity. A task force, led by Major Hunter and composed of A/37, Battery/94, B/53, went to Luneville to aid CC"R" before the 6th Armored Division arrived. "B" Company was still attached to the 53rd Infantry and the balance of the battalion was in the area. Four prisoners of war were brought in during the day. South of the canal in the Parroy Forest G-2 reports indicated that there were many enemy.

In Luneville, Major Hunter's task force was disposed with the infantry in the town, the artillery in position, and A/37 in mobile reserve. German PzKw V tanks held the Northwest corner of the town, but these were not attacked at night.

In the Battalion area at Lezey, all was quiet until 2330 when Lt. Berard's "C" Company outpost at "G" (letters refer to attached map, which covers the period 18 - 25 September. Battalion CP is at "A") reported a column moving along the road west toward Lezey and the outpost and then turning into bivouac at "B." Lt. Berard with a few men went down on foot and in the dark felt the tank tracks leading off the road. At the Battalion CP, with Captain Cook of the 94th Field Artillery Battalion in attendance to direct the artillery, plans were laid to fire on the enemy. The assault guns were laid on the crossroads (at "H" on the map), and they were to open fire if called upon. Lt. Harris with a section from the Reconnaissance Platoon went out to try and get information about the enemy who was located at "B."

Enemy casualties: Four (4) Prisoners of War.



Copy of the map attached to the 37th Tank Battalion's diary.
While some details and words are difficult to read,
the basic letter reference points mentioned in the diary are clearly visible.

September 19, 1944

At 0130, the enemy was fired on by artillery in a five minute concentration causing him to move out of his bivouac. As the enemy column retreated, the Assault Gun Platoon, registered on the road junction North of Ley, opened up on it as he passed through the road junction. Damage was not assessed.

In the morning, reports of enemy activity started to come in early. A Prisoner of War (Motorcyclist) reported twenty-one PzKw V's and VI's on the road from Ley to Lezey. The enemy was strong in the vicinity of Ley and Moncourt, and he launched attacks from these points toward us in the morning.

First contact was by the Light Tank Platoon of Staff Sergeant Mallon on outpost at Moncourt. Here Sergeant Mallon was astride the roads leading Northeast, Southwest, and Southeast. He destroyed a half-track and a truck and began to receive intermittent small arms fire. When five PzKw V's appeared, Sergeant Mallon began a delaying action, falling back across country to Bezange and then up the road to Lezey and the Battalion CP.

The weather was foggy and visibility poor in the morning. The enemy advancing through the fog from Bezange to Lezey had the misfortune of encountering a prepared American outpost, for the telephone outpost of Lt. Smith's "C" Company outpost made up by wire what it lacked in visibility. Warned by this telephone outpost, Lt Smith's section of his platoon got two enemy tanks at the first crack when they loomed into view.

Another "C" Company outpost East of Lezey, had a brief fire fight with the enemy who did not press for the moment at this spot.

It is to be noted that "C" Company at this time was the only medium company at the disposition of the Battalion Commander. Captain Lamison had to assume a roving mission with one platoon. Lt. Smith's outpost was reinforced to platoon strength, and the other platoon was to the East of Lezey as mentioned above. With this roving platoon Captain Lamison inflicted, in a series of moves from Ley to Lezey, Lezey to Bezange, Ley to Moncourt, working back and forth where the enemy appeared, tremendous damage to the enemy, securing the whole Southern and Eastern front of the Battalion. His aggressive action saved the day until other elements of the Battalion arrived. "C" Company got twelve enemy tanks during this period.

Further to the South of Lt. Smith's outpost, early contact with the enemy was also made by Captain Dwight who was making a routine liaison run from Combat Command "A" to the Battalion via Bezange. Before reaching Bezange, he heard the firing of Lt. Smith's outpost. He asked if it was alright to come in. The answer was no and he returned to Combat Command "A" where he was given a platoon of four Tank Destroyers which Combat Command "A" offered the Battalion and which he led back toward the firing. The enemy was met on the road and almost immediately one of the Tank Destroyers was lost. Going into position at "J," Captain Dwight assumed the role of an observer (unarmored) with his peep radio, the only contact with the Battalion. *[**Note:** "Peep" was another name for the jeep.]*

In a heated exchange these Tank Destroyers were reduced from three to one, but the toll of the enemy was gratifying, nine tanks (not counted in the total of twenty-nine for the day's score for the Battalion).

Meanwhile, during the morning in Luneville, Major Hunter's force heard of the attack upon the Battalion via an intercepted radio message in the S-1 track. At once release was requested from CC "R" and General Eddy, the XII Corps Commander, who was present granted the request. The release came at approximately 1100. Leaving B/53 at Luneville, the force now returned with all possible speed, mindful of the C.O.'s radioed words to Major Hunter to "Dust off the sights, wipe off the shot and breeze right on through."

The force, composed of A/37 and the Battery of Artillery, raced into Arracourt. The artillery left at this point and went into position. "A" Company joined "B" Company, which had been released from the 53rd Infantry, in repulsing an attack on Combat Command "A" which was in its finishing stages.

Now in a position to strike, these two companies (minus "A" Company's third platoon left at CC "A" to return the next day) were brought by Major Hunter at approximately 1400 to the area near Rechicourt, where Captain Dwight's Tank Destroyers and "C" Company's section had beaten off the enemy armor and infantry.

Captain Dwight was met one mile Northeast of Rechicourt. The attack was to be delivered upon the enemy, located at Q166133 on hill 297, from the South and West, so the force skirted Rechicourt on the Southwest and assembled with "A" on the left and "B" on right and hit West. "A" Company hit head on, opening up at four hundred yards. Lt. Turner's platoon swung full left, wheeled and smashed the enemy on the flank, opening at a range of two hundred fifty yards. "B" Company to the right came up on the other flank and finished off the enemy. Total score was eight tanks and an estimated one hundred infantry. Lt. Turner claimed five tanks for his own gun. Our losses, three tanks.

During the day, fire directed by Captain Cook and our own mortars and assault guns were of material aid in repulsing the enemy.

At 2350, a move to the North and East was projected. The plans were to move to the vicinity of Wolfling, beyond Saarguemines near the German border. The bulk of Combat Command "A" (which included most of the division) was to move on the main roads and the 37th force on secondary roads on the Southeast flank; the general idea being to hit from the flank, obstacles to the main column on the left. The column composition and order of march was Reconnaissance, "D" Company, Assault, Staff Tanks, HQ Co, C/37, 94, 10, B/37, Engineers, Trains, A/37. The move was scheduled for 0830 on CC "A" order.

Enemy casualties: twenty-nine tanks, two vehicles, two hundred killed, three prisoners of war.

September 20, 1944

The order to move out did not come. At 0900, 150-180 enemy tanks were reported South of the Marne-Rhine Canal with twenty of them already across. Colonel Abrams reviewed the defensive positions occupied by the 37th and attached units which included C/704, the 94th Field Artillery, the 10th Infantry (-B Company), and sent the unit commanders back to wait on the alert.

At 1040, orders were once more to move out and go to Saarguemines. Artillery Battalions and an Infantry Division were purported to be on the way to relieve the force.

The IP was crossed at 1135, and some enemy outposts were brushed aside at Blanche Eglise. At 1225, sixteen enemy tanks were reported South of Arracourt, coming up on the rear of the movement. The head of the column was through Dieuze with its silent stone barracks when at 1235 came the report that the tail of the Division column was being attacked. The orders were to return immediately and counterattack. At 1240, Colonel Abrams ordered his task force back to the original assembly area and to assume its original positions. At 1245, Colonel Heid radioed "Things are in a bad state of flux." For the 37th, however, the orders were clear and each unit effectively resumed its prior position. Thus at 1300, "B" Company was already in position and reporting "two enemy tanks approaching our immediate front, we are waiting for them."

Major Murdock, who had been announced as S-3 of Combat Command "A" that morning, notified Colonel Abrams that he was to prepare to counterattack South and West from Lezey to the canal clearing out enemy resistance.

As soon as all elements of the force had been reassembled and the artillery fires adjusted, the counterattack was launched. "A," "B," and "C" Companies and two companies of the 10th Infantry assembled North and East of Lezey before the attack. Heavy enemy artillery fire was encountered during the assembly. The plan was to stay in defilade until the whole force had reached a point North of Ley, when it would wheel and strike South to Ley. "A" and "B" Companies were to attack Ley head on, one company on each side of the road. "C" Company was to seize and hold the high ground to the East of Ley and protect our left flank.

"A" and "B" attacked, encountering enemy tanks and knocking them out. "A" Company then went through Ley with the infantry. "C" Company reported that it was heavily engaged with enemy tanks and anti-tank guns. "B" Company was sent to help "C" Company, and Colonel Abrams also went to take charge. A bitter fight ended with the destruction of six enemy tanks and three anti-tank guns, while we lost six tanks. Meanwhile Major Bautz reorganized the infantry and "A" Company, and preparations were made to attack Moncourt.

As "C" Company's situation cleared up, night was falling, and from the Battalion CP area, the glow of burning Ley began to light up the sky.

Despite the gathering darkness the order was still "attack." The attack against Moncourt, executed at night, was a new departure from the "book," which said that tanks could not be successfully employed in the dark.

Preceding the attack, the artillery laid down a preparatory fire on Moncourt. The attack on Moncourt was delivered from the west of the Ley-Moncourt road which was the general axis of the advance.

In a tight and intermingled formation three tank companies and two Infantry companies approached Moncourt. The whole formation opened fire as one, presenting an awesome sight, and the storm of incendiary bullets and HE set Moncourt afire as the force moved in, grinding under the opposition outside the town. All

this was in complete contradiction of the German conception (as reported by intelligence channels) that Americans never attack at night and always stick to the roads. Lt. Donnelly's "A" Company then went into the town with "A" Company of the 10th Infantry. The Infantry used bayonets, grenades, sub-machine guns and rifles, slaughtering the Germans in their fox-holes where they were immobilized by fear and shock of the assault.

A/37 and A/10 were left to secure the town, and the remainder of the force returned to Lezey and the Battalion Assembly Area as the glow of burning Moncourt was added to the glare of burning Ley, both quite visible from the CP.

Enemy casualties: Four vehicles, sixteen tanks, fifteen prisoners of war, two hundred fifty-seven killed, three guns (under 75mm).

Editor: This extract provides some indication of the freewheeling nature of the fighting around Arracourt. Alert and active outposts proved critical to providing early warning and reaction time to the battalion, and in at least one case enabled friendly artillery to disrupt a German concentration. The effectiveness of these outposts ensured that American tanks secured the first kills of the day. The fighting over the two day period also underscores the value of experienced and trained units and crews. Given the uncertainty shrouding the initial scope and direction of the German attacks, the scattered companies of the 37th Tank Battalion relied upon their mobility and firepower to attack, move, and attack again. C Company's roving defense on 19 September illustrates the principle of using mobile firepower aggressively to offset paucity in numbers and disrupt the enemy. Moreover, all elements of the battalion endeavored to move to the sound of guns and engage the enemy wherever encountered, despite the poor visibility conditions and confusion generated by the German attack.

Aggressive counterattacks that attacked the enemy from multiple directions simultaneously proved highly effective and helped to mitigate the superior firepower and protection of the German Panthers; against the less well protected Panzerkampfwagen IVs such tactics were deadly. On 20 September American combined arms counterattacks supported by artillery disrupted German attack plans. Initial success was followed by the night attack on Moncourt that witnessed the mass application of firepower by three tank and two armored infantry companies to suppress and neutralize the defenders. An assault into the town eliminated the resistance. In this instance, the combination of firepower and rapid attack at night—which the Germans did not anticipate—created a shock effect.

3) Letter from Col. (ret.) James H. Leach to the Armor School faculty concerning the operations of Company B, 37th Tank Battalion in the Lorraine campaign, 9 May 1983.

Editor: The letter was written in response to a series of questions posed by the Armor School faculty. It included both the original questions and the responses.

1. Q. What types of tactical decisions did Lt. Col. Abrams [the battalion commander] allow his company commanders to make on their own, and what decisions did he reserve for himself?

   A. Col. Abrams practiced mission type oral orders and decentralization was routine. He permitted the broadest latitude in the accomplishment of company missions and radioed any change of the scheme. When we operated outside of a battalion-controlled tactical formation, such as a battalion in march column, or a battalion wedge, for example, we determined the tasking of the team(s), formations and frequently the axis or direction of movement. It was our decision when to dismount our Infantry or our "bow-gunners," if without Infantry. We also decided when and where to fire tank and artillery munitions once the battle was joined. Tank mounted FOs [forward observers] responded directly to orders from the company commanders. We were given the mission and the freedom to accomplish it.

There was no clear line between what Col. Abrams did or we did. We obviously responded to any change of direction or scheme he directed, yet we were not inhibited by any interference from the commander.

He leap-frogged companies at a moment's notice to maintain pressure on the enemy, and to maintain momentum if in the exploitation. During the exploitation, one soon learned to "keep-em-rolling," guns firing, and to avoid halting to gather up prisoners. His often quoted motto was "The quickest way home is east, e. g.—defeat Germany."

2. Q. In combat operations, what dealings did the company commanders have with the Bn. XO and S3 in the 37th Tank?

   A. Occasionally, when company teams were formed into task forces, the XO and S3 were put in command, e.g., TF Bautz, TF Hunter. Our briefings were oral and informal. I never got a written order in WW II.

3. Q. What kinds of terrain intel did the company commanders have for the Lorraine campaign?

   A. None from above battalion to my knowledge. Bn. HQ set up a layer tinted map for orientation once the battle stabilized at Arracourt. Once I received a town plan several days after B/37 took the town.

4. Q. Did German radio jamming ever affect the operations of Co. B, 37th Tank?

   A. Never.

5. Q. How much intel on the enemy situation did you have when ordered to report to the Combat Command CP at Arracourt from Chambrey on 19 September 1944?

   A. None when ordered to bring B/37 to defense of HQ CCA. I was attached to the 53d AIB [Armored Infantry Battalion]. The 53d AIB only told me to report to CCA HQ with my company - nothing else. Significantly, when I was alerted to report to HQ CCA, B/37 Tank Bn. and A/10AIB (Lt. T. J. McDonald) were both attached to HQ 53d AIB (Lt. Col. Jacques). Our mission was to intercept German traffic moving on the main roads leading from Nancy toward Arracourt and Vic-sur-seille. Lt. McDonald (A/10) and I deployed our platoons to secure three separate road block locations, with a tank and infantry platoon at each. These road blocks were at least a mile or so apart, and were not in direct support or within sight of each other.

   When the 53d notified me to report to CCA, I alerted each of my 1st (Lt. Mixon) and 2d (Lt. Farese) Platoons to move to my 3d Platoon (Lt. Marston - Co. XO/Plat. Ldr.) location. I went ahead to HQ CCA in my Peep, only stopping by Lt. Marston's position to tell him to bring the assembled company to join me at HQ CCA ASAP. I still had no knowledge of HQ CCA's plight, due to the limits of FM radio.

6. Q. Upon being directed to Rionville farm, east of the CP that same day, what actions did you take to defeat the German tank attack that soon followed at about noon?

   A. As I drove into the HQ CCA area, some 3-5 miles from where I started, I was met by all the CCA leaders - Col. Bruce C. Clarke, C.O., his XO, Lt. Col. Hal Pattison and the S3 - Lt. Col. Pat Heid. Almost in unison they asked where is your company - "see those tanks" (pointing 300 yards or so to our front) - "they are Germans." I told them "B" Company was on the way, and should be here momentarily. The German tank formation of MK V Panthers was roaming through the CCA area looking for anything to shoot-up. Lucky for HQ CCA, they did not see it.

   B/37 arrived in 5 or 10 minutes, as I recall. I intercepted them, deploying the platoons in line, out of sight, in a small wooded area. There I quickly dismounted the platoon leaders, pointing out the German tanks that Col. Clarke wanted us to drive out of his area or destroy. I ordered "mount up." We then made our move toward the Germans, firing on the move - halting and firing again. The Germans fled - losing nothing but their pride. B/37 secured HQ CCA by occupying a small ridge line to the east of Arracourt and the Rionville Farm.

Soon thereafter, the Germans fired into my company, hitting two tank cupolas, but no tanks were disabled nor were there any serious casualties. CCA could breathe again.

In the meanwhile, Capt. Bill Dwight (Asst. S3/LNO, 37 Tk. Bn.) joined me at my position, and within an hour or so Maj. Hunter (Bn. XO) and Capt. Spencer with his A/37 (less a tank platoon) (Lt. Pat Donnelly) which was siphoned off as CCA "Palace Guard." They had traveled over twenty miles to help CCA.

As dusk approached, Maj. Hunter directed A (-) and B/37 to attack in direction (of Reichicourt) where I had received fire earlier, in hopes we would encounter the German tanks. As we moved with A (-) on the left, and B/37 on the right, we soon overran the dismounted German Infantry outposts, and suddenly looming before us was an assembled company of Mark V Panthers with its crews dismounted. As "A" Co. engaged in a frontal attack, B/37 moved to the German left flank. We formed a line and attacked through the German tank Iaager and back. Several of the Panthers were able to escape behind their own engine and (I suspect grenade) smoke screens. The result was 9 burning Panthers. A/37 lost the command tanks of Capt. Spencer (WIA), Lt. Jim Turner (WIA) (XO), and Lt. Zeke Detreane (KIA - along with his entire crew - at best his bow gunner may have escaped death). B/37 had no losses.

Maj. Hunter ordered me to assemble the remainder of A/37, attach it to me and move it to the 37th Tank Bn. positions vic. Lezey. Capt. Spencer came out on foot after searching for his wounded. He was awarded a DSC.

7. Q. What limited a unit's ability to conduct operations continuously (day and night)?

   A. Mud and enemy AT and tank fire inhibited day and night operations. While crews were fatigued, no operation was ever postponed or delayed because of this. Night operations were limited to attacks on Moncourt and Reichicourt in this area. We did, of course, make tactical moves at night to reposition ourselves for an attack or to improve our defense.

8. Q. What tactics did the M4 tanks use to close with Mark V German tanks with longer range?

   A. The "smoke" round - both tank and artillery was the key to combating the tough Panther over open terrain. The WP was frequently the first round out the tube of the 75mm gun. Unfortunately, we had no 76 MM smoke, which caused me to keep at least one old 75 MM Sherman in each platoon so we could have readily available smoke to accomplish our missions. The WP provided three advantages:

   1. Mark targets

   2. Kill targets

   3. Screen friendly forces.

   Artillery preparations including smoke were held on enemy positions as the U.S. massed tanks moved as "ships on the sea" toward the enemy. Artillery was only lifted as we closed on the position. Point targets were quickly engaged by tanks with smoke, HE or Shot.

9. Q. What was the effect of the continuous days of operations during Sept. 1944 on the troops?

   A. Success brought elation and confidence. The spirit of the offense prevailed in the mobile defense. This was our second grandest hour. The breakthrough and exploitation were the first - mobile defense the second.

10. Q. Where did most of your intel on the Gemans come from (company commander's perspective)?

    A. Col. Abrams and his S2 provided periodic oral reports on enemy strength, equipment and morale.

11. Q. How was smoke most effectively employed?

    A. Discussed in Question 8.

12. Q. How often was the resupply of fuel and ammo required? How did you find it best done?

A. We resupplied usually at night by bringing the fuel, water and ammo trucks as close to the individual tank as possible. Platoon guides intercepted the trucks - leading them from tank to tank. This was routinely done with division and our own service company trucks. Supply personnel outside the division didn't do this as readily. Tanks were rarely, if ever, withdrawn for resupply - the emphasis was "supply forward" as it should be. We topped off even during engagements by bringing up the trucks.

13. Q. During the Lorraine campaign, as a team commander, what would be your ideal mix of tank/infantry platoons?

A. A company team (Tk. Co / Inf. Co.) was the most common and the ideal, in my opinion. This permitted a platoon with a platoon.

14. Q. What general advice would you give to the future tank company commander to control his command and fight outnumbered to win?

A. To be successful, the tank company commander should master his own tank, move and fight from the turret, and frequently lead the company on the approach in the exploitation and pursuit.

In the mobile defense, he should center himself, so he can move from flank to flank to influence the action of his force. As was proven in the 37th Tank Bn., employment of the tank mounted XO (as a platoon leader) permitted instant intelligence on the situation to influence the action, or to assume command should the company commander become disabled or a casualty. The company commander should leave the jeeps to his 1st Sergeant and maintenance section.

Editor: COL Leach's comments, written nearly forty years after the fighting at Arracourt continue to resonate today, particularly those concerning command responsibility and training. His comments concerning actions taken during the battle offer a glimpse into the confusion that existed and the importance of rapid, aggressive action. The German attacks near Arracourt were routinely disrupted or blunted by the fast action of American armored companies and platoons. The emphasis upon company commanders being first good tank commanders cannot be overstressed. This skill mastery facilitated the flexible command and operation of the 37th Tank Battalion that proved so effective at Arracourt.

4) Capt. Charles M. Baily, "Arracourt: Armor in Defense," Armor Officer Advance Course, 4 June 1972

The attack was generally a surprise to the Americans. As late as 18 September, XII Corps only gave the Germans the capability of launching small, harassing attacks in the CCA area. Neither did the tactical units of CCA expect an attack. (1)

Good security from C Company and the 37th Tank Battalion kept the German attack from being a tactical surprise. The first warning was at 2330 hours on the 18th of September. The C Company outpost SE of Lezey heard a column on the road to its front. The column turned off to Ley to bivouac and a patrol was sent from the OP which discovered tank tracks leading off the road. C Company dispatched a patrol, largely made up of assistant drivers, to find out what was in Ley. The patrol adjusted artillery fire on the Germans and forced them to move. Meanwhile artillery had been registered on the crossroads by C Company and fired at the Germans as they passed through. (2)

First contact with the attack came at Moncourt the following morning. After destroying a half-track (German APC) and truck, the light tank platoon leader sighted five Panthers and withdrew back to Lesey. (3)

The next encounter came at about 0730 at a C Company outpost. The tank section at the OP had placed a smaller OP with land line communications farther down the road. Warned by this OP, the section destroyed two Panthers as they loomed into view. (4)

The major German attack was directed toward Lezey. As the attack developed the two OP's were strengthened to platoon size. (5) Capt. Lamison used the remaining platoon as a roving reserve and to block further west. C Company gained a significant tactical advantage through the use of land line OP's during the

action that followed. The 37th habitually carried a field phone and wire on each tank. During this fight the assistant drivers had been dispatched to positions 60-100 yards in front of each tank with a field phone. These men directed tank fire against the German armor while the U.S. tanks were still protected by the ground fog. The German attack in the Lezey area was completely disorganized by this tactic. Twelve tanks were destroyed, and when the fog lifted at about 1100 C Company directed artillery and air strikes on the Germans "milling around" to its front. (6) This was the first time that the Americans realized the magnitude of the German attack. After this the German attack degenerated into a number of company-size probes throughout the Rechincourt-Bezange area. (7)

Editor: This short piece again underscores the importance of proper security. In this case, the use of outposts with reliable communications prevented C Company from being surprised and possibly overrun by a larger German armor force. Similarly, the use of observers from each tank in forward positions, enabled the American tanks to engage German through the fog without being seen. Although not likely to have resulted in precision fires, the sudden eruption of large caliber rounds from out of the fog generated confusion among the Germans that helped minimize the impact of the opening attacks. The successful use of these OPs underscored the importance of understanding how each piece of equipment functions and is to be used—in this instance field phones and wire.

Notes

1) Col. Kenneth R. Lamison, Personal Interview, Fort Knox, Kentucky, 4 February 1972.

2) Headquarters 37th Tank Battalion, After Action Report for September, 8 November 1944.

3) Ibid.

4) Ibid.

5) Ibid.

6) Lamison interview.

7) Hugh M. Cole, *United States Army in World War II: The European Theater of Operations: The Lorraine Campaign* (Washington, D.C.: U.S. Army Center of Military History, 1997), pp. 224.

A Tank Battalion Commander's Experience in Europe

Editor: The following pages provide insights from Brig. Gen. (ret.) Albin F. Irzyk, who served with the 4th Armored Division from 1942 until 1946. Irzyk served as the S-3, Executive Officer, and battalion commander of the 8th Tank Battalion. He saw extensive combat in Europe following the unit's arrival in Normandy until the war's end. These pages are an extract of an interview conducted with him by the editor in May 2014. General Irzyk's career also included service with the postwar U.S. Constabulary, training responsibilities at the Armor Center, and command of the 14th Armored Cavalry Regiment during the 1961 Berlin Crisis. In Vietnam he was responsible for the initial defense of Saigon during the Tet Offensive and later served as Assistant Division Commander-A in the 4th Infantry Division, responsible for the operations of the division. Principal decorations earned over the course of his career included the Silver Star with Oak Leaf Cluster, the Legion of Merit, the Bronze Star Medal with three Oak Leaf Clusters, the Purple Heart with Oak Leaf Cluster, and the Distinguished Service Cross. `

Interview with Brig. Gen. (ret.) Albin F. Irzyk, May 2014

Q: When you arrived in Normandy was your battalion operating as a pure tank battalion or was it almost always a combined arms task force?

A: In the 4th Armored Division, there were three combat commands. Each combat command generally had one tank battalion, one armored infantry battalion, and one artillery battalion, but the combat command was flexible. It was not like a regiment. Basically, a tank battalion and armored infantry battalion operated together, supported by an artillery battalion. In the case of the 8th Tank Battalion I would say that probably two thirds of the time we operated as a battalion and about a third of the time we had the armored infantry. They were always with us and my artillery battalion was always behind me. The artillery battalion commander was in a jeep, and he hovered close behind me. I could reach over to him, and say, "Hey, Pete [Lt. Col. Arthur C. Peterson, 22d Armored Field Artillery Battalion commander], I need this." As needed the tank battalion operated with all its companies out. For example, at Chaumont the 10th AIB [Armored Infantry Battalion] and 4th Armored—they rode our tanks into the battle. They jumped off the tanks, and they fought together. It was as the conditions required. There was no hard and fast rule. We were flexible.

Q: When you did task organize, did the 8th Tank Battalion generally cross attach with the same unit?

A: No. We changed. For a long time I had the 10th Armored Infantry. I had the 51st Infantry, and the 54th Infantry not so much [***Note:*** *Possible reference to the 53rd Armored Infantry Battalion, which was part of the 4th Armored Division. The 54th Armored Infantry Battalion was organic to the 10th Armored Division*]. Basically, the 10th Armored Infantry, but I worked with the other two battalions. For example, I had the 53rd when I hit the concentration camp. I had the 51st during Lorraine. Mostly, I had the 10th, but I worked with all three of the armored infantry battalions and all three of the artillery battalions.

Q: Did your battalion ever receive attachments of tank destroyers? If so, how were they integrated into the task forces?

A: We had a fantastic destroyer battalion, the 704th. Elements of 704th were assigned to the combat commands. The backbone of the combat command is the tank battalion. The tank battalion commander is the guy who usually fights the combat command, and infantry and artillery support him. We also had tank destroyers. Sometimes a company of tank destroyers. They had a 90mm which was much more powerful and good help. In the Arracourt battle, it was the tank destroyers that did a fantastic battle.

Q: Had your unit had any prior experience working with or training with tank destroyers?

A: No. They came, and we worked with them. We didn't sit in a classroom.

Q: During the drive across France and again later into Germany, was there a standard operating procedure at the combat command or task force level for the rapid elimination of resistance encountered?

A: No standard operating procedure. Minute by minute things changed. We operated the way we were geared to operate. I keep talking about the imponderables of a battlefield. You never know what the other

guy is going to do. Like the coaches, he has the game plan and we have a game plan, but it doesn't last long, so you have to adjust by the minute. Whatever the situation required.

Q: During these operations across France and later into Germany can you describe the basic formation of the battalion task force as it advanced? Where, for example, was your command post, supporting artillery, maintenance, and supply elements? What did the organization look like?

A: Well, once again, I refer to my battalion commander, [Lt. Col. Edgar T.] Tom Conley. He was an older man. The Eighth tank battalion was created during this reorganization.

> ***Note:*** *This statement refers to the reorganization of the 4th Armored Division in September 1943. This reorganization eliminated regiments from the division and reduced the size of the overall formation. This change impacted all armored divisions except the 2d and 3rd Armored Divisions.*

He was the first commander, and he knew nothing about tank operations. He was a conservative guy, and he knew it. When we were in England before the Normandy invasion, he called me in one day and said, "I've been thinking about how we're going to operate this tank battalion." It turned out he did it very unconventionally. He said "I'm going to form what I call an advance guard, and you're going to command it." I was the S3, the operations officer then. "You're going to command the advance guard, I will give you what we think you need. You'll lead the battalion, and I will reinforce you. This was probably the only time ever that we had this sort of thing. So I, in essence, fought the battalion. When we moved out, I would usually have a couple of platoons of light tanks, a tank company, and some recon. That is the way we went into combat, but we adjusted. Later, when I took the battalion, I fought the battalion as I thought it should have been done. There's no set way. Every commander organizes the battalion as he thinks it should be, and it has to change, depending on what the situation is. If we're moving rapidly, we get the lighter forces out in front. If we're held up, we put the tanks up. So we have to make adjustments by the minute.

Q: How did you generally employ your light tank company?

A: If we're moving rapidly and the enemy is scattered, we put the light tanks out. We usually had a troop of cavalry attached to us. So it would be the cavalry and the light tanks out front with the medium tanks behind them. During the battle of Chaumont, I had them on both flanks. Frequently, I used them on the flanks. It was the light tanks that were the first to overrun the concentration camp at Ohrdruf. I had the light tanks on the flanks and the ones on the left were the first ones into the concentration camp. Those are some examples of how I used the light tanks.

Q: I take it that if you had the opportunity, you would not have substituted the light tanks for another medium tank company?

A: I won't argue with the organization. I was very happy with the way we were organized. We were flexible.

Q: How was close air support coordinated with your battalion? Did you, for example, have a forward air control party with your battalion?

A: Yes, we did. In fact one of the early casualties was a major, a forward observer, outside of Lorient. This was in Brittany. We had just started the war. We had forward observers down with us, and these were skilled pilots. I don't think they enjoyed it, but they'd come down for a month. The beauty is that if I needed air, I as task force commander had to go to battalion command, who had to go to combat command. We had tank radios, but the range was not that great. I had an S3 track, and then had communications that could go back about 25 miles, so it could go back to combat command. Combat command had to go to division. But if the forward observer was there, he had a radio. He'd talk to his guys up in the air. We did not always have them, but we frequently had forward air observers. They saved our bacon more than once.

Q: What were your biggest maintenance challenges and your supply challenges?

A: World War II was a war of movement. The tank made World War II the war of movement. We were moving all the time. An example—you were talking about maintenance and food. In Lorraine, we attacked on November 8 and were finally stopped on December 6. During that time no kitchen trucks got anywhere near us. We had no hot meals except what we cooked with our Coleman burners for four weeks. We had not one minute of maintenance for four weeks. That's the reason I charge anyone that criticizes the Sherman tank. The Sherman had some shortcomings, but it was a fantastic tank to do the

job it was designed to do. The problem was getting what we needed from the infantry that couldn't negotiate this terrible terrain behind us. We had to survive by ourselves without too much of logistical support. There were times when we advanced and were stopped after fighting all day. We were low on ammunition, low on gasoline. We needed resupply. I would send my tanks back to escort the trucks up. Here are these guys who have fought all day long from first light. It's now dark, and they have to refuel. They have to wait until the kitchen trucks catch up with us. *[**Note:** In the 4th Armored Division, the kitchen trucks were often used to carry additional supplies.]*

When the kitchen trucks come up, they have to get close enough to the tank so they can refuel them and supply them with ammunition. So what happens when you're waiting for gasoline and ammunition? The gasoline comes up in 5-gallon cans. It takes about 15 of them to refuel after the day's operation. So each can is like a bucket brigade. It goes from the truck to a guy on the ground behind the tank. You lift it up to the guy on the tank. He has to unscrew it, pour five gallons in, and send it [the container] back. And this has to happen for about fifteen tanks. Now it's refueled. Now it comes time for ammunition. The shells are about two feet long. They come in a box. They're in fiber cases. They have to be taken out quietly—because the enemy is near—you have to pass up the shells. They have to be handled carefully, because if you dent the shells, you're going to have a jam. This goes on virtually all night.

Q: You feel very strongly about the Sherman tank. What were its best features? What were its worst?

A: In World War II we had an industrial miracle that will never be equaled. No one known will ever come close to doing what we did. When I joined the Army in 1940, the Army was 178,000. We were the sixteenth largest army in the world. That was 1940. Four years later, we've got thousands of ships, thousands of tanks. I still applaud the inventive genius of our country. They came up with the Sherman tank. First we had the Grant and Lee tank in Africa. The Grant had a short cannon, but it was on the sponson. The turret had a little weapon. This is the desert. We got the Shermans. Tremendous advance from then to the Sherman. I think our county was doing great. But back to the shortcomings, the Sherman had 75mm gun. It was a short barrel, low muzzle velocity. It was not comparable to other tanks that the Germans and the Russians had. It was a 75mm. But it was mobile. It was simple. We ran out of armored replacements early on. Infantry people came in. Never saw a tank. In four days, they were working crewmen. We had the 360-degree traverse, which gave us a tremendous advantage. Our gunners had that. It was a simple tank to maintain. I mentioned we went a whole month in the mud in the worst weather possible in Lorraine without one minute of maintenance—just first echelon maintenance that the crew could do. The shortcoming was our tracks were a little narrow. That's the reason we bogged down in the mud. The gun was short, but even then we corrected it. I had this tank until we got to Bastogne. About two or three days after we relieved the 101st [Airborne Division], I'm down to thirteen medium tanks, and I get a call from the radio from my maintenance officer. He says, "We've just gotten seven replacement tanks." I says, "Great." He says, "No, no. You got to come see them." So I went and saw them. That was the first time I saw the Easy 8 [M4A3E8]. Now since then we've moved to a 76mm gun with long barrel, higher muzzle velocity, and we had a wider track. A better Sherman tank. So for half of the war, I had the M4A3; for half of it, I had the M4A3E8, Easy Eight. Toward the end of the war, early March or early April, I was offered the 90mm, the Pershing tank. I said, "No, no. We didn't need that." We had the mobility. No tank could have done what it did: to go 161 miles from Lorraine to Bastogne on the approach march. That's the plusses and minuses of the Sherman. The minus was the gun, probably the narrowness of the tracks, and we had less armor. Tank developers have to have a great balance. The bigger the gun, you've got to have a bigger platform. To me the most highly overrated, highly misunderstood tank was the Tiger tank. It was a disaster. All it was was a roving pillbox. It had the best weapon of the war in the 88, but mechanically outsized, chewed up gasoline, and it was not a tank. No mobility.

Q: One quick question with the Easy 8. Did you have any issues with very distinct muzzle flashes when the 76mm fired?

A: No.

Q: Were there any significant field modifications to combat vehicles in your battalion?

A: I tried and abandoned it. The Germans had something called a Panzerfaust. A guy in a foxhole with a Panzerfaust could knock out a tank. The Panzerfaust was a fantastic weapon. It was their version of the bazooka. It had a bulbous projectile. It had a handle like a thick broom handle. When it was fired, it

latched on to the tank. It wobbled. It was not a high velocity weapon by any means. It latched onto the tank, and it would bore into the tank. It would be a big hole to start with, but it would get smaller. It would be pushing these fragments. They would disable a crew. In addition, they would disable a tank. One time during a brief period, I had my maintenance crew take concrete, additional armor, and all sorts of things. *[**Note:** This was a test of the use of additional armor as protection against shaped charge weapons. Concrete was fairly common, but its effectiveness was never confirmed.]* They fired the panzerfaust, and it still went through. I said the heck with this. During the time we were in France, at some point we put shrubbery around the tanks. But those are about the only modifications—virtually no modifications to the tank.

Q: One of the things you describe in your book He Rode Up Front for Patton, there's a scene in Normandy before you've entered combat where you are walking around trying to learn as much about the battlefield as possible. You describe a situation where you find several knocked out Shermans and a lone Panther. You have what amounts to an epiphany when you realize the white star on the Shermans was an aiming point. Did you have similar insights or lessons learned as you got into active combat operations?

A: The period you describe was just before [Operation] Cobra. We were sitting and waiting for Cobra. After Cobra, we attacked. But during this period, there was nothing you could do. There was no training, nothing, no classrooms or anything. The men were on their own. So I decided to see what I could see, because the ground had been fought over. So I got in my jeep, and I spent three or four days roaming around the area. I visited the hedgerows which were an eye opener. The first dead Germans I saw were in a small tank that had been burned. I went up, opened the hatch, and they were sitting there like toast. Then I had this experience that you describe. I was roaming around and saw this knocked out Panther tank. I went to it, got up on the back, and low and behold I looked down the barrel and saw these five American tanks. Whoever the platoon leader was had zero training, because he did everything he should not have done. First of all the five tanks were in a row. We taught them to stagger the tanks and not to be at the same range. So if we had a German gunner, he's not going to go "boom, boom"—which he did then [rapid destruction of one tank after another]. If you spread your tanks in an irregular formation, the German gunner has to aim at each one separately, different range, different distance. But this platoon was advancing five in a row, and as big as you could possibly see was this white star [national identification painted on front hull on American tanks]. And there was the shot. All he [the German tank gunner] was "bang, bang, bang." It was like Coney Island. It there's a tank in the history books that shows no stars, that's mine. But if it shows stars, that's not mine. I went and talked to Tom Conley [the battalion commander], and he said okay [to remove the white stars from the battalion's tanks]. I don't know how many lives that saved, but we went in starless.

Q: During the drive to Bastogne, what do you consider to have been the greatest obstacle: navigation with no or inadequate maps, weather and terrain, or German resistance, particularly at Chaumont?

A: The Battle of the Bulge was unique. It was probably the greatest land battle our country has ever fought. One of the greatest land battles of all time, I think. But we had two enemies: one was the massive German attack, second was the weather. The weather was the worst in about a hundred years or ever in that area. Weather definitely was a major problem. It probably balanced out with the ferocity of the German fight. It was bitter cold. We got colder and colder until you could not get any colder. There was no place to go, no hot food, no hot room, no hot shower, the ground was frozen. It was just terrible. On the advance north, everything was adverse. The ceiling was zero, it was gray, bitter cold wind, frozen roads—conditions could not have been worse. Going to Bastogne, we had one map, and I didn't have it. My combat commander had it. We had been alerted. We were ready to go. That was after we got to a place called Singling, about eight miles from the German border. We had orders to attack through the infantry across the border into Germany into the Saarland. Directly east. We were going directly east when Patton turned his army ninety degrees to go to the north. All our maps were oriented to the east. I was called on the afternoon before I turned at midnight. This is the afternoon of the 18th December. I left my area on 0030 on 19 December. My combat commander said, "You're going north." Our maps were to the east. He had a Michelin map. That was the only map. We had absolutely no idea we'd be going north. That was one time where maps could have helped. I had no map. So he had to talk to me on the radio or drive with his jeep to help guide me to Bastogne.

Q: Did your tanks use grousers during the Battle of the Bulge.

A: For a brief period, but it was not worth the effort. They had marginal effect. Not effective.

Q: What type of reconnaissance assets did you generally have available to you as a battalion/task force commander?

A: Most of the time in a tactical situation, you don't know what is out in front of you. Sometimes if it was safe, we'd have the forward observer fly overhead, or we had tactical air report what was out front. There's no intelligence, because things changed from minute to minute hour by hour. We had to meet what we faced and handle it from then on.

Q: When you were task organized or operating as part of a task force, was there any mechanized cavalry assigned to you?

A: Yes, we had an armored cavalry squadron, and we had a company of them attached. But reconnaissance is not the word. They were a light force helping us fight. Even they couldn't see out in front. They couldn't crawl anywhere.

Q: How did you develop an understanding of where the enemy was, the terrain, the situational awareness?

A: When they started shooting at us, we knew they were there. There was nothing we had overhead. We had no tactical air, no recon air. The Germans had reconnaissance air, but that was high level. We had no air telling us, but sometimes the fighters would report to us. Day by day by day we had no ground reconnaissance. We just had to take it as we met it.

Q: So the armored cavalry was not finding things out in advance of the main body?

A: No, they were helping us fight. The light tanks and the recon worked together, but they were fighting elements.

Q: Not information collectors?

A: No.

Q: Who was responsible for making sure that reconnaissance or the operation of attached mechanized cavalry/armored cavalry was integrated with that of the battalion?

A: This cavalry unit was assigned to the combat command. He operated under the combat commander, but frequently the units were with me. There was no advance arrangement.

Q: You considered General Wood to be an exceptional leader. What made him so?

A: General Wood had a feel for people. First of all, General Wood was a football player. He played varsity football for the University of Arkansas before he went to West Point. When he was at West Point, because he already had a college education, he was well ahead of the cadets. He tutored the cadets. He picked up the nickname "P" Wood for professor. He obviously had a great feel for people. As a leader, in my opinion, he had everything. When I got to Pine Camp, I asked about the division commander, who was General Wood. A lieutenant said, "Ah, I think he's weak." I asked why, and he said, "Well, he said 'God bless you men'." I mention the Tennessee maneuvers. He [General Wood] spoke up to Ben Lear [Lt. Gen. Ben Lear, Second Army commander] time and time again until people thought he was on the verge of being relieved—and he was. But he was backing his troops. The word got down to the troops. From that point on, they fell in love with General Wood. But it was not just a love affair. General Wood was a great trainer. I mentioned he required night classes, and General Wood was a man who visited his units. He was a division commander who went out and saw the men. There were some division commanders that command from a desk. He was out among them. When we were in the desert, he was in a tent. He was offered a special carrier. No. He lived like the men. I've got pictures of him showering in front of his tent. During a break in the war, he came and talked to the troops. This was after we had had quite a few engagements, and we had a quick break. He was there to tell us how great he thought we were. He actually wept said, "God bless you men." Beyond that he was a great tactician, and the tactics that we used across France were called Patton's tanks, but they John Wood's tanks. He was the one that was almost court martialed when we were ordered west to the Atlantic ports (Lorient). At that time Patton was just getting out of the doghouse. His army had just been reactivated. He wasn't going to scream. It was John Wood who went on a limb and screamed at the senior commanders, "You guys are doing it the wrong way. The enemy is to the east, not to the west." He was a very outspoken guy. The troops loved him. They used to say, "I saluted him before he saluted me." He had everything a leader could have in my opinion. He had the admiration and love of his troops. They fought for him. The Fourth Armored Division continued without him in command from November until the end of the war.

General Gaffey succeeded him. General Gaffey later served at Fort Knox. Gaffey Hall is named for him. He agreed that the division was never his. It was always John Wood's. At the conventions after the war, people never forgot John Wood. He was a unique commander.

Q: Did the relief of General Wood adversely impact the performance of the 4th Armored Division, even if only temporarily?

A: It did almost immediately.

Q: How was that impact felt at your level?

A: Things happened that would not have happened if Wood had been in command. The battle of Singling was probably the low point of the 4th Armored Division's career. It shouldn't have happened. At that time we had a tremendous change in command. We had a change in the division commander. We had a new general come in, an infantryman by the name of Earnest [Brigadier General Herbert L. Earnest, Combat Command A]. We had four battalion commanders that changed within a period of four days, but the greatest impact was Wood going and Gaffey coming.

Q: Can you talk a little bit about your experience with the 8th Tank Battalion in Lorraine?

A: There were two periods in Lorraine. Early on in the September era, but the real tough fighting was in November. As you probably know, the 4th Armored Division and the 8th Tank Battalion they say ran out of gas. We didn't run out of gas, but the gas was diverted to Montgomery. Patton was stopped. For the whole month of October, Patton, the greatest offensive weapon we had, was sitting. So we sat in Lorraine, in the mud, the horrible weather. The rain broke all records. We had pup tents in the fields. We had to take the pup tents down, because the mud was so deep that the tent pegs wouldn't hold. We had to find farms, homes, barns—we went into French homes to get into cover. That was October.

While that was happening, the Germans knew where we were coming, and they prepared for us. They had a month to prepare for us. So obviously they picked the best defensive positions. On November 8, finally, after this long, long time sitting, we launched our attack. Now, the weather is ferocious. It's bitter cold, ceiling zero, cold wind. The worst thing is the mud. History books have said that Patton's forces hit mud. They don't know what the mud was. The mud was like clay. If you put your foot in the mud and lifted your foot out, it clogged around your foot. So the tanks basically were immobilized. There was certain places where they could move cross country in the fields and other places they couldn't. So we were largely confined to the roads. The Germans knew that, so they blew craters in the roads, and they mined the roads. That's where their antitank guns were zeroed—on the roads. It was a matter of slug, slug, slug. We depended greatly on our artillery. We used our tank fire when possible, but we were largely restricted to the road. When we could, we left the roads. Occasionally this happened. If we were up against a town, the outlying ground around the town was drier than the fields, so we could get around the towns. It was four or four and a half miles a day.

At that point, I had the advance guard, leading the 8th Tank Battalion. As we were advancing, we reached this town, beyond which was another town called Marthille. That would be our next objective. They talked about Patton having a great sixth sense, a great battle sense. Well I don't know what it was, but that day I made a decision. I don't know why I did it, but I did it. We kept slogging down the road, but this time I got to this town. I looked down the road. Here was high ground [gestures on the left]. It was wooded, and from the woods, the ground sloped down into the town. Over here was a creek [gestures on the right]. A small creek, but in November it was a raging creek. I knew that if we left the road, we couldn't go to the right, because that would be trying to cross the creek. If we went to the left, here was this high ground. If I'm hit, I can't go up the ground—I'm trapped. It would be looking down at me from the high ground, and I couldn't go to the right. I was more or less stymied along the road. This was not good. I also knew that the higher ground was drier ground. I decided then I'm not going down the road. I'll see if I can go around. I used the ridge to my advantage to get to Marthille. Well, the Germans must have known this. They must have gathered up from various sources this supply of antitank guns. They spent a lot of time, because this was November, and they were beautifully camouflaged. They had gotten enough underbrush so that they really beautifully camouflaged these guns. There was no evidence of guns when we were going up. We had the light tanks leading, and they're mobile. We did reconnaissance by fire. We used .30 caliber. The light tanks were firing their coaxes, because they thought something was suspicious. They were firing. When you hit something solid, it flashes. Suddenly, we got flashes, so we knew we got something there. One of the light tanks, with its

37mm popped one of these suspicious places. Brush and all came down, and there was an antitank gun. So they started popping all over the place. The minute they saw this antitank gun, we had a medium tank come, and they shot 75mm rounds. While we were doing this, a bunch of Germans from Marthille came running up the hill. They had crews with the guns, but they were obviously the reserve crews, perhaps on their rest time. They were rushing up, and they were a fantastic target. In 45 minutes, I think we got the largest bag of antitank guns. We got over twenty antitank guns, about eight of them were eighty-eights, but we got them before they got us. And what I thought of—here was battery of antitank guns and my battalion going down this road. They would have waited until my lead element got to Marthille, which was about two-and-a-half kilometers. They could have destroyed my task force. That was one of the high points of the fighting in Lorraine.

We continued on, we made a sharp turn to the right, and we went to a place called Dieuze. We took the road that ran directly east and continued this fight town after town. There were bitter fights. We got to a place called Mittersheim. It had a big dam. When we were nearing Mittersheim, we thought that perhaps they would blow the locks and flood it. The 8th overran Mittersheim, so they never blew the locks. We were able to keep advancing. This continued until early December.

In early December we had a tremendous turnover in leaders. We had two armored infantry battalion commanders, lieutenant colonels, wounded the same day. They were evacuated. The 704th Tank Destroyer Battalion lost their commander, and I took over the 8th Tank Battalion. General Wood was relieved. General Earnest came in [Combat Command A] and General Gaffey took General Wood's place. I took over the battalion while we were in action, which was unusual. I was well enough known, so I just hopped in the tank and continued the action that day.

The next morning I was told to—we were still heading east—turn to the left and seize a town called Voellerdingen, capture the bridge over the Eichel River, and establish a bridgehead across the Eichel River. Then I was to go north. The next morning I turned left off the main road I was on that led to Domfessel, which was CCA's objective. I was north of it at Voellerdingen. When I turned off the road at Voellerdingen, I turned left and made a sharp turn. As I did so, six German tanks came out of the woods. Our gunners spotted them before they fired. They hit two of them and disabled them. The other four withdrew, and we never saw them again. When I turned to look to Voellerdingen, all I could see were two steeples, the crosses of two steeples. That told me that they were way, way down, maybe in the valley along the river. Obviously, I'm going to have to go down into the town. It's getting late in the afternoon now; it's soon going to be dark. If I get down with my tanks in the town, I might be trapped.

I turned to Pete Peterson [Lt. Col. Arthur C. Peterson, commanding 22d Armored Field Artillery Battalion], who was right behind me, the artillery commander. I said, "Pete, could I have your battalion fire a concentration before I go into the town?" He said, "Sure, just a minute." He got on the radio. He said, "If you can wait forty-five minutes, I can get a TOT." This is time on target. This is where he brings in corps artillery. So forty-five minutes is a long time, because it's beginning to get late in the afternoon. Often getting something like this takes time, so it takes longer than they estimate. So I had to gamble—either Pete's battalion with 105s or I could wait and hopefully get the TOT. I said, "Okay, Pete. Let's go with the TOT." Sure enough this was one time they were right on time. In forty minutes they shot the TOT on Voellerdingen.

So my tanks rolled down into town, and it was quiet. When we got into town. I turned slightly left. There in front of me was this huge concrete embankment with rails on it. An active train still rolled on it. I'm trapped. I turned and we kept moving along the side, and there it was—the embankment. I thought I'd be trapped. Suddenly I reached a spot where there was an underpass. Now we can get through. My tanks turned, and when they turned, they were getting flanking fire from the Germans on the other side. This was a tricky thing, because if either them or us hit the bank, and crumpled the banks, we were stopped anyway. My gunners shot right through that underpass and overcame whatever was firing at them. It got quiet. Now it's dark. We turned and rolled through the underpass. We got to the Eichel River, which was a raging river. Everything was swift and cold. We got across the bridge. We secured our bridgehead. It was very, very muddy over there, but we crossed and accomplished our mission.

As an aside, I went back there recently in '09. We were over there visiting. There was a woman in the building that overlooked the bridge. She came out to see what the fuss was. She learned that I was the commander of the force. She invited us into her home. She was twelve or thirteen years old at the time of the fight. She said she and her father watched as the Germans prepared to dynamite the underpass. When

they sensed the Americans were getting close, her mother and father invited the Germans to come into their home. They gave them Schnapps, and got them drunk. They hauled them out to the back. They put sheets on the hay, and put them to sleep. The father went out and cut all the wires, so that when we went through the pass, nothing happened. So this old farmer saved our bacon. I would never have known that if we had not visited. My wife wrote it up for a magazine. It was called "Mysterious Ways," and they published it.

Anyway, the next morning I sent my B Company out in front. They hit resistance from some woods, but that didn't bother me. You can only fire from the edge of the woods. Whatever was there, people with rifles and machine guns, the tanks took care of them. We reached a placed called Schmittviller at noon. At that time, my combat commander said not to move, because CCA had not been able to cross the river at Domfessel. CCA at that time had the 35th Tank Battalion operating. The 37th Tank Battalion was in reserve behind. CCA at that time had two tank battalions, the 35th and the 37th. The 35th and its armored infantry had the job of getting across the river at Domfessel. That morning they were still fighting to get across. So my combat commander said not to move until we know that they can catch up, because I was sticking out here by myself. I sat there all day. Nothing happened. That night I went back to my combat commander, and he said we would move out in the morning.

Obviously, he didn't know what was happening, because apparently during the day while we were sitting, someone made a decision. I don't know who it was. We had a new division commander, Gaffey, and a new combat commander, Earnest. I don't know who, but someone made a decision that the 35th had had enough. They pulled up the 37th. Now it's getting late in the day, and their job was to seize a place called Bining. My mission was a town north of Singling, which never came into play. [Gestures showing parallel route/mission of 8th and 37th Tank Battalions] Singling was not a mission. My mission was beyond Singling. To get to Bining, they [37th Tank Battalion] had a red top, fast speed road. I had no road whatsoever. My route was cross country, and I was on a little bit of a ridge. It was muddy, but not too muddy. I went to Schmittviller. From Schmittviller to Singling it was all cross country; no road. Well, the next morning, I get up at first light. I start moving down from Schmittviller—the ground slopes down—and there were American vehicles. I couldn't believe it.

I finally came down and saw 37th Tank Battalion. What must have happened and what did happen is that Abrams [Lt. Col. Creighton Abrams, 37th Tank Battalion commander] came up, saw that the day was getting late, probably convinced whoever got him there to let him go. He made a bold shot without infantry, without artillery heading for Bining, which was only about five or six miles along this red top road. He must have hit a nest of guns, because he couldn't get to Bining. So he switched over. I think he decided that the best way to get Bining was to outflank it, but he came into my axis of advance. I can't understand communications, because obviously my combat commander had not been notified. I certainly didn't know. When he moved into Singling, it had no value whatsoever. It was a little place. It had Maginot Line buildings, but it was not tactically or strategically valuable in any way. Abrams wanted to outflank, but when he got to Singling, he had his nose hit. He lost C Company, either from fire or mud. That's where we were in the morning. He had sent a force, an armored infantry company and a tank company into Singling.

The moment I got there, I had to see the commander. So my tank went up to his tank. I got out, jumped up on his tank. A brand new commander of the 51st Armored Infantry was there—he came up with me. We were both on the back deck. At that time I think Abrams was being blasted by Earnest, who was saying, "What are you doing in Singling? Your mission is Bining?" He had lost these people in the morning. He was told that the town in front was clear. I later learned that it was not clear. It was a totally confusing thing, but he [Lt. Col. Abrams] was totally overwrought, and that's when he blasted me. He said, "Get going! It's your battle." But he's in my axis of advance. He came over from his and apparently didn't notify anyone. It was a mess. Singling, I say is the lowest point of the 4th Armored Division's career. We never would have heard about Singling if these young lieutenants had not later decided to write about a small unit action. Their whole article is about the actions of the armored infantry and tanks in the town. It was the result of massive changes in command, maybe lack of communication, lack of coordination. It was a mess.

Note: *The article referenced was a publication compiled by the U.S. Army's Historical Section in 1946 that included a detailed description of the tactical engagement in Singling. Today, it is CMH Pub 100-14, and it is available online at http://www.history.army.mil/books/wwii/smallunit/smallunit-fm.htm.*

Q: So Singling and the events surrounding it were definitely not the norm for the 4th Armored Division.

A: That's right.

Q: Up to Singling and perhaps beyond Singling could the fighting be characterized by bad weather, restrictive terrain, and a series of movements from one town to another?

A: Yes. All of that. We talk about the horrible weather at Bastogne, but the weather during our November slug through Lorraine was horrendous. I've described how bad it was for the tanks. The infantry—they were the ones who had to slog through this stuff. They carried on their backs a horseshoe roll with a blanket and a shelter half. They had K Rations. Their kitchen trucks couldn't get to them any better than my kitchen trucks could get to me. They had the rifle, they had an entrenching tool, and they slogged in soaking wet, thin jackets. It was horrible. It was the weather, the ground, the atmosphere, and in the case of the 4th Armored Division, tremendous changes in leadership. Because of changes in leadership, lack of communication and miscommunication—a lot of factors fell into place to keep something good from happening.

Q: What was the morale like for the soldiers?

A: I mentioned that we went a whole month without a hot meal. Not a minute of maintenance. No hot meals. These guys had been slogging it out since November 8th. The men were tired, but they still battled away. We didn't sleep much. Infantry—you can learn to sleep standing up. I learned to sleep on a horse. The infantry would sit there and shake. If they tried to dig a foxhole, they would dig out the earth and up would come the water.

Q: The armored infantry had halftracks. How well did they operate in the mud?

A: It was harder for them even than the tanks, so they had to stick pretty much to the roads. Halftracks were often times just approach vehicles. They would dismount, and many, many times we had infantry on the tanks. They went forward with us. When we hit something, they would jump off. If they moved, they usually moved on the tanks. We used the halftracks when there was no firing—no artillery and no machine gun fire.

Q: What advice would you give today for new platoon leaders and company commanders?

A: The first thing is get to know your men. They're the ones who are going to make or break that outfit. They've been schooled—now, it's a test of leadership. In the case of a company commander, he's got to get to know his first sergeant

Editor: General Irzyk's comments reflect the flexibility and combat power of an armored battalion that routinely operated as a combined arms team—or had ready access to combined arms assets. His description of the fast pace of operations, particularly during the drive across France, underscores the importance of combat power. With events changing rapidly, it proved difficult to get a clear understanding of German dispositions before actually engaging hostile forces. Hence, reconnaissance assets often served as a forward security element that supported combat operations by the battalion. At the division level, command and control of multiple, fast moving battalion task forces required coordination, communication, and careful monitoring of all actions. In their absence, maneuvering the independently moving task forces could generate problems, characterized by the impact of widespread command changes in early December and the confused operations near Singling. However, a significant feature reflected in the experiences captured here is the importance of soldier morale, effective leadership, intimate knowledge of the assets found in the combined arms teams, and tactical competence.

Extract from an Armored Commander's Narrative on the Italian Campaign

Editor: A commander of a separate tank battalion serving in Italy filed this lessons learned report governing his unit's operation between 11 May and 11 June 1944. The separate tank battalions were intended as a pool of armored units for assignment as needed to infantry divisions. Overseas, they often came under corps or army control for temporary attachment to subordinate formations as requested. This report highlights some of complications with reliance upon attachments, and it underscores the value of close coordination of tanks and infantry in the planning, preparation, and execution of combat operations. This report is included in United States Army Ground Forces Observer Board, "Report of Observers: Mediterranean Theater of Operations," Volume III, 11 December 1944, in the U.S. Army Heritage and Education Center.

It should be borne in mind that the following comments are based solely on the necessarily limited view point of a battalion commander. No doubt there were many factors involved totally unknown to me. Too, we were engaged in a pursuit, in which unorthodox procedure would not bring unduly severe consequences. Nevertheless, it appeared significant that *when principles taught in field manuals were followed, good results were achieved, and deviations brought trouble*.

1. The most important principle is: the employment of tanks must be carefully coordinated with all elements of attack.

A haphazard commitment of tanks is a waste of time, tanks, and men. Frequently during the campaign we were ordered to "support the attack of the infantry at dawn," when we knew only the general location of the infantry, had only a hazy idea of the mission, knew nothing of the plans of the infantry, and had insufficient time to get the information and *disseminate it*. First, in order to fire, tanks must know where friendly troops are, or casualties will result from our own fire. For same reason tanks must know where the infantry is going. Furthermore, usually the tanks must go with the infantry. In close country like Italy a separation of tanks and infantry is likely to result in the complete loss of usefulness of the tanks. In order to obtain close cooperation, this battalion habitually sent a liaison officer to division headquarters, a liaison officer to each regiment supported, and liaison officers to each assault battalion. *The tanks should not be committed until information is disseminated to the troops, at least down to and including platoon leaders*. In one attack, the tanks were ordered to support an attack which had already been launched. Though the order was issued prior to the attack, there was insufficient time to get the tanks to the attack position and no time for explaining the plan of attack. Consequently, it was late in the morning before the tanks gained contact with the infantry and were able to support the attack. I firmly believe that time would have been saved, the attack would have progressed further, and casualties would have been averted, if the attack had been postponed until the tanks could be integrated in the plan of attack.

On the next day, the tanks were again ordered to support an attack which had already started. Again, time was lost in locating and establishing liaison with the infantry.

At one time, elements of two battalions of tanks were ordered to support an attack with about two hours to bring the tanks through a bottle-neck, establish command channels of communication and coordinate tank plans with those of the infantry. This time proved insufficient, and because of the late hour of the attack, it could not be pushed home before darkness.

In the instances cited, I believe it fair to ask: Had the tanks been any other major element of the attack would the attack have been launched before coordination had been achieved? (That the tanks were considered a major element was evidenced by the anxiety and concern displayed in getting the tanks forward to support the attack.) Yet, the attacks were launched in spite of the fact that coordination had not been achieved. Tanks cannot effectively support an attack merely by rolling forward. *The tank commander must know the plans and the location of the infantry, and given time to disseminate this information*.

In most attacks, this battalion was given time to go over plans of the infantry in detail. When it became clear that attacks could not be launched at the scheduled hour except at the expense of coordination, the hour was changed. Consequently, these attacks went off like clockwork, and casualties were very light, both to the tanks and to the infantry.

2. Night operations by tanks are hazardous and usually ineffective.

At 0130, one morning, one company of the tank battalion was ordered "to proceed down the road, towards an Italian city, gain and maintain contact with the enemy, and report all information gained." This city was situated on a precipitous hill mass, the road being the only route which tanks could negotiate and reached at that time only by going to the city. (The tank battalion had been halted at nightfall in an attempt to go around the city, losing four tanks.) Foot patrols had reported difficulty finding routes for dismounted troops. It appeared extremely doubtful that tanks could get up the hill in daylight. Furthermore, the information that could be gained by a tank company at night operating on a road would appear to be of doubtful value. (In most places it was impossible to get off of this road even in daylight and this was clearly indicated by maps and aerial photographs.) They could report only the location where they received anti-tank fire or hit mines. An intelligent enemy would reveal nothing else. Tanks are no substitute for horse cavalry or dismounted patrols. Furthermore, this company had been engaged all day, and had just completed servicing their vehicles. Continued operations would certainly lessen their efficiency on the following day.

On 6 June, the task force, of which the tank battalion was a part, was directed to push on "without pause." At that time the task force had just finished an engagement and darkness had fallen. When the column moved forward it ran into an ambush, and the leading tank was disabled by anti-tank fire. If the tank had burned, lighting up the area, other tank casualties could have been expected. Meantime, the tanks were relatively helpless to assist the infantry. The tank personnel lost sleep and could not service their vehicles, making a long advance the next day impossible until the servicing could be accomplished. As tank personnel must eventually halt for servicing and rest, and as the guns cannot be accurately laid at night, it is difficult to see the advantages of a night attack. Certainly, faster progress can be made by day, and if a pursuit is to be maintained for a long period of time, it would seem preferable to fight by day, service vehicles and rest personnel at night.

3. Changes in attachment should be held to a minimum.

As has been pointed out, this battalion habitually furnished from four to seven liaison officers (each with a radio and two men) to supported units. When a change in attachment occurred, it necessitated the recall of these liaison details and sending them to new units. This takes time. Furthermore, time must be consumed in moving to new positions, and in learning the plans of the supported unit. If insufficient time is allowed for this process, inefficient and inadequate or no support may be expected.

At 2100 on June 2, this battalion was released from attachment to an infantry division and attached to a task force. By 0100, 3 June, liaison had been established with the task force and possible plans had been discussed. At 0600, 4 June, this battalion was released from attachment to the task force and re-attached to the division—to support an attack which had been launched an hour earlier. Consequently, liaison details had to be recalled from the task force and sent back to the division. Information of the location and plans of the infantry had to be picked up on the fly, as we were directed to move up at once. At 1400 this battalion was detached from the division and re-attached to the task force. At 0630, 5 June, this battalion was released from the task force and attached to the Special Service Forces. It is difficult to see the advantages of such rapid changes in attachment, bearing in mind the time required for changing liaison details and for gaining essential information. No sooner had one situation been analyzed and troops set in motion than the entire picture was changed, and the whole time-consuming process had to be repeated.

During the thirty-one days of combat this battalion changed its attachment eleven times, not including about four abortive attachments not carried out.

4. When a United States tank battalion is attached to other Allied troops, the battalion commander should be in charge of all armored operations involving the use of his force.

Right or wrong, our troops trust their commanders and feel uneasy if detached and put under immediate command of officers whom they do not know. (This uneasiness is increased if the commander does not speak our language). The habitual practice of one Allied division was to detach a small tank force and put it under the command of one of their officers. The tank battalion commander was usually not consulted regarding the employment of the tanks, and precise information was difficult to get because of the system of having one officer in charge of all armored operations, one officer in charge of infantry operations, another officer to coordinate the plans, and on top of this, a groupment commander in charge of the entire operation. Generally, an attempt to find out the precise plans resulted in a fruitless visit from one officer to another, each referring

the inquirer to someone else. For instance, a visit to the general resulted in being referred to a major, who referred me to another major, who referred me back to the general. As a result of uncertainty, our troops became dubious and hesitant, even over perfectly proper orders.

5. Tanks should be protected in passing through defiles.

On one occasion, a platoon of light tanks was spearheading an advance through mountains. Maneuver was impossible and the road had numerous blown bridges. When anti-tank fire was received or when the column encountered blown bridges, the column was forced to halt until infantry moved ahead to drive away the anti-tank guns or to cover the engineers repairing the road. As a result, the column moved no faster than the infantry could advance; in fact, slower, since time was consumed in reorganizing the column and sending the tanks ahead. Two tanks were destroyed by encountering the enemy in defiles without infantry support, and one tank by mines. It would seem preferable to have sent a covering force of dismounted infantry ahead of the tanks, as in every case, infantry had to come up anyway, with a consequent loss of time. However, at no time was infantry designated to clear the route, except when I urgently and emphatically requested infantry support.

6. Some provision for maintenance and rest should be made.

During the campaign from 11 May –11 June, this battalion marched about 300 miles on roads. An additional average of 300 miles was covered in combat. *Throughout this period, this battalion marched or fought, or both, every day*. Companies not engaged were required to remain on alert "prepared for immediate entry into combat." What maintenance we got was either "stolen" or necessitated by break-down. As a further consequence of remaining on alert, fatigue assumed serious proportions. It expressed itself in misunderstanding orders, slowness in organizing, and hesitancy in execution. There was an understandable tendency in each division to which we were attached to regard the battalion as a "fresh" unit. Such was not the case.

Editor: This report offers a cautionary tale for combat organizations designed in the expectation that various assets will be attached to them. It underscores the problem associated with reliance upon external attachments rather than organic assets and the difficulties faced by those units designated as attachments, particularly in terms of sustaining combat effectiveness. The report stresses the importance of proper planning and coordination to ensure the greatest success and impact of the tank-infantry team. Such integration requires time and interaction—hence the battalion commander's efforts to pre-position liaison teams with supported units. Without clear information regarding how the infantry force plans to proceed, the tank force commander cannot maximize his support. This interaction assumes a critical role for armor working in close complex terrain or traversing defiles. The report's author also indicates the importance of adhering to doctrinal principles to ensure success, noting the negative outcome when ignored. The problems outlined in this report were not unique to this unit or to the Mediterranean Theater, but proved fairly common among the separate tank battalions. Consequently, the infantry division was restructured after the war to include an organic tank component.

Tank-Infantry Cooperation in Italy

Editor: An armored commander serving with the 1st Armored Division in Italy submitted a lessons learned letter to U.S. Army Ground Forces focused upon the interaction of tanks and infantry during the breakout from Anzio and subsequent drive into central Italy. An extract of this letter, provided here, was included in a memorandum disseminated throughout the Army for training purposes. Note the italicized passages were also highlighted in the original document. This report is included in United States Army Ground Force Observer Board, "Report of Observers: Mediterranean Theater of Operations," Volume III, 1 July 1944, at the U.S. Army Heritage and Education Center

I want to bring out one or two points which may be of some advantage in connection with the training preparation for the troops which are to be sent to the European theater. In World War I, the infantry-artillery team was brought into full play and one could not operate without the other. In this war we have a third factor, the tank. In the majority of fighting it requires the full cooperation of the tank, infantry and artillery to enable any advance to be made. There is the fourth, the air, which should be closely allied to the effort. The work team will never be complete until we have close support of the ground forces by air. However, we can and do have the infantry-artillery-tank team. Our own tanks have caught the Germans in the wadis and I have personally witnessed the effects of one of my own tanks which had caught about 200 Germans in a wadi and had massacred the entire lot. Artillery fire, if concentrated, helps stop the tanks but it is not final as our tankers go right through heavy hostile artillery fire with very little concern, but are concerned with mine fields and concealed antitank guns.

In effecting close support of infantry with tanks many problems arise some of which I will cover. In the first place I consider there are two types of actions, one in which the infantry supports the tank, and the other in which the tanks support the infantry. In the break-through, or where the situation is fluid and neither side has dug in, prepared mine fields, etc., the tank can lead the attack supported by the infantry. This situation presupposes terrain on which the tank can operate in hours of daylight. In the case the tanks led off and seize one terrain feature or objective after another, the infantry following behind and taking over the objective gained by the tanks thereby freeing them for further advance. At night the tanks retire behind the line of the infantry and prepare themselves for the next day's work. This is the type of action naturally that is liked in the tank division because in this way the tanker takes the brunt of the battle, which he should, and reduces the losses of the infantry by cleaning out machine gun nests and strong points and by mobility can push the battle fast. The closest coordination and cooperation by the artillery and tanks is required and the infantry must keep coming along and taking over the ground and the prisoners and do the detailed mopping up of the enemy in the houses and hidden places where the tanks cannot reach them. The other type of action is where the tanks support the infantry. In this type of action the tank is limited by terrain and defensive features to the roads. The advance of the tank must be preceded by mines being picked up in the mine fields through which the advance must pass, and generally in a situation such as we now have in Anzio or at Cassino where we are bucking through prepared defenses. Without tanks being with the infantry the hostile tank will establish himself in houses and on the other side of the obstacle and destroy our infantry as it advances. The number of friendly tanks that can be used, as likewise the hostile tanks, depends on the roads and therefore only a platoon can be at the spearhead of the advance. If there is a minefield the attack has to be made under cover of darkness so that the engineers can pick up the mines right behind the infantry and the tank must roll along quietly behind the engineers and always be between 200 to 1,000 yards behind the infantry and point of advance so that the tanks can cover the infantry with fire and bring direct fire on the hostile tanks. The tanks in my division have not normally been trained to work closely with the infantry as this kind of training was more or less piece de resistance of the GHQ tank battalions. However, we have quickly picked it up and are gratified that the infantry likes to have tanks of the armored division work with them.

There are two points of interest, one is the communication between the tank and infantry and the other is the point of command. I do not hesitate to attach a tank company or battalion to the infantry when the tanks are supporting the infantry. In this way the infantry can call for its tanks when it needs them and where it needs them. We do experience a little difficulty with the infantryman not knowing how to use the tanks properly but so far have been able to advise him and have had practically no trouble. It is highly important that there be good communication between the tanks and the infantry company commander. When we have

worked with infantry divisions I have always loaned them radio equipment to enable them to talk directly between the infantry companies and tank companies closely supporting them. As soon as the action changes and a break-through is made then I remove the tanks from under the command of the infantry and put them under their own commander to push forward and exploit the success, the infantry following along.

Over here we find the German utilizing to the full the stone houses which are so numerous in the countryside. When going down the road the German will have his tanks in the houses. Our tanks will come up behind the houses and the tanks fight from house to house with the infantry taking cover behind the houses and the folds in the ground in the rear of the tanks. Where there are no hostile tanks but the houses are held by hostile infantry our tanks deliver several rounds at close range in the house after which the infantry swarms in and mops up the remains. They then proceed together to the next house. We learned that there must be a rotation of tank platoons so as to continually keep one platoon up forward with the infantry. As the forward tank platoon runs out of ammunition a platoon from the tank company in the rear must come up and replace it without any loss of tank support. Failure to do this will leave the infantry alone without supporting tanks while the tanks are getting replenished with ammunition. During this period they can well be destroyed by hostile tanks coming down the road.

Artillery observers from my division ride in tanks and keep right up with the assault and are thereby able to bring close artillery fire support. We do not hesitate to bring our own artillery down as close as 50 to 60 yards in front of our tanks and very often have our own tanks hit by fragments from our own artillery. This causes no damage and the men do not mind it.

I hope to bring home the fact that the tank must be present with the infantry on ground suitable for tank maneuver, and that artillery fire is not sufficient to stop the hostile tanks.

There is one more element in the team, which is the tank destroyer. When the enemy has Tiger tanks, as he does in this theater, and the advance of tanks is canalized to roads, the Tiger tank has the advantage over the medium tank, owing to its heavier armor and heavier weapon. It therefore becomes necessary to accompany our tanks with platoons of TDs, the TDs taking cover behind houses and covering by fire the advance of our tanks and engaging the Tiger tank when he appears. Our M-4 tank can take care of the Tiger when we can deploy and bring our guns to bear on the side of the Tiger tank and we don't have to meet him head on. The 3" gun on the TD is the weapon that is required to handle the Tiger.

Previous to coming to Italy I felt there was quite a misconception as to the cooperation between tanks and infantry. I think the training of our GHQ tank battalions should be more aggressive.

The two great enemies of the tank are terrain and the anti-tank guns, and worst of the two is the anti-tank gun which has a tremendous advantage over the tank in that he can lie concealed and cannot be seen until the critical moment arrives for the kill. Our artillery must put out the anti-tank guns when it is possible to bring fire upon them, and in some cases our infantry may have to clean out the anti-tank gun on foot either by night action or by assault supported by artillery in the daytime before the tanks get through. Our tanks, however, must be aggressive and be required to lead the infantry as normal procedure, where the armor can take the punishment of the shell fire, the mortar fire, the machine pistol, the rifle, and the machine gun fire. This is not as easy as it may appear and I work continually on my platoon leaders of tanks to imbue in them the spirit that they must lead the infantry and take the brunt of the battle. I find that after they have been in a few fights they feel more like doing it because they realize the artillery fire has done them little damage, that the rest of the fire bounces off them and they have more confidence. We must never let our infantry be overrun by tanks. The Boche infantry are afraid of tanks; they cannot stand up under a tank attack either by a single tank or more. While we must work to get our tanks bold and have them bore in and keep boring in, we also must not allow infantry to sit back and watch the show. It is indeed a team proposition. Each one has got to pitch in and do his job and when they do there is established a most cordial and mutual respect for one another.

One more final parting shot, and that is we must get our officers and men to read the book. They seem to insist upon learning it the hard way. The training books are written as a result of battle experiences and are kept up to date by the hard labors of officers who are continually bringing battle experiences into print. However, the officers and men at the front seem to develop that "know it all" attitude and that the books are only written for the inexperienced in the rear. Many times they have explained to me a lesson which they have learned at the expense of a lot of our men when I was able to turn to a page in the book where they could have read and learned without the loss.

Editor: This letter emphasizes the importance of team interaction, particularly between tanks and infantry at the small unit level. The large amount of integrated effort required for tactical success mandates a sustained training effort preceding commitment to battle. The lack of such training acknowledged in this article proved a recurring theme throughout the war. The difference in capabilities between infantry and tanks is just as significant today as in 1944, requiring a similar integration of action to ensure maximum effectiveness in combat.

The letter author also notes the shock impact of armor and the importance of leveraging that impact to achieve objectives. There is also evident a desire for close air support that is not always available. This sentiment has a timeless quality, since a variety of conditions may keep aircraft from supporting the tactical ground unit commander immediately. Nevertheless, the ability to employ it effectively remains another dimension of training the combined arms team. The letter repeatedly refers to the tank destroyer, a system no longer in the Army inventory. However, the roles depicted could well be accomplished by an ATGM.

The final paragraph is another timeless example of the importance of knowing and understanding doctrine. Today as in 1944, doctrine derives from combat experiences and careful analysis intended in part to prevent trial and error tactics that result in unnecessary losses. Ignorance of doctrine and the related underlying principles places soldiers at risk in any operational environment. In the instance noted above, the lessons learned by combat soldiers had already been learned, analyzed, and codified for general use—they were simply ignored.

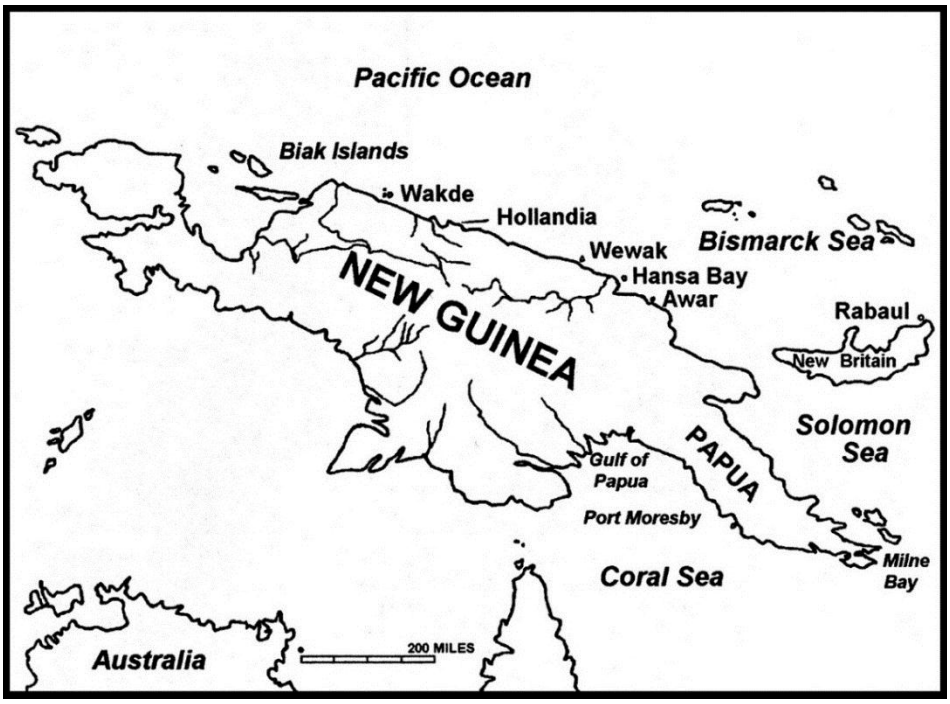
Tanks in the Jungle

Editor: The following extract was taken from an article appearing in the July-August 1997 issue of *Armor* magazine written by Kevin C. Holzimmer and entitled "In Close Country: World War II American Armor Tactics in the Jungles of the Southwest Pacific." It focused upon the small scale use of tanks to support infantry operations during an operation during the New Guinea campaign in the Pacific Theater of Operations.

Tactical Realities

Despite doctrinal preconceptions, American infantrymen quickly discovered the value of the tank in jungle operations. The utility of mechanized units became quite apparent when G.I.s faced the formidable defensive prowess of the Japanese. In many cases, the Japanese had up to two years to prepare for the expected American counteroffensives. Central to Japanese defensive tactics was the field fortification. According to the U.S. War Department's 1944 edition of its *Handbook on Japanese Military Forces*: "The Japanese defense of small islands is characterized by the extensive use of field fortifications. The bunkers and pillbox-emplaced machine guns are the backbone of defensive fire. These fortifications have been developed from small installations, composed of a single layer of palm logs and sand bags and large enough for only a few men, into massive structures 6 to 8 feet thick, housing more than a squad. Palm logs are giving way to reinforced concrete and completely enclosed steel structures." (1) Not only did these strongpoints protect the small islands of the central Pacific Ocean, they also became obstacles to American units operating throughout New Guinea and the Philippines.

Of the many individual battles between the armies of America and Japan, the Wakde-Sarmi campaign highlights the way in which tanks were utilized in the Southwest Pacific (SWPA). This battle was one of several that propelled American forces along the northern coast of New Guinea on their way to recapture the Philippine Islands. (*Map 1*) MacArthur's desire to return to the Philippine Islands dominated SWPA strategy. In order to fulfill his famous pledge, he planned to proceed along the northern coast of northeast and Dutch New Guinea, a route that would eventually lead to Leyte. MacArthur used American forces primarily to secure airfields, which in turn would provide air support for future American military operations. The Wakde-Sarmi area was one of many such ventures on the northern edge of New Guinea. This area refers to a region that is covered with dense jungle and low-lying swamps but yet contained three airfields, all within 15 miles of one another. (*Map 2*) Located near the New Guinea mainland, across from the village of Arare, is Wakde Island, which had one of the three airdromes in the area. Actually, Wakde refers to two islands: Insoemoar and Insoemanai. Insoemanai is the smaller of the two, measuring just 750 yards across, while the larger is approximately 1,500 yards across. The airstrip covered much of Insoemoar, which made it a natural target for MacArthur's push to the Philippines. The rest of the island was covered with coral sand, except in the western part where there are some small, rough, limestone hills. The island also contained an abandoned coconut plantation. In all, Insoemoar Island represented one type of "close country" for the American soldiers who fought there.(2)



Map 1

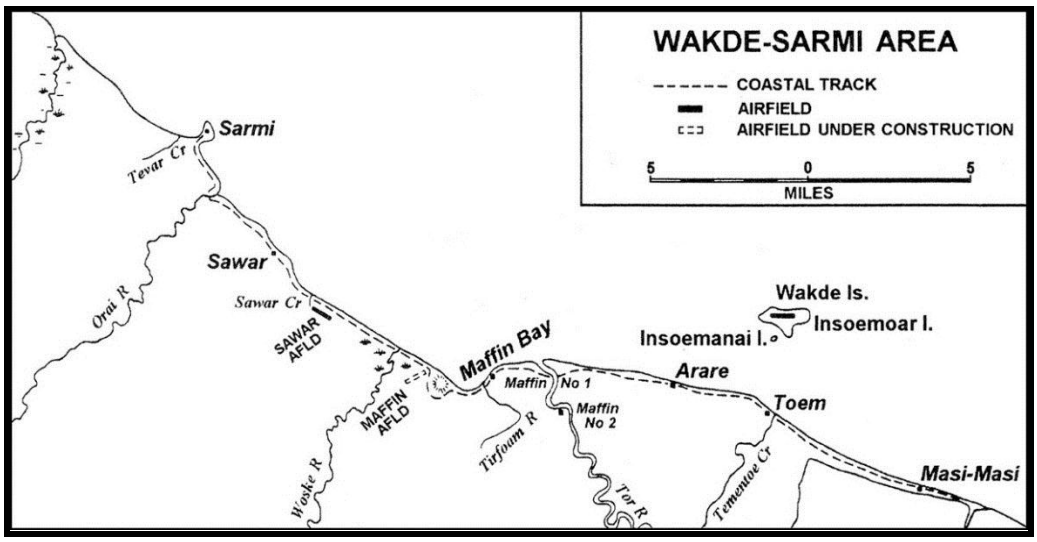
Leading MacArthur's drive was Lieutenant General Walter Krueger, commanding the Sixth United States Army.(3) Krueger planned to land the Wakde-Sarmi task force, codenamed Tornado Task Force (TTF), in the vicinity of Arare on 17 May 1944, with the 163d Regimental Combat Team (RCT) of the 41st Division. The 3d Battalion had the task of hitting the beaches first and quickly securing the western flank of the planned perimeter at the Tor River, while the 1st Battalion was to unload last and prepare for its assault on Wakde Island the next day.(4)

After a preinvasion bombardment, TTF landed unopposed and quickly organized defensive positions near Arare and on the Tor River. In addition to establishing the beachhead, Company E moved to Insoemanai. The small island was quickly secured with no Japanese resistance. H hour for the assault on Insoemoar was set for 0900 of 18 May. The invasion force consisted of Companies A, B, and C of the 1st Battalion and Company F of the 2d Battalion. These four rifle companies would benefit from the support of four M4 Sherman tanks of the 603d Tank Company.(5) The landing site was near a small jetty on the southern edge of the island, one of only a few suitable beaches on the whole island.(6)

Whereas the Japanese offered no resistance on the New Guinea mainland or on Insoemanai, they were not so passive on Insoemoar. On the larger island, they had prepared approximately a hundred bunkers, many of which were well camouflaged, while others were dug deep into the ground and presented low silhouettes. As the official historian of the New Guinea campaign states: "The majority of the many bunkers were mutually supporting, but, on the other hand, some had been built with no apparent relationship to others." In all, the defenses on Insoemoar presented a deadly challenge for the invading American force.(7)

Shortly after the landings began at 0845 on 18 May, the soldiers of the 1st Battalion discovered for themselves the tenacity of the Japanese defense. Enemy soldiers near the beach opened up with machine guns as the first waves approached the landing site, but all four companies reached the island by 0925. Two of the four Shermans were not so successful. One tank had electrical trouble and another fell into seven feet of water as it attempted to land. Nevertheless, Companies B and F quickly established positions by 0930.(8)

With the beachhead secured, Company A started in the direction of the airstrip. It soon faced a bunker 200 yards east of the landing site, which the Americans quickly destroyed with hand grenades at 0946. (*Map 3*) The company then pushed down the southeastern portion of Insoemoar, clearing it of enemy resistance an hour later.(9)



Map 2

Company "C", meanwhile, advanced straight ahead approximately 250 yards, at which point it ran into a carefully prepared Japanese defensive position. In addition to the various bunkers, the natural terrain contributed to the Japanese defense. Surrounding the pillboxes was the dense underbrush of a neglected coconut plantation. Facing such a dangerous situation, Company "C's" commanding officer, First Lieutenant Floyd R. Stanfield, called for tank support. The two M4s left the beachhead area and headed toward Company "C's" position, arriving by 1010. For the attack, Stanfield assigned one platoon to each tank, which moved abreast fifty yards apart. With their 75-mm main guns, the Shermans fired at each bunker from between twenty-five to two hundred yards away. One round was usually sufficient to deal with any Japanese strongpoint. Consequently, the tanks methodically and carefully destroyed all the enemy bunkers. For its part, the infantry protected the tanks from enemy raiders by following the tanks in a skirmish line and firing into likely enemy hideouts. This type of attack took place even though the unit received its only tank-infantry training the day before. Despite inexperience in these types of combined-arms tactics, the soldiers of Company "C" were able to progress to the southern edge of the airstrip by 1045.(10)

As the reinforced Company "C" pushed its offensive, Company F cleared a number of snipers from the coconut plantation buildings, which were located approximately 500 yards south of the airfield. At the same time, Company B moved out of the beachhead and reached the southern edge of the airstrip on Company F's immediate right. The two companies, however, did not advance for very long. Enemy resistance halted the troops of both B and F on the edge of the airstrip. With the southeastern tip of the island cleared, Company A and the two Shermans (operating with Company "C") were sent forward to support Company F. By 1110, the tanks were assisting Company F after first returning to the beachhead to replenish ammunition.(11)

After engaging enemy targets with Company F, the two tanks again ran dangerously low on ammunition and again had to return to the beachhead shortly after 1200. Meanwhile, Company "C's" forward progress ground to a snail's pace due to machine gun fire. Without tank support, it had not been able to push across the south side of the airstrip. Consequently, the M4s were ordered back to Company "C" as soon as they finished assisting Company F. Until the arrival of the tanks, Company "C" remained on the edge of the airfield. Approximately one-half hour after establishing their positions, Stanfield realized that the Japanese fire had died down. Shortly thereafter, he sent a patrol across the airstrip, and when it reported no opposition, he prepared the rest of the company to follow across the strip under cover of mortar fire. (12)

Company A, meanwhile, advanced along the northwest portion of the island. Its progress slowed, however, due to three Japanese bunkers on its right flank. The two tanks, once they received fresh stocks of ammunition, were ordered to assist Company A. As they proceeded to Company A's position, one of the tanks was disabled. The remaining tank, however, knocked out the enemy strongpoints by 1300. In the process, twenty Japanese defenders were killed. Even though the bunkers no longer presented an obstacle, enemy resistance had not been completely extinguished. In fact, small groups of Japanese soldiers hidden in

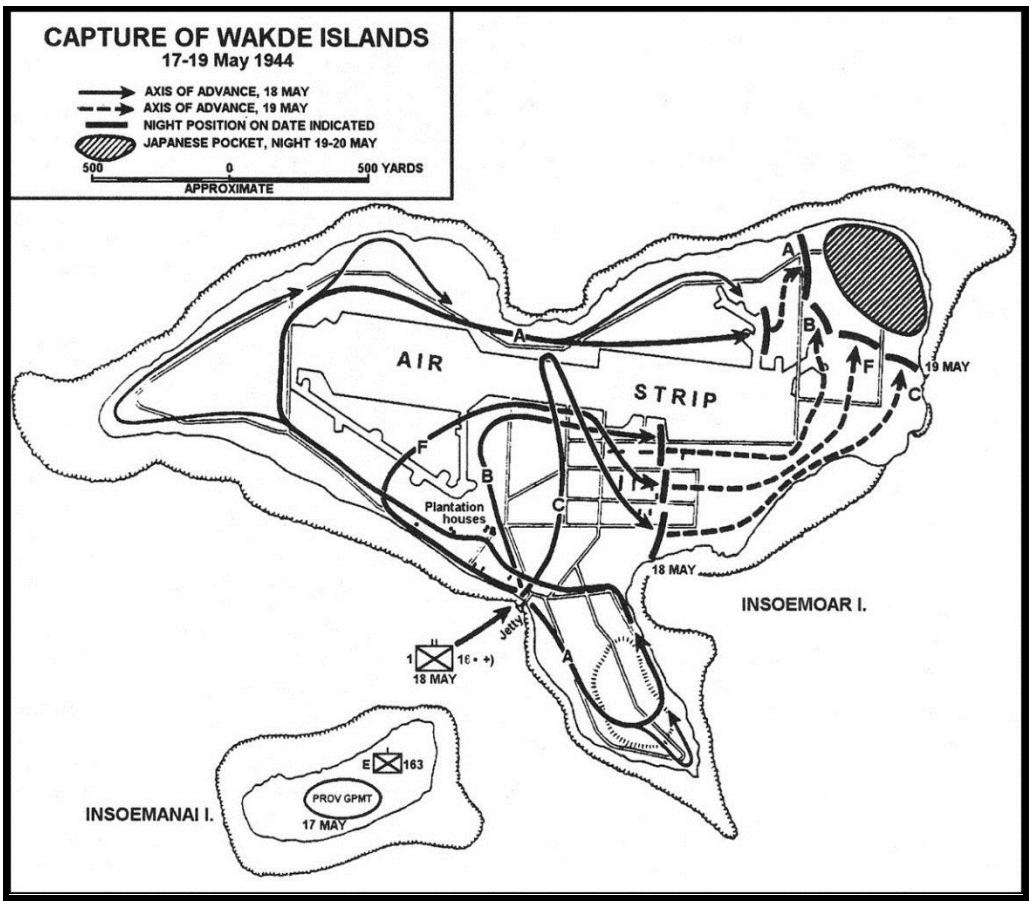
foxholes attacked the company and its tank with hand grenades and bayonets. To combat such Japanese tactics, Captain Richard J. Satran, commander of Company A, deployed a squad of infantry on each side of the tank. In this effective formation, the automatic riflemen could kill or disperse the enemy soldiers before they could damage the tank. (13)

By 1330, all of the companies of the 1st Battalion were on the move again. Company A had pushed its attack around the west end of the island. Meanwhile, Company "C" crossed the airstrip against little opposition, and Company F had advanced as far as the southern edge of the airstrip but was receiving sniper and machine gun fire. As a result of the Japanese resistance earlier in the day, and Company F's difficulties, the 1st Battalion commander, Major Leonard F. Wing, decided to reorganize his forces as well as devise a new plan of attack to finally secure the northeastern section of the island, where the bulk of enemy troops were now located. Actually, his plan was just a variation of the one his battalion had been employing. He wanted Company A to proceed on the northern edge of the island, while Companies B and C pushed to the northeast from their positions just to the south of the airstrip. Company F was to act as battalion reserve. In order to ensure the success of his new offensive, Wing requested two additional tanks from the mainland. The attack began at 1530 but ran into heavy Japanese opposition. By 1630, the tank commander notified Wing that his tanks had exhausted their ammunition supply and would need to return to the beachhead for fresh supplies. With night approaching, his tanks out of ammunition, and no sign that the Japanese were weakening, Wing decided to dig in for the night at approximately 1720. Companies A, B, F, and C, therefore, formed a line and consolidated their positions to seal off the northeast area of the island. (14)

During the night, regimental headquarters conceived a plan to finally defeat the Japanese and allow American engineers to complete their work on the airstrip. At 0640 of 19 May 1944, Lieutenant Colonel Walter R. Rankin, the executive officer of the 163d Infantry, radioed Wing and ordered that Company "C", with the three tanks, would spearhead the new offensive by pushing east, north, and then along the southeastern shore into Japanese lines. Company A was ordered to hold its position, while Companies F and B were to support Company "C" in rolling up the Japanese's left flank. (15)

Once the three tanks reached Company "C" at 0915, the attack was ready to proceed, but not before a pocket of Japanese soldiers behind American lines destroyed four 6x6s, two trailers, and two ¼-ton trucks, all belonging to American engineers. The offensive finally got under way by 0945 with the tanks in the lead. However, like the previous day's offensives, it came under heavy defensive fire from enemy soldiers who used fallen coconut trees, bunkers, bomb craters, coral caves, heavy brush, and demolished buildings as cover. The tanks quickly fired at each enemy position, while American infantrymen, in turn, fired on fleeing enemy soldiers. Despite such formidable resistance, Company "C" reported at 1045 that its soldiers were neutralizing the enemy positions and slowly advancing due to the coordinated tank-infantry attack. (16)

At the same time, Company B moved forward and also confronted strong Japanese resistance. Consequently, two tanks were transferred from Company "C" to Company B. Using similar tactics to those of Company "C", the commander of Company B assigned one rifle platoon to each tank while the third platoon was held in reserve. The M4s drove through the brush, firing their machine guns at any possible location that could provide cover for Japanese soldiers, while the riflemen provided close-in support for the tanks. Even with these successful tactics, the Americans faced slow going before finally reaching their objective at 1400. Company F also pushed forward with one tank under heavy opposition but maintained its pace with Companies B and C.



Map 3

Wing ordered Company A to move forward until it was on Company B's left flank. With all four companies advancing, the last of the organized Japanese defenses in the northeastern quadrant of Insoemoar was broken in the early evening hours. Throughout the morning of the 20th, Wing's men cleared the northeast section of the island of the remaining scattered pockets of Japanese resistance and then moved to the mainland in the afternoon. Engineering units, who started working on the western section of the airfield on the 19th, were able to begin repairs on the whole airstrip on the 20th. Eventually, the airdrome on Insoemoar provided a base for which Allied Air Forces could support MacArthur's drive toward the Philippines.(17)

Lessons Learned

While prewar planning foresaw no important role for armor in the jungles of SWPA or any other Pacific Theater, American soldiers discovered the necessity of tank support for their numerous offensives against the skillful defensive tactics of the Japanese Army even before the Wakde-Sarmi campaign. Captain Richard J. Satran, commander of Company A wrote: "The success of the recent operations on Wakde… has opened up a new and unexplored field for tank warfare in the Southwest Pacific Area." What the men of the 163d realized was that armor relieved riflemen of the dangerous task of closing with Japanese defenses and destroying them with such weapons as hand grenades. Consequently, tanks provided attacks with both speed and momentum. Without armored support, infantry attacks often became bogged down or stopped altogether. In the case of the battle for Insoemoar, the two tanks were simply not sufficient during the first day of fighting. "The tanks broke the stalemate on the beach," the historian of the 41st Infantry Division, William F. McCartney, writes, "but it was impossible to keep the entire line moving with only two of them." (18) Through such campaigns, American units developed their own tank tactics. Over time, the Americans formulated certain key principles of armored warfare in a jungle environment.

First, tanks were used, one veteran observed, primarily against "definitely located centers of resistance holding up the infantry advance." As in the Wakde-Sarmi operation, tanks were utilized to reduce not only

carefully planned Japanese strongpoints such as bunkers and pillboxes, but makeshift centers of resistance such as foxholes as well.(19)

Second, American officers found it absolutely necessary to thoroughly familiarize not only themselves but also their units with the terrain and the mission objectives. Due to the nature of the jungle environment, armored and infantry units could easily become disoriented and lost. Consequently, as one wartime report stated: "Early reconnaissance by infantry, tank, artillery, engineer, and communication officers is essential." (20)

Lastly, and perhaps most importantly, commanders quickly discovered that tanks could not close with their targets unassisted. The Japanese would easily knock out tanks that were not escorted by infantry. Each Japanese rifle company trained certain individuals as tank-killers, all of whom were armed with tank mines and smoke hand grenades. These tank-fighters were instructed to attack an American tank via the tank weapon's dead spaces. Once they had closed with the tank, these specially trained Japanese soldiers would then employ a variety of techniques to knock out the vehicle. They would often use antitank mines, damage the tank's main gun, or damage the rotating mechanism. (21)

Commanders had to rely on a combined-arms team — including artillery, engineers, air support, and, most importantly, tanks and infantry — to overcome such determined antitank resistance. According to the U.S. War Department: "Close cooperation and coordination with the infantry was essential for success. It was found best to assign a certain number of infantrymen to furnish close support for each tank closely to exploit their success." Throughout the Wakde-Sarmi campaign, infantry were vital in preventing Japanese soldiers from getting close to the M4s. When fighting the Japanese in the mountainous terrain of northern Luzon, Captain Peter Marusek of the 775th Tank Battalion, observed that: "A thorough understanding between tank and infantry units is a prime necessity. Every possible effort should be made for coordinated teamwork between the two arms." (22)

Teamwork involved numerous elements. In addition to providing local security, infantry also designated targets for the tanks. Due to the thick vegetation and undergrowth of a jungle environment, as well as enemy camouflage, tanks could rarely identify and locate enemy positions. Infantry squad leaders, therefore, experimented with a number of different methods to signify targets. Often times, they would use tracer fire or smoke grenades for close targets and rifle grenades for ones farther away. (23)

Despite the need for close cooperation between tanks and infantry, a constant problem had always been communication. EE8A telephone units were utilized to maintain a constant flow of information between infantry to tank. "For communication between tanks and infantry a reel of field wire was enclosed in a box and mounted on the rear of the tank," an officer reported. "A field phone was attached to one end of the wire and installed in the tank while the other end of the wire dragged free behind the tank. Each infantry squad carried an EE-8 field phone to hook on the wire. A switch and a light operated by the ringer circuit were installed in the tank. This system worked, though a number of reel boxes were damaged and infantrymen sometimes had to expose themselves to connect their phones." (24)

Quickly, the Army leadership changed its doctrine to fit the realities of armored combat in a jungle environment. Although some officers clung to their prewar beliefs, most confessed that tanks did indeed have a role to play in the war against Japan.(25) Tanks provided much-needed firepower against Japanese fixed positions throughout the SWPA, from Buna to Luzon, and most official wartime statements reflected this attitude. Nevertheless, there was no standard tactical principle that governed every situation. Rather, commanders formulated tactics to suit particular situations or ones that they found particularly successful over time. This was certainly the case during the Wakde-Sarmi battle. Lieutenant Stanfield of Company "C", for instance, deployed one platoon behind each tank in a skirmish line, while Captain Satran placed one squad on each side of his tanks. According to a report of the 13th Armored Group, which operated on Luzon, "Tactics and size of force used varies with almost every situation." The transcendent principle was flexibility, not a rigid prefabricated doctrine. (26)

Editor: This article outlines the effective use of tank-infantry teams at the small unit level. In this operation, little more than a platoon of tanks was generally available. However, their ability to maneuver and apply firepower against point targets in jungle terrain allowed the American forces to systematically eliminate opposition. Moreover, when tanks were present they enabled infantry to regain their momentum even against a determined enemy. The infantry, in turn, provided close security against Japanese efforts to mount determined if not suicidal attacks upon the tanks. This close interaction between infantry and tanks proved critical to the success of this operation and showcased the importance of integrated action. Even in jungle terrain against a determined and adaptive enemy, the tank-infantry team proved highly effective. Indeed, the principal infantry complaint lay in the small numbers of tanks available for this operation. The application of armored firepower bore a direct relation to operational tempo.

Notes

1) U.S. War Department, *Handbook on Japanese Military Forces* (Washington, D.C.: U.S. Government Printing Office, 1944; reprint, Baton Rouge and London: Louisiana State University Press, 1991), 136.

2) "Report on the Wakde-Biak Operation, 17 May 1944 to 2 September 1944," 6, 6th Army 106-0.3, Record Group (RG) 407, Box 2399, National Archives and Records Administration (NARA), College Park, Maryland. For an excellent account of the different varieties of jungle terrain, see Eric Bergerud, *Touched with Fire: The Land War in the South Pacific* (New York: Viking, 1996), 55-89.

3) Actually, MacArthur designated the Sixth Army, Alamo Force to keep it independent of Australian control.

4) For the larger dimensions of the this campaign, see Kevin C. Holzimmer, "Walter Krueger, Douglas MacArthur, and the Pacific War: The Wakde-Sarmi Campaign as a Case Study," *Journal of Military History*, 59:4 (October 1995): 661-685, and Robert Ross Smith, *United States Army in World War II: The War in the Pacific: The Approach to the Philippines* (Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1953).

5) American forces started the war against Japan with the M3 Stuart light tank. However, as early as the Guadalcanal campaign, Army leaders realized that the M3 was inadequate. M4 Sherman tanks were first used with the United States Marine Corps at Tarawa in November 1943. After the battle, Major General Holland M. Smith recommended that M4s replace all light tanks in future operations due to the superiority of its 75-mm main gun over the M3's 37-mm gun. See John Miller, Jr., United States Army in *World War II: The War in the Pacific: Guadalcanal: The First Offensive* (Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1949), 308-309; and R.P. Hunnicutt, *Sherman: A History of the American Medium Tank* (Novato, Calif.: Presidio Press, 1978), 187-188.

6) Smith, *Approach to the Philippines*, 222.

7) Ibid., 223.

8) 163d Infantry Regiment, "Journal: Toem-Wakde Operation," 341-INF(163)-0.3, RG 407, Box 10634, NARA (hereafter cited as "163d Journal;" Smith, *Approach to the Philippines*, 225-226.

9) "163d Journal;" 1st Battalion, 163d Infantry Regiment, "S-1 Journal: Summary of Wakde and Toem," 2, 341-INF7(163)-0.3, RG 407, Box 10634, NARA (hereafter cited as "1st Battalion Journal").

10) "1st Battalion Journal," 2-3; Company "C", 1st Battalion, 163d Infantry Regiment, "Infantry-Tank Assault Teams," 31 July 1944, 341-INF(163)-0.3, RG 407, Box 10634, NARA; Smith, *Approach to the Philippines*, 224-226.

11) "1st Battalion Journal," 3; "163d Journal;" Smith, *Approach to the Philippines*, 226. 12) "163d Journal."

13) "163d Journal;" "1st Battalion Journal," 3; Company A, 1st Battalion, 163d Infantry Regiment, "Infantry & Tank Coordination in the Attack," 12 August 1944, 341-INF 7(163)-0.3, RG 407, Box 10634, NARA (hereafter cited as "Company A Report); Smith, *Approach to the Philippines*, 227.

14) Smith, *Approach to the Philippines*, 227; "163d Journal;" William F. McCartney, *The Jungleers: A History of the 41st Infantry Division* (Washington, D.C.: Infantry Journal Press, 1948; reprint, Nashville, Tennessee: The Battery Press, Inc., 1988), 98.

15) "163d Journal;" "1st Battalion Journal," 4; Smith, *Approach to the Philippines*, 228.

16) "163d Journal;" "1st Battalion Journal," 4; Smith, *Approach to the Philippines*, 230.

17) "163d Journal;" "1st Battalion Journal," 4-6; Smith, *Approach to the Philippines*, 230.

18) McCartney, *The Jungleers*, 97-98; "Company A Report."

19) Byron L. Paige, "Campaigning in the Jungle," *Military Review*, 24:1 (April 1944): 33; see also Wilbur C. Strand, "The Infantry-Tank Team in Jungle Operations," *Cavalry Journal*, 55:2 (March-April 1946): 2.

20) U.S. Army Headquarters, European Theater of Operations (ETO), Battle Experiences against the Japanese, 1945, United States Army Military History Institute Library (USAMHIL), 62.

21) U.S. War Department, *Handbook on Japanese Military Forces*, 117. A good example of a tank attack that had no infantry support was the 172d Infantry Regiment's attack on the Munda airfield on New Georgia from 16-24 July 1943. Initially, U.S. Army infantrymen were assigned to protect U.S. Marine M3 light tanks. Neither the tankers nor the infantrymen, however, had any experience working with one another, and ultimately, the tanks, attacking on 17 July, faced Japanese defenses alone. Two of three tanks were permanently disabled by Japanese soldiers, who possessed no antitank weapons but instead used mines, flame throwers, Molotov cocktails, and TNT. See John Miller, Jr., *United States Army in World War II: The War in the Pacific: CARTWHEEL: The Reduction of Rabaul* (Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1959), 132-134.

22) U.S. War Department, *Combat Lessons: Rank and File in Combat, What They're Doing, How They Do It*, 9 Vols. (Washington, D.C.: Operations Division, Combat Analysis Section, 1944-1945), vol. 2, 61; Peter Marusek, "Tanks and Infantry in Northern Luzon," *Armored Cavalry Journal*, 55:4 (July-August 1946): 18. Lieutenant Colonel Wilbur Strand, in a postwar article, testified to the importance of a well-balanced offensive formation. He dealt with, for instance, the importance of supporting artillery and engineer units to the infantry-tank team. Strand, "Infantry-Tank Team," 2-4; see also U.S. Army Ground Forces Observer Board, Pacific Ocean Area, Reports of Observer Boards, Pacific Ocean Areas, 11 vols., USAMHIL, vol. 10, Report D-74, "Questionnaire for Armored (Tank) Units," 43.

23) Strand, "Infantry-Tank Team," 3.

24) U.S. Army Headquarters, ETO, Battle Experiences against the Japanese, 62; for the various techniques employed by other units under different circumstances in the SWPA, see Strand, "Infantry-Tank Team," 3; Marusek, "Tanks and Infantry," 19; U.S. Army Ground Forces Observer Board, Reports, vol. 7, Report B-203, "Standard Operating Procedures on Tank-Infantry Cooperation," 4 February 1945, 4-5.

25) For an example of those officers who did not yet learn the value of tank operations in a jungle environment, see Jack W. Rudolph, "It's All In the Books," *Military Review*, 23:2 (May 1943): 8-12.

26) See for example U.S. War Department, *FM 17-32: Tank Company* (Washington, D.C.: U.S. Government Printing Office, 1944) 152-157; U.S. War Department, *FM 17-36: Supplement No. 1: Employment of Tanks with Infantry: Illustrated Problems* (Washington, D.C.: U.S. Government Printing Office, 1944), 37-41; U.S. Army Ground Forces Observer Board, Reports, Vol. 10, Report D-74, "Questionnaire for Armored (Tank) Units," 40.

Armored Operation on Iwo Jima

Editor: The following report by an observer assigned to the U.S. Army Forces, Pacific Ocean Areas (USAFPOA), addresses the operation of tanks with the 4th U.S. Marine Corps Division during the initial landings on Iwo Jima and subsequent combat operations. The report addresses the operation of tanks and infantry at the platoon level in complex terrain against a determined enemy utilizing camouflage, fortifications, terrain, and subterranean complexes to offset American superiority in air, ground, and naval firepower.

16 March 1945

TO: COMMANDING GENERAL, U.S.A.F.P.O.A.

SUBJECT: Observer's Report.

1. This report is submitted in compliance with Cir #51, Hq. USAFPOA, dated 16 Oct. 1944, Letter of Instructions (Observer) Hq. USAFPOA, dated 4 Dec. 1944 and Letter of Instructions Hq. 4th Armd. Group, dated 6 Dec. 1944.

2. Subject: Armored Operation on Iwo Jima.

3. Purpose: Dissemination of information about Armored Problems to interested parties.

4. Plan: This report is about a specialized field and it covers definite subjects assigned. Therefore no attempt is made for a narrative form or sequence of events. Each specific subject is treated individually although conclusions and recommendations, where warranted, will be covered for all subjects in a single paragraph. Personal observation on the ground is the basis for all entries in this report with the exceptions of the assault of the beach. The observation took place in the zone of action of the 4th Marine Division between 21 Jan. 1945 and 12 Mar. 1945.

5. Body of Report.

A. Tactical use of armored units:

1. Tank Companies were assigned to Regimental Landing Teams for the assault of the beach and landed at the direction of R.L.T. Commander, (Inf.) from the seventh wave (H+60). These companies formed their own reconnaissance units, (2 non-com. off.) which went in with the 3rd wave to report on the conditions of the beach, mine fields, and assembly areas for the tanks. In at least one company effort was made for the LVT(A)'s in the first wave to report on beach conditions, but communications broke down. Company Commanders of the Assault Tank Companies ("A" and "C" Companies, 4th Tank Bn.) agreed that the reconnaissance units had not been able to perform their missions before the tanks were ordered in to the beach. The result was confusion and needless loss of tanks at the water's edge. One Company (Co. "C" 4th Tank Bn.) beached in four different places before it could land.

2. Tank action on this island might be termed "Platoon Action" as a platoon was the largest unit used except for operation on the airfields where whole companies were employed at times. This was necessitated by the character of the terrain and the fact that only about half the tanks of any company were operational at any one time after D day.

3. On D+5, an armored push by all tanks available in the three Tank Battalions was supposed to sweep Airfield #2 and the ground adjacent to it. The result was that all tanks were canalized onto the airfield by the terrain and they got there by a single cut made by a tank-dozer. However the tanks dominated this airfield and by knocking out its surrounding pillboxes, allowed the infantry to take possession of it.

4. A certain neglect of basic tactics was noted from time to time. An example of this is that on several occasions a whole platoon (3 tanks) would push into an operation suspected of being covered by anti-tank fire without leaving any tank in defilade to cover it. The result was sometimes fatal and the only reason it was not more so is the fact that the Japanese did not use an anti-tank gun strong enough to penetrate the front slope plate of a medium tank.

5. The use of smoke as an offensive weapon to screen the movement of tanks and infantry was particularly neglected. Not a single example of this means of protection while closing with the enemy was noted.

6. On several occasions Infantry Commanders objected to the tanks firing over the heads of infantry, although the tanks were firing on the very weapons holding up the advance. The effect was that the infantry indirectly protected the enemy anti-tank and machine guns from the tanks.

7. The tanks seemed to draw mortar fire and the Infantry Leaders, particularly Company Commanders, disliked having the tanks around. A conflict of orders would occur where an Infantry Battalion Commander would order the tanks supporting his unit into action at a certain point and the Infantry Company Commander on the ground would order the tanks away.

8. Target designation by infantry units who have been fighting previously in an area of a tank attack was not good. Since a tank is practically deaf and has poor vision, it must depend on the units it supports to point out targets. Far too much time was wasted by tanks standing idly in the front lines looking for targets at which to fire.

9. Mine reconnaissance and removal is very difficult and at times impossible for a tank crew, therefore they must rely upon those on the ground for this service. There were far too few Engineers available for this work and even those had too many tasks.

10. Much of the success of tank operation on this island was due to the spirit of the individual tank commanders and their will to take more than a normal risk to aid those they were supporting. There was much discussion as to whether or not a certain area was tank terrain. The attitude of most of the tankers was that if they could get their tank in it and fire on the enemy, then it was tank terrain for them.

11. In close country the tanks did not rely upon the infantry to protect them but covered each other from a column formation. This action was quite successful.

12. Infantry Unit Commanders did not use tanks for personal reconnaissance although this use was offered to some.

13. The tank-dozer was used to push trails through mine fields in sand and around mine fields bordered by thick vegetation. This action was very successful and greatly facilitated the passing of such barriers.

14. Anti-Tank measures used by the enemy are listed in order of their importance: Mines, Anti-Tank Guns, Anti-Tank Trenches, Hand placed charges.

15. The enemy practice of tying aerial bombs to a yard stick mines is an expensive method of mining. Their policy is to completely demolish the tank with the mine as distinguished from the German policy of merely stopping the tank with the mine and destroying it by gun fire.

16. Japanese mining was erratic. In one case the mines were marked with stakes. In another case a complete field beside a road was mined while the road was left untouched. Tanks on the beach were able to pick their way through fields because the mines were spaced too far apart.

B. Communications:

1. Radio was the standard means of communication by tanks in the field. Each company and platoon command tank was equipped with a SCR 508 and all tanks had SCR 528 's. Each Platoon Command Tank was equipped with a SCR 300 and all tanks had a telephone installed on the rear of the tank which was cut in to the inter phone system of the tank. Liaison parties at Infantry Regiments and Battalions had SCR 509's.

2. Contact with the Infantry on the ground was established by placing the SCR 300's in the Infantry Battalion Command Net. This kept the tanks informed at all times of all the companies in that Battalion. At times it was necessary to relay messages from one Company to another but the system proved reliable. One objection to this system is that the Infantry Battalion Command Net is "hot" and urgent messages are frequently delayed.

3. The telephone installed on the rear of the tanks worked very well. Although it was of great value, it was not used more because of the tendency of the tanks to operate independent of the Infantry which could not follow the tanks in certain areas. No means of visual signals, such as hand signals, flag signals or audible signals, such as tapping on tank with rifle butt, racing tank motor were noted.

C. Liaison Teams.

1. The Tank Battalion sent liaison teams to Division (1 officer 3 E.M.) The Tank Companies sent liaison teams to Infantry Regiments and Infantry Battalion (1 Officer 2 E.M. Each team was equipped with an SCR 509 radio.

2. These teams acted as special staff sections for the Headquarters to which they were attached and acted as intermediaries between Infantry and Tank Unit Commanders.

3. Infantry Unit Commanders did not use liaison radio personally but sent all messages through tank liaison officer.

4. Tank Platoon Commanders frequently left their vehicles to talk to Infantry Company Commanders. In every case where this was done, a better coordination resulted.

D. Supply.

1. The problem of supply was minimized by the fact that the Tank Company Bivouacs were moved only once during the operation and then only for a few hundred yards.

2. By nightfall on D day 60% of the tanks operating were without fuel or ammunition. This deficiency was caused by the heavy fire falling on the beaches and it was remedied by salvaging from disabled tanks. After D+1 there was plenty of supply of all types.

3. All tank unit equipment was preloaded in vehicles thus minimizing the transportation problem.

4. Tank companies were resupplied by Regt. Q.M. until D+7 when Tank Battalion supply officer started battalion dump.

5. LVT's performed a quick and efficient delivery of supplies from ship to company area and the "weasel" was outstanding in getting supplies across sand areas. *[**Note:** The weasel was a small, tracked amphibious vehicle used to move men and supplies from ship to shore.]*

E. Ammunition.

1. Shell H.E. with an M48 fuse was the most used and best liked on the operation. All officers and tank crews that were asked complained about the lack of high explosive ammunition.

2. The T105 fuse gave good results against concrete and seemed to give better performance than the APC [armor piercing capped] ammunition. The only appreciable need for APC was overhead fire in wooded areas. No steel embrasure shutters were found.

3. The only use of smoke noted was for protection of a crew while abandoning a disabled tank.

4. There were plenty of targets for canister but none was available.

5. All tanks were equipped with an extra ammunition rack on the floor of the turret and between the assistant gunner's knees. This allowed a 25% increase in the load.

F. Flame Thrower, C.B, M-1.

1. This weapon gave excellent results when it worked and could reach the target. In rubble brush and defiladed positions it caused casualties where no other weapon could reach the target. A typical example of its work was on airfield #1 where it flushed a group of snipers from a pile of wrecked airplanes. When the flame was played on the pile, the snipers rushed into the open and were killed by machine gun fire.

2. A combination of mechanical trouble and poor fuel reduced the efficiency of these weapons approximately 75%. The average length of flame produced was about thirty five yards while the potential range of the same gun is over 100 yards farther than this.

3. Of the attempts to use this weapon observed, it failed to function at all 25% of the time.

4. This weapon had never been tested in the field under operational conditions prior its use in combat. The parts were made of salvage material and differ in size from one weapon to another. The construction of these weapons was under very hasty conditions and time did not permit requisitioning ideal materials from the mainland.

5. On one occasion the three-way valve blew out and the crew was very nearly suffocated by CO2. The vehicle was surrounded on three sides by cliffs infested with snipers at that time.

6. Unfavorable winds (completely) rendered the weapon useless on several occasions.

G. Tracks.

1. Track trouble was the most frequent reason for vehicle casualties. In the first half of the operation when the tanks were operating in deep sand and even trails were scarce, it is estimated that at least 50% of the track disabilities were caused by snapping. This condition was prevalent in all companies.

2. The extended end-connectors used on the tracks were of great value and allowed the tanks to traverse otherwise impossible terrain. It did not produce ill effects on the bogie wheels in this operation.

6. Conclusions.

A. LVT(A)'s in the first wave of a landing assault can give much valuable information about the beach conditions to tank units following.

B. Conditions of beach, mine fields passage and assembly areas must be known before tanks are landed.

C. Basic tactics must continue to be a training [focus] for veteran troops.

D. All tank and infantry troops and their possible replacement personnel should be trained in the use of smoke.

E. Target designation to tanks by infantry is a vital problem and should receive prompt attention.

F. Mine reconnaissance and removal is an infantry function as the engineers have too many other tasks.

G. Infantry Unit Commanders should use tanks for personal reconnaissance of ground over which they intend to operate.

H. The tank-dozer is too valuable to be used for firing purposes except when no other tanks are available.

I. SCR 300 is the most appropriate means of contact with Infantry.

J. All units should have means of communication other than radio.

K. Infantry Commanders should use the radio themselves when giving important orders to Tanks. This will eliminate possible misinterpretation by liaison personnel.

L. LVT and "Weasel" are essential to supply in sandy areas such as this island.

M. There is insufficient HE in our present unit of fire.

N. T105 fuse will greatly reduce the need of APC.

O. The performance of the C.B. M-1 Flame Thrower was greatly hampered by the following factors:

1. Lack of maintenance and operational schooling of operating personnel.

2. Lack of tools and spare parts.

3. Poor fuel mixture.

4. The present construction of the weapon will not withstand the pounding of a tank operating in the field.

P. The steel track has a very high disability rate in coarse sand. (It is believed that the rubber track will give better performance under such conditions) The packing of the sand behind the rear idler is believed to be the cause.

Q. The extended end-connector was a valuable asset in sand but it is a substitute remedy for a bad condition.

7. Recommendation.

A. The weasel should be included in the Tank Bn. T.O.

B. All Infantry units should be schooled in mine reconnaissance and removal. They should substitute for Engineers in the field.

C. Tank units should send dismounted reconnaissance units with the infantry when operating closely with that arm. Such personnel should be equipped with SCR 509 radio and have the primary function of location and designation of tank targets and obstacles.

D. The unit of fire for a Tank Bn. should contain at least 65% H.E.

E. Every tank company should have at least two tank-dozers and two large flame throwers.

F. The C.B. M-1 Flame Thrower should be thoroughly field tested before it is sent into combat.

G. The inter phone system of a tank should have a warning instrument with which other members of the crew can get the attention of the Tank Commander.

[signature]
SAMUEL D. LITTLEPAGE
Major Inf (Armd)

Editor: This report underscores the importance of effective reconnaissance to the operation of tanks, particularly in forcible entry operations. In this case, the absence of such reconnaissance resulted in confusion and loss before the tanks left the landing area. Once the tanks arrived on the island, their effectiveness was undermined by the lack of tank-infantry integration and coordination of effort. This became evident by tanks providing their own force protection measures in close, complex terrain, which should have been the role of the infantry. Similarly, without effective target designation, the tanks either remained idle or engaged suspected targets. Infantry with a clear view of the target should as a matter of routine have shared this information with the tanks, particularly since efforts had been made to enable direct communication, including field phones on the rear of the tanks. The tendency of tanks to draw fire led some infantry commanders to direct the armor support away from their position rather than provide or accept clear recommendations for their effective employment. Consequently, the maximum effectiveness of the tanks could not be realized. This failure is particularly significant given the willingness of the tank crews to seek and engage targets on their own without infantry support. The report notes, however, the better results achieved when tank commanders and their infantry counterparts talked and worked together. With respect to the tanks, the ammunition load needed to be oriented upon likely target types and the operational environment—hence the emphasis upon more high explosive rounds. The C.B. M-1 Flamethrower refers to a turret mounted flamethrower carried on several tanks on Iwo Jima. This configuration was an ad hoc measure, using a modified naval flamethrower. The report is critical of this device, but despite its flaws, it proved destructive to the enemy and boosted the morale of friendly forces.

Stability and Security in Occupied Germany

Editor: This chapter addresses the organization and operation of the US Army Constabulary in postwar Germany. It illustrates the application of light armor to conduct stability and support operations and the use of mobile, dispersed operations in lieu of a much larger static garrison force. In this instance, the nature, composition, and doctrine of the US Army Constabulary was crafted to fit the operational environment and related threat.



US Constabularies with M8 armored car with the Constabulary insignia.
(U.S. Army Armor School)

US Army Constabulary

Editor: In the aftermath of World War II, the U.S. Army became responsible for stability and support operations in Occupied Germany. The following extract from Kendall D. Gott's *Mobility, Vigilance, and Justice: The US Army Constabulary in Germany, 1946-1953* (Fort Leavenworth, Kansas: Combat Studies Institute Press, 2005) highlights the organization, training, and operation of a special light armor force designed specifically for this role. It shows how capabilities associated with Armor, particularly the ability to execute mobile, dispersed operations, apply to operational environments other than high intensity conventional combat. Moreover, the US Constabulary bore Armor's imprint. Most of the Constabulary commanders were Armor officers; the Constabulary School was modeled upon the Armored Force School at Fort Knox, Kentucky; the unit insignia reflected the colors and lightning bolt of the Armored Force; and many of the original Constabulary units were organized from armored and mechanized cavalry organizations with distinguished combat records.

Organization of the US Constabulary

The American ground forces that first entered Germany as part of combat operations in 1944 numbered some 60 divisions. In May 1945 these were organized under two army groups, five army headquarters, and 15 corps headquarters. The first response to occupation duties was to spread the battalions across the zone of occupation to prevent total chaos. These efforts were generally successful primarily due to the sheer size of the American presence. However, the luxury of such manpower levels quickly ended as a rapid redeployment and demobilization occurred. By July 1945, 11 divisions redeployed to the continental United States to prepare for the invasion of Japan or to serve as a strategic reserve. In fact, most of the American forces in Europe were earmarked for rapid redeployment out of the theater. However, one unit was specifically designated to remain in Germany to become the premier occupation force.

Shortly before the German surrender, the battle-hardened 4th Armored Division was notified that it would become the permanent occupation division. During summer 1945 the division headquarters coordinated efforts to reestablish the borders, establish law and order, and generally assisted German communities in recovering from the war. Meanwhile, corps- and army-level staffs focused on redeployment issues. In the months that followed, the officers and soldiers of the 4th Armored Division completely shifted their efforts and focus from warfighting to occupation duties. Few of the officers and men could envision the changes that awaited their organization, but their efforts at developing and training a force to spearhead the occupation of German were key elements to the success of ECLIPSE. (1)

> ***Note:*** *Operation ECLIPSE was one of several plans developed before the end of World War II for the postwar occupation administration of liberated countries. ECLIPSE evolved into the plan implemented in the American occupation zone after Germany's surrender.*

In October 1945 Eisenhower announced the formation of a special constabulary of 38,000 men to control the US Zone of Occupation. It was envisioned as an elite force, composed of the highest caliber personnel obtainable under the voluntary reenlistment program, equipped with an efficient communications network and sufficient vehicles and liaison airplanes to make it highly mobile. This new organization was initially known by a series of names such as "State Police," "State Constabulary," and "Zone Constabulary." The name that finally emerged was the United States Constabulary. The mission of the US Constabulary was to maintain general military and civil security, assist in accomplishing the American government's objectives, and to control the borders of the US Zone of Occupation. Cooperating with the growing German police forces, the Constabulary would constantly hunt for black marketers and former Nazi leaders and conduct general law enforcement and traffic control. All of its members would require training in urban, rural, and border security operations. In addition to the 4th Armored Division, the remaining seven cavalry groups in Europe were earmarked for absorption into the US Constabulary by Eisenhower's announcement. These groups were equipped with large numbers of light tanks, trucks, and jeeps and had been used in the war for reconnaissance. Their high mobility and firepower seemed ideal for the postwar occupation. (2)

Operating by a system of roving patrols, the US Constabulary was to provide the zone of occupation's general security and would assist in enforcing the edicts of the military government on the civil population.

Conventional field forces, namely the 1st Infantry Division, were held in strategic locations and made available to back up the Constabulary in any emergency. The 1st Infantry Division's primary mission was to remain as the theater's combat force, and it maintained its organization and training to fulfill that role. The disadvantage of this plan was the limited number of mobile ground forces in the 1st Infantry Division. It would require a substantial effort in an emergency to provide transport to a large number of soldiers and get them into position in a timely manner. Fortunately that need never arose. Both the US Constabulary and the 1st Infantry Division reported to the US Third Army, which reported directly to Supreme Head- quarters Allied Powers, Europe (SHAPE).

Formal activation of the US Constabulary was slated for 1 July 1946. The timing of its activation was based on the time needed to organize men and equipment into a new force and locate them where they were needed. The time given also allowed an evaluation and learning from any mistakes made during summer and fall 1945. The US Third Army was made responsible for collecting the various units and hammering them into a new force. (3)

Major General (MG) Ernest N. Harmon was appointed the first Commanding General of the US Constabulary (Provisional) on 10 January 1946. The selection of Harmon was a good one. He had broad combat experience and was a successful armored division commander. He also had a colorful personality and was a demanding, no-nonsense disciplinarian. Harmon's first mission was to have the Constabulary fully organized, equipped, and operational in six months. (4)

Harmon divided the occupation zone along existing geopolitical lines to coincide as nearly as possible with the major divisions of the German civil administration and police. A brigade headquarters was established at each of the capitals of the three Landkreis (counties), and subordinate headquarters were established at points selected for ease in performing the mission. The total forces available to the Constabulary consisted of 32,000 men organized into three brigades, nine regiments, 27 squadrons, and 144 troops as well as headquarters and service units. Each of the three brigades consisted of three regiments, and each regiment included three squadrons and one light tank company. Each squadron comprised five troops. Incidentally, the organizational terminology was a departure from the norm of the day. Whereas the US Army was organized into divisions consisting of combat commands composed of regiments and companies, the US Constabulary drew its lineage from the old cavalry, using brigades, regiments, squadrons, and troops. Many state police forces in the United States used these organizational names as well. (5)

The reorganization built a new type of unit designed specifically for policing postwar Germany and guarding the border with the adjoining zones of occupation. The units converted into US Constabulary squadrons and regiments included armored infantry, field artillery, tank, tank destroyer, and antiaircraft battalions and cavalry squadrons. The troop, however, emerged as the primary unit of the US Constabulary and was organized on the pattern of the mechanized cavalry troop used in the war. However, it was quickly apparent that they needed light vehicles (jeeps) and armored cars in view of their tasks of road and border patrolling as well as its police-type jobs. Each troop was divided into sections or teams for patrolling, each of which was equipped with three jeeps and one armored car serving as a command vehicle with heavy weapons support in case of emergency. Patrols were generally task organized depending on the mission. Each US Constabulary regiment formed a mobile reserve of one company equipped with light tanks. Patrols also used horses in difficult terrain along the borders and used motorcycles on the autobahn.

No personnel of the US Constabulary were to be over age or on limited duty. If possible, all the troops were to be reenlisted veterans. Using foreign nationals was considered for a short time, but it was thought the language barriers would be too great to overcome. (6) The soldier-policemen of the US Constabulary wore a distinctive uniform, both to make them easily recognizable and to distinguish them as a member of an elite force. The "Lightning Bolt" shoulder patch in yellow, blue, and red combined the colors of the cavalry, infantry, and artillery.

> ***Note:*** *The US Constabulary insignia intentionally reflected the influence of the Armored Force, especially in the colors selected and in the use of the lightning bolt.*

To make the troops even more distinctive they wore bright golden scarves, shined combat boots, and helmet liners bearing the US Constabulary insignia and yellow and blue stripes. The "Circle C" patch was also prominently displayed on signs, buildings, and vehicles adding a colorful splash to them.

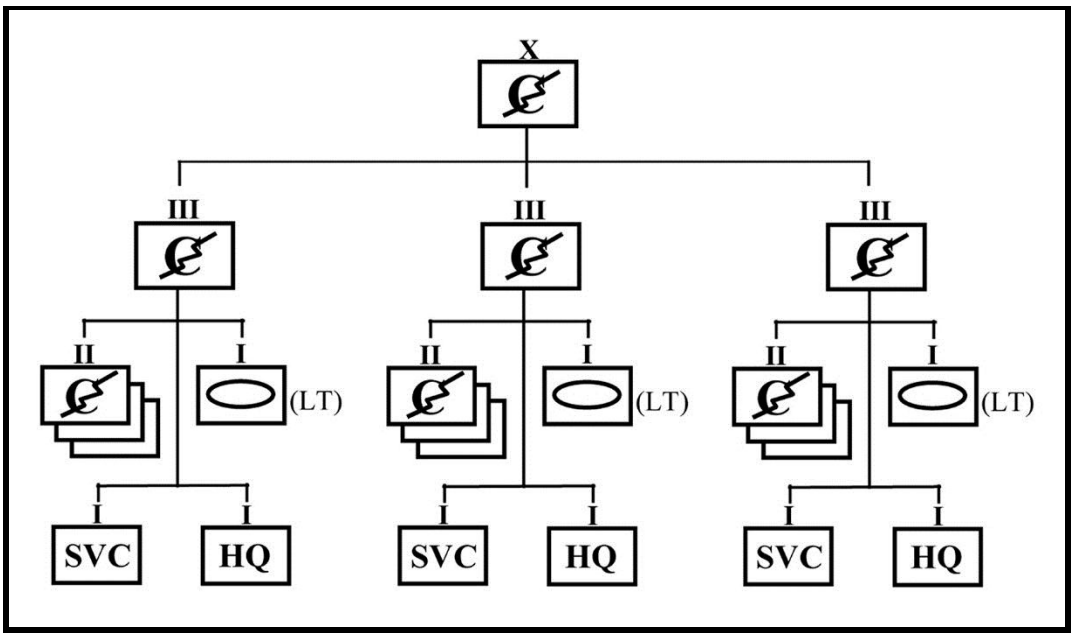


Figure 4. The US Constabulary brigade.

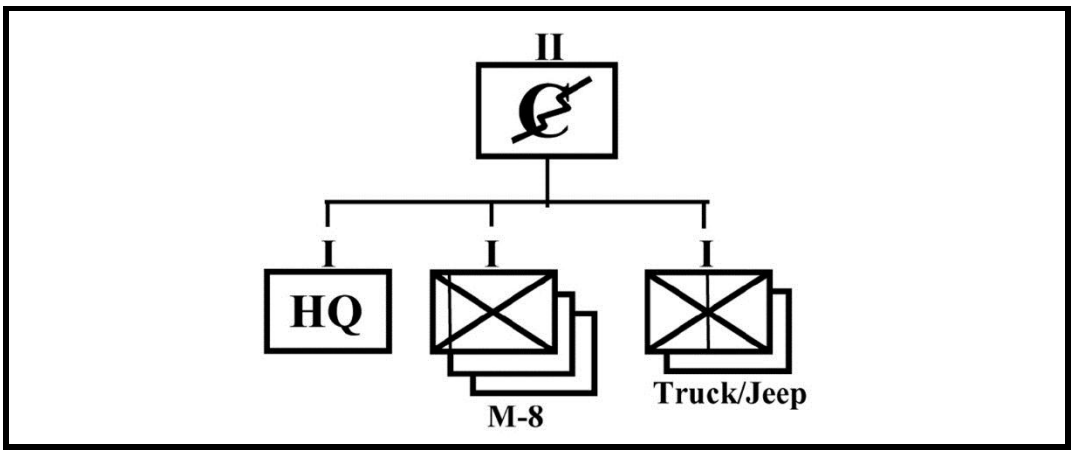


Figure 5. The US Constabulary squadron.

Yet all the pieces of the organization did not fall easily into place. The intent was to obtain the highest caliber personnel in the theater, but the redeployment of units out of theater made this extremely difficult. Delays occurred when some of the units designated for the US Constabulary could not reorganize and train until released from their parent organizations. Also, few if any units were located exactly where they were wanted under the plan, and some outfits were moved four or five times within a period of a few months before they finally settled into their final patrol areas. Barracks were in short supply as DPs occupied many of those the former Wehrmacht used. New equipment was drawn from depots as far away as France and was chiefly comprised of combat vehicles left behind by units returning to the United States for demobilization. Many of these were already worn out from extended use in combat, and many others had deteriorated in disuse. The condition of the vehicles placed a severe test on the US Constabulary, which had no service elements when it was first formed. This serious oversight in the organization was generally corrected within the year, but GIs using their skills and innovation and local German mechanics under contract were used in the interim. (7)

What proved most difficult of all, though, was acquiring and training personnel. The units selected for the US Constabulary were veteran outfits, but they were seriously depleted of personnel by the redeploying forces. Some combat units were actually mere paper organizations because redeployment had removed most of their

officers and men. Other units had up to 75 percent of their authorized strength. For the years 1946 and 1947 the US Constabulary faced a 100-percent personnel turnover rate per year. (8) Altogether, the US Constabulary was at 25 percent of its authorized strength at the onset and grew gradually as replacements arrived in theater. Few of these personnel were trained in their principal role of police duties, and there were no field manuals or precedents from which to teach them. The need for a US Constabulary School to teach guidelines and doctrine was evident. (9)

Such an institution was established at Sonthofen at a former academy used to train Nazi Party leaders. The US Constabulary training program was developed shortly after MG Harmon took command, and it consisted of three phases. The first phase concentrated on training instructor cadre and the operations personnel of the regimental and squadron headquarters so they were prepared to receive the approximately 20,000 new men expected to fill the ranks. The second phase, conducted between April and June 1946, was a period of intensive training in the duties of both individuals and units that were present in theater. The final phase of training in 1946 was planned as on-the-job training for newly assigned personnel and scheduled to begin in June. The US Constabulary School at Sonthofen also served as a replacement center for inbound personnel, which greatly simplified the replacement system and ensured new men got to the specific squadrons in need. (10)

The curriculum at the US Constabulary School for officers and non- commissioned officers included instruction in Germany's geography, history, and politics. The soldiers' training focused on the theory and practice of criminal investigation, police records, self-defense, and apprehending wanted persons. The troopers' indoctrination helped them fully understand their responsibilities and the functions of the US Constabulary. Graduates were fully qualified to perform their duties and to act as unit instructors for newly arriving recruits. There was no formal German-language training beyond common phrases. The school also served as a replacement center and taught about 650 students per month. Soldiers were provided with a copy of the Trooper's Handbook, written to cover the basic rules and regulations covering their duties. Colonel J.H. Harwood, a former State Police Commissioner of Rhode Island, aided in preparing the content of the manual. (11)

Although the US Constabulary School began to graduate classes of mission-ready troopers, changes in the redeployment rules in spring 1946 caused the loss of 25 percent of the soldiers within a matter of a few weeks and an additional 42 percent in the following three months. Not surprising, the job of replacing and training new personnel was staggering, made worse by a critical shortage of junior officers during late summer 1946. This delayed the US Constabulary in attaining the desired standards in discipline and operations, as the final stage of training was for each unit to participate in at least one practice search and seizure operation before becoming fully operational. (12)

The US Constabulary attempted to achieve an elite status by selecting personnel of high physical and mental standards and purging incompetence as much a possible. In light of the chronic personnel shortage, maintaining this status proved difficult. This was deemed critical, though, because the field patrols were generally small groups that operated far from their headquarters and were empowered with unusual authority and responsibility. Integrity was also demanded of each trooper as these men faced many temptations. They were exposed to an ingenious black market where large bribes were commonplace and large numbers of destitute people who evoked pity and sympathy. German society at the time was filled with desperate people who were eager and willing to pay high prices for permission to illegally cross borders seeking refuge or carrying out illegal activities. Only with a high standard of integrity would the troopers establish and maintain the secure environment needed for the recovering German society.

To maintain high standards MG Harmon and his subordinate commanders spent a great deal of time ensuring the men lived up to the name of the US Constabulary. Troopers were told to leave their money and watches behind before search and seizure operations, and each man was shaken down at the end of the mission to confirm he had not stolen anything. Infractions of discipline and regulations were ruthlessly dealt with. There was also an exceptionally thorough inspection program of units, men, and equipment. The US Constabulary was generally considered the most inspected outfit in the US Army at the time. The primary inspector was Harmon himself, who spent far less time at his headquarters at Bamberg than he did traveling from one squadron to another. He inspected each of the US Constabulary's 27 squadrons at least once a month. Stories abound that Harmon relieved men and officers with such frequency that before his arrival squadron and troop commanders were known to pack their bags. These instances of prepacking luggage were

actually rare, but the constant visits by the commanding general certainly engendered at least a healthy amount of respectful fear among officers and men alike. (13)

The constant inspections and duty in remote and isolated areas was hard on many troopers' morale. Troop-level units rotated from forward areas periodically for a period of rest and recuperation. It was not all rest, however, as the men used the opportunity to overhaul their equipment and receive training on new techniques. During this refit period units also received and absorbed new replacements. The typical system of troop rotation was initially two weeks in the cantonment for every four on patrol. Later the pattern of four weeks in garrison and six in the field was considered the norm. While in garrison the men had the recreational facilities typical of the times such as servicemen's clubs with their snack bars and entertainment, motion pictures, American Red Cross facilities, and trans- Atlantic telephone service.

Patrols

The backbone of US Constabulary operations was the patrol. Initially the US Constabulary troopers were just about everywhere in the zone of occupation, a constant sight to the populace and a deterrent to illegal activity. The US Constabulary's light tanks, armored cars, jeeps, and motorcycles paraded in the streets in considerable numbers to show the Germans that the Americans meant business and were now properly trained and equipped to meet emergencies. The size and frequencies of patrols would gradually decline over the years. These declined not for want of manpower, which was never in abundance, but as a result of gained experience, knowledge of the operating areas, and continuous study of crime statistics. In short, the US Constabulary learned to focus its efforts at likely trouble spots and became more efficient as time went by. (14)

Patrolling soon focused on the potential sources of trouble, notably the large urban centers where populations scrambled among the ruins for food and shelter. Initially the patrols passed every 2 hours in the daylight as a deterrent but shifted to the night hours when assaults, robbery, and other serious crimes generally occurred. Patrols conducted liaison with the German mayors (Bürgermeisters), German police stations, various US government agencies, and other military units in their area. Patrols worked closely with the municipal, rural, and border police. The US Constabulary troopers became acquainted with the local policemen, received updates from them, and discussed methods of trapping criminals and forestalling possible disturbances. A German policeman usually accompanied patrols, acted as an interpreter, and made the actual arrest of German or displaced nationals. The soldiers made the arrest when the suspect was American. This practice built up the prestige of the new German policemen in the eyes of the local populace and educated them in the concept of upholding the law and justice, not in the brutal and arbitrary methods used before and during the war. When average German citizens saw US Constabulary troops approach, they generally showed the troopers gratitude and respect because they knew the young men were there to help.

US Constabulary patrols were in constant communication by radio or telephone with their headquarters, which was also linked all the way to US Constabulary headquarters and the commanding general. The telephone lines used were those of the old German system for the most part, but these lines were severely hampered by a lack of spare parts and were not in good condition after the war. Some military lines and equipment were available, and the US Constabulary also had a teletype communications system. When all of the nodes were considered, it was the most comprehensive and effective network the US Army operated in theater.

Search and Seizure Operations

Aside from the patrols and show of force missions, the US Constabulary patrols had an active and aggressive law enforcement task to conduct. This was the swoop raid, known officially as search and seizure operations, against refugee camps and the general German population. However, these raids were requested and authorized in advance by the UN Relief and Rehabilitation Administration (UNRRA), local military commanders, military government, or investigative agencies that had reason to suspect black market or subversive activities. The US Constabulary was not aloof as these problems festered. It alerted the appropriate authority when it received enough complaints about a camp from the civilians living in the area, when the crime rate in an area became intolerable, or there were anti-Allied speeches and posters displayed. Authorization to conduct an operation soon followed. (15)

The US Constabulary's efforts to counter black market activities became a prime focus as the threat of guerilla warfare by the Germans waned. By summer 1946 this was particularly so as tons of surplus supplies

and equipment meant to sustain the Allied armies at war were still piled in bulging warehouses awaiting consumption or shipment back to the United States. Many Germans would pay a great deal for the coffee, cigarettes, and food the American soldiers often took for granted. The US Constabulary soldiers sought to flush out and arrest those who organized black market organizations and large-scale criminal activities, most often leaving the cases of individuals to the MPs or German police.

The prime candidates for black market activity were the DP camps scattered throughout Germany at the close of the war. These camps were established to house the thousands of foreign workers the Nazi regime enslaved to work in the war industry, Germans who had lost their homes in the war, and a large number of European Jews. As a rule these people were housed in dirty, cramped buildings in former German military installations. Access in and out of the camps was restricted, and there was a natural animosity toward these people and their former antagonists, the Germans. US Constabulary troopers were often called to respond to riots and to serve as an intermediary between these refugees and the local Germans. Residents of the camps were generally eager to resume normal lives, but while there they often turned to the lucrative black market to augment their standard rations and build up capital for the uncertain future that awaited them in war-ravaged Europe.

The camps came under a number of jurisdictions, which compounded the difficulties of the residents and those attempting to care for them. UNRRA was responsible for their internal administration, and the military government was tasked to supply the camps with food, clothing, and other necessities. The security and law enforcement apparatus began with the internal camp police that the US Army trained but did not control afterward. Next was the US Constabulary, charged with investigating criminal activity within the camps. German law enforcement agencies were the final link in the chain, charged with making arrests and incarcerating the guilty. However, due to the animosity between the DPs and the Germans, Constabulary troopers were nearly always present when the German police entered the camps. (16)

Conducting search and seizure operations required meticulous planning, precision timing, and highly trained personnel. These raids were made to apprehend a specific individual or group, but more usually they were to look for illegal materials. Such operations could benefit from eliminating black market activities and apprehending wanted suspects, but they could prove disastrous as well. For example, a raid on a camp of DPs without adequate security or show of force could result in a deadly riot. A wrongful search could have proved embarrassing for the US Constabulary and tarnish its reputation.

The first phase of a search and seizure operation was establishing a cordon around the target area. A cordon force was used to secure the roads and entryways into the camps and detain all personnel coming or going so as not to alert the residents. These troopers would also search these individuals for contraband. Incidentally, cordons were often used as a separate operation without searching a camp or other facility. They alone were not as effective as direct searches but had the advantage of not requiring any special permission to conduct. When used alone, cordons usually failed to find anything illegal, but many in the US Constabulary felt they discouraged black market and smuggling activity. There is no way to ascertain that claim one way or the other. The second phase of a search and seizure operation was to conduct the search. The search force would enter the camp or facility in question and conduct a thorough search for suspects or illegal material. This required discipline and nerve because the troopers never knew what to expect or what they would find.

A good example of a search and seizure operation was carried out on 18 December 1946, code named Operation DUCK. It was directed at a DP camp at Wildflecken, a former SS training center about 10 miles south of Fulda. The camp was the largest of its type in Germany, housing more than 15,000 Poles in 60 or more barracks. The US Constabulary had received word of increased crime at the camp, including murder, rape, assault, and black marketing, and there were reports of anti-American propaganda being displayed. Concerned that a lack of response would mean the loss of respect for the occupation forces, the US Constabulary was directed to search the camp. Constabulary headquarters assigned the 14th Regiment, 3d Brigade to search the camp. Two troops from each of the regiment's three squadrons were employed for that purpose. Five troops from the 68th Squadron, 1st Brigade were attached to support the operation. The total force numbered about 1,600 men. (17)

The plan for Operation DUCK was simple. The troops from the 68th Squadron would cordon off the entire camp to prevent any escapes. The remaining three squadrons of the 14th Regiment would each search one- third of the camp. The light tank company, without tanks, furnished men to guard any prisoners or contraband that was seized. The regimental motorcycle platoon provided traffic control. The search would

focus on finding any weapons, and then priority was placed on black market items and wanted persons in hiding. Lists of these persons were distributed to the search teams in advance. There was no way to judge the camp inhabitants' reaction to the raid. The regimental intelligence officer's assessment ranged from armed resistance by a few individuals to a full-scale riot. Accordingly, the horse platoon stood by for riot duty armed with night sticks and equipped with tear gas and protective masks. The local medical facilities were designated as collection points for the wounded, and the 14th Constabulary Regiment medics were ready to treat and evacuate wounded personnel.

The emphasis on secrecy was great, and the calculated risk was made not to conduct a reconnaissance of the camp, lest it arouse suspicion. The troopers had diagrams the Germans provided of the camp but little to no firsthand knowledge of the camp.

The actual search of the camp was planned as well. Each squadron was to form four search teams that would enter each building. There they would locate the building leader and hand him instructions written in Polish telling him to assemble all women and children in one room and instruct the men to stay in their own rooms. An officer, with witnesses present, would frisk the women for weapons and large items evident by sight or light touch. When this was completed the troopers would frisk the men and thoroughly search the rooms for weapons and contraband. Troopers would take any prisoners to a screening center that was run by eight men and 10 guards under the squadron intelligence officer. Those apprehended would be checked against the wanted person list and either handed over to the German police or released. If the DP was guilty of a small infraction not warranting the cost of a trial, such as possessing a few extra cigarettes, the contraband would be confiscated and the suspect released.

The US Constabulary troops executed Operation DUCK at 0700, 18 December, establishing the cordon and then achieving complete surprise in the camp. The weather was very cold, and the DPs and UNRRA team were jolted out of their beds as the dozens of US Constabulary vehicles arrived and disgorged well-armed troopers. Resistance was almost nonexistent and limited to verbal indignation. There were no riots or weapons firing. The search went according to plan.

The results of this meticulously planned raid were meager. Only 15 people were arrested. There were a few weapons, some drugs, and some contraband livestock; about 1,000 worth of illegal foodstuff; and about 500 of US Army property. Two items of quantity seized were a 100-gallon barrel of schnapps and 12 stills. This raid turned out to be one of the most successful of its type that the US Constabulary conducted. Although the results seemed meager at first, the crime rate in the area dropped to virtually zero for over a month and earned the local population's gratitude. The US Constabulary went on to conduct many such search and seizure raids, following the pattern of planning and getting about the same results as Operation DUCK. Whether the black marketers were just too clever or were not as widespread as believed will never be known, but the US Constabulary showed the Germans and DPs that there would be law and order.

Figure 9 was compiled from analyzing the annual reports presented in the Occupation of Europe Series, 1945-1947. Clearly the numbers of search and seizure operations peaked, then declined as the US Constabulary units dedicated fewer men and less effort to them. This occurred chiefly due to the DPs returning to their country of origin and the newly constituted German police force's ability to assume more of these missions. The number of troops used is somewhat misleading, as the number of soldiers assigned to a particular search and seizure operation could vary widely.

Maintenance of the Border

Maintaining the borders was another important element in securing the US Zone of Occupation. Before, and for months after, the declaration of V-E Day, a fluid situation resulted in various units guarding whichever borders or boundaries happened to be in their areas of operation. Essentially, combat units provided area security or guarded the border using soldiers to occupy various border posts and set up roadblocks. Small mobile motorized patrols from the infantry divisions were used to maintain security in outlying districts of the US zone. Many divisions on occupation duty before redeployments effected local reorganizations that created such mobile forces for this duty, but these patrols received no specialized training. (18)

Month	Operations	Troops Used	Arrests
Jul 46	11	639	104
Aug 46	11	1,403	287
Sep 46	19	1,674	348
Oct 46	13	2,127	342
Nov 46	10	4,748	232
Dec 46	8	2,518	60
Jan 47	3	232	5
Feb 47	1	29	1
Mar 47	1	215	73
Apr 47	1	572	48
May 47	0	0	0
Jun 47	0	0	0
Totals	**78**	**14,157**	**1,500**

Figure 9. Search and seizure operation statistics.

Most of the people attempting to cross the international or interzonal borders were ordinary Germans who were looking for food or lost relatives. Most of them also emanated from the Soviet zone. Those that the US Constabulary apprehended were taken to the nearest Office of Military Government for questioning. They could then be prosecuted, fined and/or jailed, or simply returned to the border and sent back. But whether they simply sought family members, wanted to conduct legal or illegal business, or were fleeing communism, in the first year after the war there was little to physically dissuade them from trying to cross into the US zone.

As the months went by the border became well marked with white posts and Landes Grenze signs. "Attention 50 Meters to the Border" signs were added in time as well as the 1-kilometer warning signs. With the heightening of the Cold War and the need to stop the flow of people fleeing communism, the Soviets tightened control over their zones of occupation by constructing extensive physical barriers. They cleared a strip several yards wide along the borders and strung three rows of barbed wire to prevent unauthorized crossing. Hundreds of watchtowers were erected as well. Over the years these Soviet control measures increased in effectiveness as they were systematically improved. (19)

In the US zone the US Constabulary replaced the soldiers of the departing combat divisions at most of the border control posts beginning in June 1946. On the border the troopers performed their duties of customs inspection, passport control, and general law enforcement. Experience soon reaffirmed that the static posts were ineffective, being easy to evade by border crossers. These resilient people who desired to cross the border were adept at finding gaps in the coverage and slipping past the Constabulary troopers. This was not actually hard to do in the early years after the war because there were too few troopers to guard the long borders. A typical squadron was responsible for approximately 78 miles of border. With the available personnel strength divided between a variety of ongoing missions, maintenance, and recovery, there were generally only 53 men on duty along the squadron's border at any given time. Even assuming a 56-hour workweek, this meant a ratio of .68 men per mile of border, which was hardly enough to stop the flow. (20)

Consequently, a system of intensive patrolling by ground and air began between the posts to seal off the porous borders. The problem of refugees and DPs crossing into the American zone was acute, particularly as greater personal freedom and economic activity in this zone became well known to the Germans. Some estimates claim that more than 1.6 million Germans from the Soviet zone crossed over the border in 1946 alone. The terrain along the border in the US zone compounded the problem of control. Much of the region was mountainous with poor roads that did not always run along the border. (21)

The first plan the US Constabulary implemented was straightforward, that being a single line of 126 posts established along the border. One type was the "Authorized Crossing Point," where any authorized person could cross. The other type of outpost was the "Fixed Border Post," which blocked all other roads. All crossing sites and posts along the border of the Soviet zone and Czechoslovakia were manned by six or seven men. The outposts along the other interzonal and international borders used only two men. Supporting these men were reserve platoons that could reach any point in a sector within a half hour and a troop that could be there within 2 hours. The US Constabulary units used small spotter planes and even horses along the border to

increase their ability to monitor the remote or inaccessible areas. The coverage was never perfect because desperate, wily refugees found ways past the most dedicated and alert troopers. But in August and September 1946 the US Constabulary turned back 46,000 persons trying to enter the US zone. This reflected the height of the border-crossing incidents, but they only slowly subsided over the course of several months. (22)

Despite this impressive number of people being turned back at the border, it was clear many were getting through. After studying the matter, the US Constabulary did away with regularly scheduled foot patrols and discontinued the fixed border posts. The manpower saved by these measures was then shifted to establish roving checkpoints operating up to about 1,000 meters behind the border. They would randomly appear, set up and operate for 4 to 8 hours, then move on. This change proved beneficial, as Germans could not overcome the system by simply mapping out the fixed posts and scheduled foot patrols and then plan the best way to avoid them. (23)

Perhaps more important than instituting border patrols was the increased use of German border police, the Bundesgrenzshutz, and the Hessen and Bavarian Border Police. This development began in late 1946 with the military government's permission. The Germans were given primary responsibility for securing the eastern international border in March 1947, and by November they took over the interzonal borders as well. Although this freed the US Constabulary of its most manpower- and time-intensive missions, the troopers still had a mission along the borders. The US Constabulary continued to man eight crossing points to monitor and control Allied personnel crossing, over which the Germans had no control. Troopers manned these outposts. (24)

Reorganization

The US Constabulary units' initial training focused on occupation and police duties at the expense of combat readiness, but that situation began to change within a few months of their activation. By the time the US Constabulary was organized and trained in 1946 the German authorities were demonstrating increasing capability of maintaining law and order. Additionally, tensions increased between the Soviets and Western Allies, making the threat of war very real. In 1947 MG Withers A. Buress assumed command of the US Constabulary and began a gradual shift from police missions to tactical training. The year 1948 marked the last major reorganization of the US Constabulary as its personnel and equipment strengths were cross-leveled and balanced with the 1st Infantry Division, making them both about normal division strength. (25) Late in that year the 2d Constabulary Regiment took part in a maneuver exercise at Grafenwöhr with the 1st Infantry Division. The rest of the Constabulary was given tactical training separately, but the trend was established and grew. As the need for the US Constabulary diminished with the recovery of German society and the economy, the Constabulary's mission and organization changed to meet the new demands. For example, Constabulary units assigned to operate prisoner of war and refugee centers were disbanded as those facilities were emptied.

Another more radical example occurred as US Constabulary units reorganized as combat units during the 1948 Berlin Airlift in response to the threat of a Soviet invasion. Three of the nine regiments were quickly refitted as armored cavalry regiments and equipped with more M-8 armored cars and additional infantry heavy weapons. These now had a combat mission but were still considered part of the US Constabulary. The rest of the US Constabulary continued its "traditional" mission, but increasingly even these forces shifted from police functions to training for war and were redeployed to the border areas. Forces were continually and gradually cut from the organization to cross-level into existing combat formations.

By 1948 these moves were considered safe as the German police and government were reconstituted and functioning. A major reduction of this type occurred in 1949 when the 4th Constabulary Regiment was inactivated, followed by the US Constabulary headquarters the following year. The personnel in this move were transferred to the new Seventh Army headquarters, marking the US Constabulary's formal transition from an occupation force to a defensive force. The remaining Constabulary squadrons and regiments over the next few years reorganized into armored cavalry regiments, maintaining a presence on the international border until they were removed from the US Constabulary force structure in 1952. This marked the formal end of the US Constabulary and the end of an era for postwar Germany. Armored cavalry regiments continued to control the border, however, but with the wartime mission to provide a defensive screen for corps elements should the Soviet armies cross the border. (26)

The occupation of Germany after the war is perhaps the best example of the United States forging a peace after the total defeat of an enemy. However, this operation was not flawless. It took nearly a year for the US

Constabulary to form, train, and replace the combat units conducting patrols and policing the border. Also, vehicles designed for combat did not necessarily prove ideal in Constabulary operations. Tanks and armored vehicles were good as a show of force but were far less effective in countering black marketers or screening refugees along the border. On the other hand, the US Constabulary proved adept at employing observation aircraft, motorcycles, and even horses to maximize its limited manpower when covering large tracts of land and miles of border.

If there is a detracting statement to be made of the US Constabulary, it is that it took a full year from the cessation of hostilities to its creation into an operational organization. Those 12 months saw the greatest threat of the much-feared German resistance movements and the largest number of DPs in the zone of occupation. The need was greatest then for the US Constabulary, but it was still being organized, manned, and equipped at that time. The efforts at raising the Constabulary were extraordinary, but almost came too late. By summer 1946 it was clear that there would be no resurgence of a Nazi movement, and many of the DPs were resettled or soon would be. Black marketing still flourished, but as German law enforcement agencies were rebuilt and the economy began to recover, this aspect of the occupation diminished as well. The same could be said for the border mission as agencies such as the Bundesgrendschutz assumed much of the responsibility as time progressed. By 1948 the US Constabulary's original mission was greatly diminished, and the transition to preparing for combat began. By the time of its formal disbandment in 1952, the US Constabulary had achieved its purpose and its time had come.

These deficiencies were far overshadowed by three key points. Most noteworthy, officers and men of the US Constabulary were specifically trained for their assigned duties. Before assignment to a patrol each man had graduated from the Constabulary School at Sonthofen and knew the contents of the Trooper's Handbook. Each man knew what was expected of him as well as the scope and limits of his authority. The German populace also realized that these Americans were professional and fair and grew over time to respect them. Second, using German policemen in Constabulary patrols was indispensable in conducting the mission and overall goal of rebuilding Germany. Not only did these policemen provide invaluable linguistic support but the training and experience gained also established the new German police forces in the eyes of the people. Gone forever were the days of the SS and Gestapo. Third, the Germans were a homogenous society. What policies and procedures worked in one area usually produced results in another, making the troopers' jobs much easier.

The US Constabulary also had the respect of the senior leadership in the Army, which entrusted it for special and sensitive missions beyond law enforcement. When General Dwight D. Eisenhower, then serving as Chief of Staff, visited Germany, it was the US Constabulary that was responsible for his security. In mid-1948 the Allied Powers decided to issue new German currency in an effort to deal a blow to black marketing. Under Operation FINITE, troopers escorted the convoys carrying the new bills under great secrecy from their arrival point in Hamburg to the Deutche Bank in Frankfurt. The oddest mission for this organization was perhaps the task to demolish ex-Wehrmacht installations. Army engineers had this task originally, but there were too few of them after demobilization. The US Constabulary inherited this mission and used 20 teams to carry it out. Each team was to destroy five objectives per day, but the teams could never keep that pace. By the end of June 1947 only 244 of some 1,500 installations were destroyed. Of those remaining, the US Army decided to keep 519 and destroy 766. The process was completed by August 1948. (27)

Perhaps most important, the US Constabulary had the respect of the German people. The Germans called the troopers the Blitzpolizei or Lightning Police. They were referring not only to their patch insignia but also the perception that they were everywhere at all times. An ever- present, professional force, the troopers of the Circle C enforced the law and bridged the gap between the occupiers and vanquished until Germany could maintain law and order for itself. The US Constabulary existed as an organization for only six years, but it was a story of success. It had accomplished the mission of ensuring the successful American occupation of Germany and the lasting peace that followed.

Editor: The US Constabulary faced significant challenges, particularly the danger of inciting organized or spontaneous resistance among the German populace. The Army's decision to substitute mobility for mass in Occupied Germany meant that the Constabulary force could not rely upon numbers and combat power to enforce authority. Instead, it required a well trained and disciplined organization—a difficult proposition since most of the enlisted personnel had no combat experience and were on their first overseas tour.

The success of the Constabulary illustrates the value of a light armor organization tailored to execute stability and support operations. Generally associated with combat missions, Armor organizations can adapt to many operational environments—a quality that underscores their versatility and utility across the range of military operations. The onset of the cold war, coupled with the Federal Republic of Germany's growing ability to provide its own internal security, triggered a transition of Constabulary units into combat organizations, which became among the first armored cavalry regiments to be constituted in 1948.

Notes

1. Oliver F. Frederiksen, *The American Military Occupation of Germany 1945-1953* (Heidelberg, Germany: Headquarters, US Army Europe, 1984), 66-68. Although the SHAEF staff had planned for an occupation for some time, the 4th Armored Division did not get notified officially until nearly the end of the war. The cavalry groups got even less notice.

2. *Occupation in Europe Series, Part One* (Frankfurt, GE: Office of the Chief Historian, 1945), 123-24, 142, hereafter cited as Occupation in Europe. The original force was intended to be 363,000 men, but by November 1945 it was clear that these forces were not necessary. This is an excellent source for day-to- day operations of the US Constabulary. Perceptions and trends are incorporated throughout this work.

3. Ibid. p. 125. Some sources contend, too, that the completion of the spring harvest was a factor in this decision. After the harvest the Germans would be fed and less likely to cause trouble during this critical period of transition.

4. Harmon's life and career data were extracted from Ernest N. Harmon with Milton and William R. Mackaye, *Combat Commander: An Autobiography of a Soldier* (Englewood, NJ: Princeton-Hall Publishing, 1970). Ernest Harmon was born on 26 February 1894 in Lowell, Massachusetts and graduated from West Point in 1917. He had served as the commanding general of the 1st Armored Division in North Africa and Italy. In 1944 he commanded the 2d Armored Division before assuming command of XXII Corps. After establishing the US Constabulary, Major General (MG) Harmon served as Commanding General, US Third Army, and Deputy Commanding General, Army Ground Forces. His soldiers called him "Old Gravel Voice." He retired from the US Army in 1948 and died on 13 November 1979.

5. *Occupation in Europe*, Part One, 124. The total figure is based on the table of allowances for the US Constabulary. Personnel figures fluctuated wildly for the first year or so, with the number of troops on hand usually far below authorized levels.

6. Ibid., 127. There was a level of discontent and frustration as soldiers expert in one field were retrained as Constabulary troopers.

7. Harmon, 147. Surprisingly, there seemed to be little thought to identifying and assigning bilingual American soldiers to the US Constabulary. Conversely, the US Army Counter-Intelligence Corps did. Perhaps that organization siphoned off all of those qualified soldiers leaving none for the US Constabulary. See also Frederiksen, 55. Foreign nationals used in such a way would be entitled to a salary. Funding for this was a sensitive issue. Many Americans did not care to see their tax dollars spent on their former enemies' salaries.

8. Brian A. Libby, "Policing Germany: the United States Constabulary, 1946-1952," dissertation (Ann Arbor, MI: UMI Dissertation Services, 1977), 149. This personnel turnover rate was devastating to training and unit cohesion. It would not stabilize for nearly a year.

9. Occupation in Europe, Part One, 138, 142.

10. Earl F. Ziemke, *The US Army in the Occupation of Germany, 1944-1946* (Washington, DC: CMH, 1990), 397-98. There was fierce competition for the new personnel between the Constabulary and the combat units in theater. Replacements were likely to get siphoned off or diverted to other units in need.

11. Ibid., 339. The US Constabulary School closed in late 1948. The *Trooper's Handbook* primarily addresses individual police tasks such as making arrests, searches, and the need to maintain high standards. Some of the procedures would land a soldier in hot water in today's Army.

12. Frederiksen, 66-69. Once the units were fielded and assigned to their cantonment area, it was considered fully qualified. With the high personnel rotation rate, all units had to repeatedly retrain on all tasks.

13. Libby, 116-18. Although not as famous as George S. Patton, Jr., Ernest Harmon and he were much alike.

14. Ibid., 120. Show of force parades probably did not impress the Germans much. The Germans had seen 12 years of military display by the National Socialists that were probably superior to anything the Americans offered in size, precision, and power.

15. Fredericksen, 69-70. The US Constabulary could act on tips, but it still needed authorization to conduct such raids. See also Libby, 82.

16. Ibid., 10-13. The first UNRRA teams were functioning as early as March 1945. See also Zink, 124-25.

17. Libby, 82-87. The description of Operation DUCK in these paragraphs comes from this work.

18. William E. Stacy, *US Army Border Operations in Germany, 1945-1983* (Heidelberg, GE: US Army Europe Military History Office, 1984), 24-29. See also Ziemke, 341.

19. Ibid., 83.

20. Libby, 65-66.

21. Stacy, 29-30. Border patrols were maintained until the Iron Curtain was dismantled in 1990 and 1991. The 2d and 11th Armored Cavalry Regiments were the last to perform this mission.

22. Libby, 67-68.

23. Ibid., 68.

24. Ibid., 68-69.

25. *Occupation in Europe,* Part Four, 342-43. The other two commanding generals of the US Constabulary were MG Louis Craig and MG I.D. White. Craig commanded for less than a month before becoming the Inspector General, US Army. See also Fredericksen, 69-70.

26. Ziemke, 321. Within a year after the end of the war, only the 1st Infantry Division, the US Constabulary, and several separate infantry battalions remained in Europe. These totaled some 104,316 soldiers, down dramatically from the 30 June 1945 figure of 1,893,197. See also The United States and Germany, 22-24.

27. Libby, 113 and Frederiksen, 116-17. The US Army still uses many of these buildings today.

Korean War

Editor: This chapter addresses the armor experience in the Korean War. It begins with a report on the state of armored units early in the conflict that underscores readiness issues. The other articles focus upon the use of armor in varied circumstances, including urban environments, pursuit and exploitation, and task force level raids. A final piece highlights the ability of armor to create shock by attacking from an unexpected direction into the enemy's vulnerable areas.



M26 tanks supporting the 2d Infantry Division prepare to defend against a North Korean attack across the Naktong River, September 1950.
(U.S. Army Armor School).

Early Assessment of Armor in Korea

Editor: In July 1950 the Office of the Chief of Army Field Forces dispatched a team of observers to the Far East Command to assess troops, material, and combat operations. The final report, "Report of First OCAFF Observer Team to the Far East Command," dated August 16, 1950, covered a broad range of subjects and branches. The extract below focuses upon armored operations early in the Korean War. It was included as an appendix to the main report and provides a readiness assessment of armored organizations.

1. General

a. Armor in Korea in the American forces has been a negligible factor. Originally the American forces in the Far East Command had planned on a police action in the islands of Japan involving no hostile armor; therefore lightly armored elements were all that was considered necessary.

b. At the beginning of hostilities on 25 June 1950 each division in Japan had one divisional reconnaissance company, comprising a company headquarters, and three reconnaissance platoons which were broken down to a platoon headquarters section, a tank section, a rifle squad, scout section and a support squad. The total amount of armor authorized the divisional reconnaissance company was seven light tanks M-24 and five armored utility vehicles M44 (M44's have not been produced, therefore none were available). Generally the companies had the seven tanks and a substitute armored utility vehicle. The substitute vehicles were M-39 or half-tracks.

c. The only other armored unit in the division was one light tank company which was company "A" of the divisional heavy tank battalion. The organization was the same as the heavy tank company but the equipment was the light tank M24. The company was composed of company headquarters and four platoons which were authorized two light tanks in headquarters and five light tanks in each platoon, a total authorization of 22 light tanks. The actual tank strength was as low as 14 tanks. There were no other armored units available on action day in the Far East Command.

d. An armored potential of a reinforced tank battalion existed consisting mostly of M-4 series tanks, tank destroyers, and M-4 series tank-assault guns, provided a cadre nucleus that was immediately available in the Far East Command. This nucleus of personnel was obtained and the potential materialization started by the efforts of the Tokyo arsenal which had been reconditioning tanks of the M-4 series, equipping them with the 76mm gun (when not part of the equipment) at the rate of one per day beginning about 12 July 50. Production now is up to two M-4 series tanks per day. The first elements consisting of an echelon of the Headquarters, Headquarters and Service Company and one tank company were landed at Masan, Korea about the first of August and were committed to action on the second of August 1950. In addition to the above, some 14 medium tanks M-26 were taken from the National Guard in the Hawaiian Islands. Three of these tanks were committed at Ching Ju on about the 28th-29th of July but were reported (unconfirmed) lost operationally due to mechanical failure, finally falling into the hands of the enemy.

e. The light tank companies of the divisions have fared badly in each action where they have been employed in the tank role though most tank losses to date have been operational losses rather than losses to enemy action. The operational losses can be attributed generally to maintenance. Most of the tanks had been in the Far East Command since the end of the war and had been used principally in maneuvers and during a series of unit tests within divisions, with only the division ordnance maintenance company to give immediate ordnance support. The tanks could not be maintained. There were in a low state of maintenance. It should be pointed out that the tank company organization was never designed for a separate company operating alone, and therefore included the very minimum of maintenance within the company; presupposing that the tank battalion would furnish the necessary intermediate maintenance support.

f. Losses to the enemy were incurred, in most instances, where the tanks were improperly employed without supporting infantry in channelized terrain, and sometimes at the insistence of senior commanders who were ill advised on the proper employment of tanks. Tank losses to enemy action were due to penetration of the armor of the tank which in several cases was caused by fire of the Soviet type tank T-34 presumed to be the action of the 85mm gun, and in several other cases by the shoulder fired 14.5mm anti-tank rifle of Soviet

design. No tank losses could be determined where the new anti-tank grenade or mines were used. (Some losses were reported on 2 August 1950 near Masan of M4's, wherein the crew reported a large outside flash explosion indicating the possibility of cone charge explosive, either grenade or projectile).

g. The Divisional Reconnaissance Companies fared a good deal better. Generally the companies were used as mobile forces covering the flanks for the divisions or as reconnaissance in force in gaps between RCTs [regimental combat teams] within the division. The officers and men of the reconnaissance company had been well trained in combined arms on small unit level. Therefore they utilized the rifle squad, support squad, and the scout section with the tank section organically to the platoon, which in reality was a small task force. Platoon leaders utilized the scout section as a reconnaissance force, the support squad (81mm mortar) as a base of fire and close-in direct artillery support, and the rifle squad as a maneuver force or with the tanks as a combined maneuvering force. One reconnaissance platoon did hold at the Kum River but when tow infantry companies (one on each side) pulled out it was necessary that the reconnaissance company commander send his other platoons to assist the withdrawal of his engaged platoon. Enemy casualties were over 300 by eye witness accounts with our casualties being two men wounded.

h. Opinion was expressed that trained armored reconnaissance battalions in the early stages of this campaign could have helped considerably to cover the wide fronts and to furnish necessary information of enemy troop build-ups which would have given the defenders the opportunity to shift their strength to meet the attack. One reconnaissance company covered a 24 mile gap between two divisions successfully.

2. Terrain

Armor employment and tactics being controlled by the ground it must operate on, a knowledge of terrain and elements that may effect it is required.

a. The terrain in Korea is mountainous with numerous valleys, a situation which does not lend itself to armored warfare as known in Africa and Europe. Armored operations are further channelized at this time of year by rice paddies. These rice paddies utilize every piece of ground which can be leveled and flooded with water. While they do offer a hazard to vehicles, they generally have a fairly firm bottom. The soft bottom ride paddies when found are generally along the river banks. Armored personnel advised that light tanks M-24 and personnel carriers could negotiate rice paddies about 80% of the time when the rice paddies are wet and believed that when they are drained, which will start in September, it will permit freedom of maneuver of full track vehicles. In negotiating the wet rice paddies with full track vehicles, turning must be minimized and drop off should be downhill from one rice paddy to the other rather than attempting to climb from one rice paddy to the other. Foot troops do operate through the rice paddies, but it is not done when commanding ground is nearby.

b. The Soviet type tank T-34, while generally reported operating on the roads, did go into wet rice paddies at times, operate along railroads, in stream beds and on the brows of hills. While Armor appears to be channelized it can operate and have some maneuver. Valleys in some cases offered one road, one railroad, one stream bed (wet or dry) and two hill brows, one on each side, plus the risky rice paddies. The northern part of Korea becomes cold in the winter time with the possibility of freezing of the ground and water ways which will facilitate the operation of Armor.

c. There are a few non-fordable rivers in Korea that will require bridging, but most of the other rivers can be forded with caution.

d. Roads are practically all dirt or macadam (black top usually found close to the cities); the width will vary from a trail 10 feet wide to a 22-24 foot width for the best dirt roads. Engineers state that the roads, while rough have a fairly good crushed rock base. The roads are built on fills in the flat country and it is generally eight to 15 feet from the road surface to the flat land. In many places small trees (four to six inches diameter) line the road on both sides, preventing entire freedom of gun move for tanks. The bridges across the gullies will hold about 10 to 15 tons. The Koreans in the south have built tank bypasses. In many cases the bypasses cut from the road are too narrow and will have to be reworked; also many of the dips on the bypasses will have to be filled with solid material in order to give a firm footing if many track vehicles use the bypass. Dispersal areas for Armored equipment will require utilizing villages and rice paddies. Tank dozers can be utilized very profitably and were listed as a "must" by all commanders. It was further agreed that matting should be carried in some quantities to help in field expedients.

e. Buildings and walls in villages were of flimsy combination of mud and small rock construction, except roofs, which were thatch with rice straw. Buildings and walls in better sections of cities were of light wood construction except roofs which were tile construction. There were few permanent type structures as we know them. Practically all walls and buildings can be breached by gun fire. A tank can easily go through the buildings with no caution about cellars or basements but with some caution as to fire hazards. Villages and generally the cities can be set on fire easily.

3. Tactics and Techniques

a. In several cases commanders made statements to the effect, "throw away the book" in this campaign. But when the whole picture of the campaign was in focus it was found that the book had not been read and properly applied. Our Armored tactics and technique are sound when modified to the situation, applied by properly trained troops with proper equipment and led by a good commander with a solid working knowledge of combined arms, who will plan all phases of each operation.

b. Defensive combat requires all of the following:

- Observation.
- Fields of fire.
- Concealment.
- Depth.
- Control.
- Reconnaissance.
- Tactical organization of the position (combined arms).
- Fire plan for supporting weapons.
- Counterattack or limited attack.
- Communications.

c. Tanks employed in channelized operations must be supported by infantry to minimize the enemy's "close-in" and "intermediate range" anti-tank weapons threat.

d. Stong points must be established with the same complete organization which applies to the defensive position.

e. Tanks must be dug in and properly secured in a static position, with dug in outposts, and listening posts.

f. Armor employment in the attack must be planned in detail, employed as combined arms (tank-infantry-artillery-air team), with complete reconnaissance and absolute control.

4. Personnel

a. Armored personnel observed were generally young and of average intelligence, backed up by a few veterans with Infantry and Armored combat experience. The number of Armored personnel have generally been sufficient to meet the small requirements of this theater. There were cases when Infantry personnel were assigned to tank units. Any shortages of Armored or Infantry personnel to meet requirements was due to screening and the manning levels established in each successive command.

b. Many individuals have been recruited into the Army with a misconception of their duties and responsibilities. Substandard leadership, misdirected career guidance, lax discipline, easy occupational duties, short tour of overseas duty (30 months), all contributed to lowered efficiency. Finally, stress on desirable, but non-essential training has *not* conditioned the individuals mentally, morally, physically as qualified soldiers. The individual must be placed in the Army with a full understanding that he is there to fight, and is amenable to absolute discipline and control.

c. Career guidance was universally condemned. (Commanders stated "give us the immediate authority to make and break our NCOs" and "The career guidance leader does not necessarily make the best combat leader").

d. Morale of Armored troops appeared to be good in reconnaissance units, but in the Tank Company morale was low due to low battle performance of the light tank when employed in a tank role, of excessive losses of tanks and improper employment of their unit.

e. The recovery of Armored personnel was exceptionally high as most of the tank losses were operational (due to terrain and maintenance) and the crews managed by fighting on foot to return to their units.

f. Leadership in the lower echelons of combat units was generally not up to required standards. When one division was alerted for combat it was necessary for another division to furnish some 750 non-commissioned officers to properly man the alerted division even at reduced manning level. Many of the better leaders were found in the staff of higher echelons of command due to the screening process that took place before the individual reached the combat unit.

5. Organization

a. Organization of Armored units was both praised and condemned. It was conceded generally that the reconnaissance company of the division was a good organization except that it was too small for the reconnaissance and flank security missions assigned. Several senior commanders, not knowing the organization and limitations of the reconnaissance company, attempted to order the tank platoon (which does not exist in the reconnaissance company) on a tank mission. The result was that the commanders of reconnaissance companies pulled the two tanks from each of their platoons and with a provisional tank platoon, attempted the tank mission with no infantry support. The results were not satisfactory.

b. The tank company which was assigned to the division in lieu of the tank battalion was a heavy tank organization equipped with light tanks M-24. This organization was condemned by Armored personnel as being unsatisfactory in that it had no mortar or assault gun support elements, no reconnaissance elements, limited maintenance and supply elements which are normally planned and furnished by platoons or section within the Tank Battalion Headquarters, Headquarters and Service Company. Armored opinion was that the Tank Battalion was the smallest organization that could be organized and yet operate efficiently.

c. The tank company commanders agreed that they could not sustain and maintain their units with what was made available to them.

6. Equipment

a. Reconnaissance Companies were satisfied with the light tank M-24 but generally believed that an additional machine gun mount should be added on the forward top of the turret in front of the other hatch, changing the .50 caliber machine gun from the present rear mount to a front mount and adding another machine gun of possibly .30 caliber for the present rear mount. Trucks one quarter ton in the reconnaissance company require a machine gun, some to be .30 caliber and some .50 caliber. There was also a need for another automatic rifle caliber .30 in each platoon. A light weight pistol would be better received by troops as the weight of the pistol caliber .45 was objectionable.

b. In tank companies, personnel universally condemned the light tank as being too lightly armored and ineffectively gunned for use in the tank role. Everyone wanted the medium tank M-26 or M-46 as the belief was that the M4 series medium tank could not "slug it out" with the T-34, though personnel stated they would prefer the M-4 series tank over the light tank M-24. Tank company personnel agreed with the Reconnaissance Company personnel on the desirability of adding a forward turret mount to carry a .50 caliber machine gun and placing a .30 caliber machine gun on the rear turret mount.

c. The utility vehicle in general use (a few were half-tracks) in lieu of the non-existent M-44 was the M-39 which was criticized for its small carrying capacity, open top, and narrow track which tends to jump off. (One complete crew of five men were killed trying to replace the track back on the vehicle while on a road patrol). A good armored utility (personnel carrier) full track vehicle is urgently needed.

d. The tracks on full track vehicles should be wider for the present terrain.

e. Personnel that had used the 3.5 inch rocket launcher praised its performance and stated it should replace the 2.36 inch launcher. It was recommended that at least two more 3.5 inch rocket launchers be added to each armored company as it has the capability of knocking holes in buildings and blasting enemy machine guns with one well placed round, in addition to its primary mission of an anti-tank weapon.

f. It was stated that there should more M1 rifles and fewer carbines; even to giving mechanics a light weight pistol and M1 to place in a rack on his vehicle.

g. Infra-red and night vision devices are required for Armor. This is an urgent requirement for reconnaissance units.

h. Tank dozers are required for each unit with at least one dozer down to and including the reconnaissance and tank companies.

i. Radio communications have been a problem due to many factors which, combined, have caused a number of complete breakdowns of radio signal communications. Sets were issued several years ago and were used on exercises repeatedly by inexperienced personnel. Maintenance had been only fair. The terrain reduces the range capability of the sets down to the minimum, and sets were used in excess of their designed range. Desires were expressed for SCR 506 radio sets in each reconnaissance company, one per headquarters and one for each platoon, with one SCR 506 for each tank company.

j. Reduction in personnel equipment and clothing is required. The minimum of essentials will have to suffice to the extent of hardship at times in order to maintain flexibility. Organizational equipment must be kept at a minimum.

k. The VT fuze was considered to have a good potential for mortar ammunition.

7. Training

a. Armored personnel have generally been received with only basic training (except for reenlistees) which has required armored branch training concurrently with the normal unit training. Each combat unit has had a personnel turnover of four percent per month which has resulted in approximately 50% of the men each year having to be trained in individual armored phases of training. Due to many causes the individual armored branch training was sketchy: i.e. no suitable driving areas, and tank ranges were few and generally located long distances from home station. Without exception, Armored commanders stated that they wanted qualified Armored trained personnel as they had neither the time nor place to train.

b. Training was deficient in that men were given non-essential but perhaps desirable subjects, while individual advanced combat training was not reindoctrinated periodically; nor were the armored combat tactics and techniques re-scheduled. Armored commanders stated that if they could do their training over again they would stress small unit tactics, small unit combined tactics, tank combat technique, gunnery, maintenance, communications, driving, intermediate and local security, physical hardening and stricter discipline and control. Also it was agreed that 20 to 30 percent of the training should be at night.

c. Commanders seemed in instances to be confused. This was due to incomplete training or failure to apply their experience gained from training. A few commanders lacked the ability to command under adverse conditions, resulting in a defeatist attitude toward the situation. Leadership training in reconnaissance units appeared better than in the tank units.

d. Opinion was expressed that commanders who have been away from troop duty for some period of time should be put through their branch material school prior to assignment to duty with combat troops. Many of the finer techniques of warfare learned in World War II had been forgotten.

e. Specialists must be furnished to this theater, particularly track and wheel vehicle mechanics and radio repairmen. Other specialists in ordnance and signal maintenance support units were considered below standard and in insufficient numbers by the armored commanders to properly handle even a limited peace-time work load. Support units were unable to handle the combat support load (even if they had all qualified personnel); therefore, additional support units are required.

8. Supply and Maintenance

a. The replacement of tanks was practically non-existent to armored reconnaissance and tanks units on the front. One tank company (22 tanks) was down to one tank and drew its first replacement tank on 1 August 1950. Other tank losses had not been replaced.

b. Gasoline in some cases was of poor quality and resulted in one positive operational loss and probably other losses, with an increase in engine maintenance.

c. Supply of ammunition was confused in the early phases of the campaign but cleared up after a time.

d. Supply of parts for the light M-24 were depleted to the point that one ordnance company was cannibalizing two tanks to get parts to repair two other tanks.

e. Supply of all major items of equipment was of a large magnitude as there was practically no recovery of either battle or operational losses during the withdrawal action.

f. Maintenance of armored equipment above company echelon was poor. The tank battalion maintenance echelon was non-existent and the ordnance company of the division could not begin to handle the maintenance work load. The majority of losses were operational and were indicative to some extent of the low order of maintenance and recovery. One company could only bring 14 tanks to the combat zone, as the maintenance personnel available in the company could not complete the maintenance on the other vehicles and the division ordnance company could not give the necessary support. While this maintenance problem may not have been eliminated, it would have been materially reduced had battalion maintenance support been present.

g. Limitations of roads and bridges will in most cases preclude the use of tank transporters. Therefore tank maintenance will have to be performed on the ground rather than evacuated to a maintenance unit for repair.

Editor: The successful, on demand application of mobility, shock, and firepower requires continuous attention to leader development, maneuver training, materiel upkeep, and potential threats. Despite the passage of just five years since the end of World War II, armored units were in no state for the rapid commencement of combat operations. Training standards had slipped and the focus of instruction shifted away from the fundamentals of small unit tactics and maneuver. Vehicles and equipment suffered from age and substandard maintenance—problems compounded by the lack of adequate supply and maintenance support in theater. The deliberate prewar substitution of light tank companies for medium tank battalions in the divisions of the Far East Command minimized mounted combat power and eliminated the sustainment services organic to the larger organization. Consequently, M-24 light tanks that proved no match for North Korean T-34s also suffered from a series of preventable mechanical losses. Morale suffered as a result. Reconnaissance companies fared better, largely due to better training and a familiarization with combined arms maneuver that reflected their organization and employment.

This report also highlights the terrain, mobility, and sustainment challenges to the overseas deployment of armored organizations into undeveloped regions. These factors must be addressed in pre-deployment planning and preparation.

Given the inexperienced and largely unready state of tank units indicated in this report, doctrine clearly was not utilized to provide guidance. The “throw away the book” mentality referenced is generally indicative of a lack of doctrinal understanding. Founded upon combat experience and lessons learned, doctrine provides guiding principles generally applicable. Failure to understand and apply these concepts to specific operational environments generally contributes to combat failure. Doctrinal ignorance demonstrates a lack of tactical competency that undermines the effective employment of armor. This lesson had already been learned the hard way by American tankers in North Africa.

Task Force Fowler

Editor: The experience of Task Force Fowler highlights the poor readiness of armor units at the start of the Korean War. In the following article, Lt. Col. Scott Fowler describes the experience of a small unit of M26 Pershing tanks hastily thrust into combat, despite significant mechanical issues. The article first appeared in the July-August 2007 issue of *Armor* magazine under the title "My Kingdom for a Proper Fitting Fan Belt."

In the northeast corner of the Patton Museum, there once was a display (until 2006) on the subject of ill-fitted engine fan belts for the M26 Pershing tank during the early days of the Korean conflict. One had to search for the display because it was tucked in behind an M47 tank.

As the Army underwent its postwar reduction at the end of World War II, from eight million men and 89 divisions to 591,000 men and 10 divisions, it also underwent numerous structural changes. (1)

After detonation of the atomic bomb, strategists determined that conventional warfare was obsolete, which resulted in personnel and equipment being reduced to a minimum. To build back the Army's strength after these massive cuts, the Army downplayed its combat role and emphasized its career and training opportunities. This carried over to training, where recruits were given a much reduced regimen, as opposed to the strict discipline required of an Army in the field. By 1950, the Army seemed to have forgotten that a soldier's job was to fight. (2)

25 June 1950

At the time of the North Korean invasion, there were no U.S. combat troops in Korea. The closest combat troops to Korea were four divisions on occupation duty in Japan, the 7th, 24th, and 25th Infantry Divisions, and the 1st Cavalry Division (dismounted). Close at hand was the 29th Infantry Regiment on Okinawa and the 5th Regimental Combat Team in Hawaii. The only other ground unit in the Pacific area was the 1st Marine Division in California.

The U.S. Army units in Japan were at approximately 70 percent of their combat strength. They had nowhere near their full complement of recoilless rifles, mortars, and machine guns. The units were also lacking in anti-tank mines and did not have the new 3.5-inch bazookas. Since it was feared heavier tanks would tear up Japan's roads and cause its lightweight bridges to collapse, the divisional tank units were equipped with M24 light tanks instead of the heavier M4 or M26 medium tanks. (3)

On 25 June 1950, North Korea's army invaded South Korea on multiple fronts with eight full divisions, two half divisions and 120 T-34 soviet-made tanks against a poorly armed Republic of Korea (ROK) army. Armed with obsolete 37mm anti-tank guns and 2.36-inch bazookas, the South Koreans were unable to stop the armored monsters. (4)

28 June 1950

On 28 June 1950, the fourth day of the war, Colonel Olaf P. Winningstad, Eighth Army ordnance chief, found three M26 Pershing medium tanks at the Tokyo Ordnance Depot in bad condition and needing extensive repairs, including rebuilt engines. The repair work began at once and was completed on 13 July. The three tanks were shipped to Pusan where they arrived on 16 July, the first American medium tanks in Korea. Arriving with the tanks, Lieutenant Samuel R. Fowler and 14 enlisted crew members, trained to operate M24 light tanks, were expected to become familiar with the Pershing tank.

The tanks experienced mechanical difficulties because their ill-fitted fan belts would stretch, causing their motors to overheat. Belts made in Japan were either too short or too long despite emergency orders to have them corrected. Eighth Army hoped to use the M26 tanks to help stop North Korea's drive in the southwest and sent the tanks by rail to Chinju where they arrived at 0300 hours, 28 July. They were unloaded at the rail transportation office on the south side of the Nam River where they awaited new belts.

When the North Korean 6th Division entered Chinju on the morning of 31 July, the M26 tanks took no part in the battle. Flatcars from Pusan to evacuate the tanks passed through Masan the morning of 31 July, but never got beyond Chungam-ni, about 25 miles short of Chinju. A rail traffic snarl caused by evacuation of the

19th Infantry's supplies blocked the way. At daybreak, Lieutenant Fowler went to Colonel Ned D. Moore, the 19th Infantry's commander, for instructions. Moore told him that if the enemy overran the 19th Infantry's positions on the northwest side of Chinju and he could not evacuate the tanks on their own power, he was to destroy them and evacuate his tank crews by truck.

Lieutenant Fowler telephoned Masan and apparently learned that the flatcars had departed for Chinju to get the tanks, so he decided to stay. Gradually, the firing in Chinju died down. A ROK soldier who passed the rail station about noon told Fowler that only very few ROK soldiers were still in the town.

Sometime later, William R. Moore, an Associated Press correspondent, suddenly appeared and suggested that Fowler check out a group of men coming up the rail track. It was now perhaps an hour past noon. Fowler had an interpreter call to the approaching men — they were North Koreans. Fowler ordered his tank crews to open fire. In the fire fight that immediately flared between the tanks' .30- and .50-caliber machine guns and the enemy's small-arms fire, Fowler was hit with a bullet on his left side. During this close range fight, the tanks' machine gun fire killed or wounded most of the enemy group, which was about platoon size. The tankers put Fowler in his tank and began moving the three M26 tanks east on the road to Masan.

Two miles down the road, the tanks came to a blown bridge. The men prepared to abandon the tanks and proceed on foot. They removed Fowler from his tank and made a litter for him. Fowler ordered the men to destroy the tanks by dropping grenades into them. As soon as three crewmen started for the tanks, an enemy force lying in ambush opened fire. A number of men got under the bridge with Fowler. Master Sergeant Bryant E.W. Shrader (Silver Star recipient), the only tanker manning the tanks, opened fire with the .30-caliber machine gun. A North Korean called out in English for the men to surrender.

Shrader left the machine gun and started the tank, driving it as close as he could to one of the other tanks. He dropped the escape hatch and took in six men. He then drove back toward Chinju and stopped the tank a few feet short of the bridge over the Nam, undecided whether to cross to the other side. There, the overheated engine stopped and would not start again. The seven men abandoned the tank and ran into the bamboo thickets bordering the river. After many close calls with enemy forces, Shrader and his group finally reached safety and passed through the lines of the 25th Division west of Masan.

The men back at the blown bridge had no chance. Some were killed or wounded at the first fire. Others were killed or wounded under the bridge. A few ran into nearby fields trying to escape, but were killed or captured. One captured soldier later recalled that he saw several bodies floating in the stream and recognized two as Fowler and Moore. (5) The only medium tanks in Korea were lost. (6)

Studying this part of the Korean War some 57 years later, I pondered what was going through the minds of Fowler and his soldiers during their departure from Japan, their arrival at the Pusan port, and their movement to the front line at Chinju. There is not enough written about this particular part of history to get into the details of what Fowler and his soldiers experienced. For instance, we have no idea how much the soldiers knew about the fan belt problem with their Pershing tanks, or if they even had the capability to apply measures to overcome the problem. I would venture to say they did what they could under the circumstances.

Today, we use a pre-combat inspection (PCI) sheet that lists all the items needed prior to movement. A leader's initial inspection includes preventive maintenance checks and services (PMCS), followed by the DA Form 5988E, the dispatch, and technical manual (TM). However, on their arrival in Korea, these Pershing tanks were the only allied tanks on the Korean Peninsula that could rival the North Korean T-34 tank, so they were pushed to the front line quickly, despite their shortcomings. There must have been a great sense of urgency inside the Pusan perimeter, and U.S. commanders needed tanks that could stop North Korea's T-34. Without being there, I will probably never know how much attention was pushed higher about the condition of the M26 tank's fan belts and thus the future operation of the tanks. However, I can safely assume that, at the time, the mission was to get the tanks to the front to help slow down the armor attacks until additional allied medium tanks arrived.

Editor: The experience of Task Force Fowler underscores the importance of maintaining the operational readiness of vehicles. In this instance, the M26 tanks were left to deteriorate without being placed in storage or inspected at regular intervals. Consequently, when required for combat operations, they were not ready and critical parts could not be obtained on short notice. Thrust into combat, mechanical failure ensured the destruction of Task Force Fowler. Armor units must at all times ensure the operability of their vehicles in the same manner that cavalry troopers once made care of their horses a critical priority.

Notes

1) Brigadier General William A. Stofft, *Army Historical Series: American Military History* (Washington, D.C.: Office of the Chief of Military History, U.S. Army Center for Army Lessons Learned, 1989), p. 540.

2) Jim Mesko, *Armor in Korea: A Pictorial History* (Carrollton: Squadron/Signal Publications, February 1984), p. 6.

3) Ibid., p. 7.

4) Ibid., p. 6.

5) Roy E. Appleman, *South to the Naktong, North to the Yalu* (Washington, D.C.: Department of the Army, U.S. Government Printing Office, 1998), pp. 231-233.

6) *Armor in Korea*, p. 13.

Busting the Barricades: How Armor Was Employed in the Urban Battle of Seoul

Editor: This article first appeared in the September-October 2001 issue of *Armor* magazine. Its author, CPT Matthew H. Fath, was concerned about the U.S. Army's lack of readiness for sustained urban combat in the 1990s and a preference for a precise, clinical approach that defied the historical realities of fighting in cities. These pages describe the employment of tanks in combined arms teams to overcome a maze of fortified urban strongpoints during the capture of Seoul by United Nations forces in 1950. Armor used its unique combination of mobile, protected firepower to sustain the infantry assault through a major city defended by a determined opponent. In highlighting the basic tactics, techniques, and principles applied by armored combined arms teams in Seoul, the author underscores the recurring relevance of such organizations in the most complex terrain of all—the large city.

As noted in a recent *Army Times* article entitled "Urban Crisis," few armor or mechanized infantry units — and not one active duty armor or mechanized infantry unit — has yet trained or was scheduled to train at the Zussman Village Mounted Urban Combat Training Site at Fort Knox, Kentucky.

This is a startling fact, considering that the facility cost over 15 million dollars to build and is touted as the premier urban warfare training center for armor units.(1) This apparent lack of interest by the heavy force community, coupled with the light infantry's increasing reliance on "precision" urban warfare, is a disturbing trend. By disregarding the likelihood of future battles in urban terrain, many heavy units, with their emphasis on desert or rural warfare, allow the special operations and elite light infantry units to write the Army's future urban warfare doctrine. For example, a cursory reading of doctrinal proposals or combat training center articles demonstrates that the correct training emphasis of conventional U.S. Army units should be on proper room clearing techniques and well-aimed rifle fire.(2) Moreover, the focal point for "precision" MOUT adherents seems to be on aggressive light infantry forces, to the neglect of the combined arms team. Disregarding both the very nature of urban warfare and history's past urban battles, "precision" MOUT supporters have wrongly implied that future urban fights will require less firepower.

General Douglas MacArthur once stated that it is the study of military history that brings to light "those fundamental principles, and their combinations and applications, which, in the past, have been productive of success."(3) An examination of the Battle of Seoul during September 25-28, 1950, refutes the "precision" MOUT theory and demands that armor and mechanized leaders claim their rightful place at the table of doctrinal discussions. Specifically, the Battle of Seoul demonstrates that armor, with its ability to survive on the battlefield and produce large, concentrated amounts of firepower, was an integral component of the combined arms team. During X Corps's "Battle of the Barricades," Marine and Army tactics stressed the punching power of tanks as a decisive and necessary complement to the rifleman. Tanks, in the role of mobile assault guns, reinforced the rifle companies with destructive and suppressive fires to overcome the North Korean People's Army's (NKPA) strongpoint defenses. Additionally, they provided commanders flexibility by shifting tanks to decisive points on the battlefield. As a veteran of the fighting in Seoul, Private First Class Lee Berger of E Company, 2d Battalion, 1st Marine Regiment, stated, "Thank God we had tanks with us. Without them, we'd still be fighting there."(4)

Given the military, psychological, and political importance of Seoul to both the UN (United Nations) and NKPA forces, it is hardly surprising that the city would become a battleground. Seoul, the capital of South Korea, was also an important logistics node. General MacArthur believed that the recapture of Seoul was an important part of Operation Chromite (The Inchon-Seoul Campaign) and stated: "By seizing Seoul, I would completely paralyze the enemy's supply system — coming and going. This in turn will paralyze the fighting power of the troops that now face Walker. *[**Note:** Lt. Gen. Walton H. Walker commanded the Eighth Army holding the Pusan Perimeter.]*

Without munitions and food they will soon be helpless and disorganized, and can be easily overpowered by our smaller but well supplied forces." (5)

MacArthur also believed that the recapture of Seoul would undermine the morale of the NKPA and boost the morale of the ROK forces. Author Clay Blair in *The Forgotten War: America in Korea*, 1950-1953, noted that

MacArthur placed great emphasis on the psychological benefits of capturing Seoul. MacArthur professed that Seoul's capture would shock and demoralize the North Korean government and armed forces.(6)

For the North Koreans, Seoul was the logistical hub for its forces south of the Imjin River, a lifeline of sorts. As author James Stokesbury, in his work *A Short History of the Korean War*, stated, "The vast majority of the support for the Communist offensive, therefore, funneled through the fairly narrow corridor in and around the capital city." (7)

Two important factors in understanding the need for armor support during the Battle of Seoul center on the nature of the city's urban terrain and the NKPA defenses. In 1950, Seoul had a population of nearly two million people. The city proper was surrounded by hill masses, mostly rural villages of huts. However, its core contained modern office buildings, residential structures, and ancient palaces. Many of the buildings were solidly constructed and structurally sound. Wide arterial boulevards crisscrossed the city, and it was these avenues of approach that would become the focal points for NKPA strongpoints.(8) One such major road was Ma Po Boulevard. General Edwin H. Simmons, then a weapons company commander in the 3rd Battalion, 1st Marine Regiment, described Ma Po Boulevard as a "solidly built-up street, mostly two- and three-story structures of stucco and masonry construction, and occasional more impressive buildings — churches, hospitals, and so on — often enclosed with a walled compound." (9)

In charge of the NKPA defense of Seoul was Major General Wol Ki Chan. Chan's initial plan was to concentrate his forces on the hills surrounding Seoul and in the city itself. However, after the 32d Infantry Regiment of 7th Infantry Division seized South Mountain on the 25th of September, Chan believed that the city was lost and withdrew many of his units. Nevertheless, he left a sizeable force to defend Seoul's city core in an effort to delay and attrit X Corps forces. Chan hoped that this delaying action would also allow NKPA units south of Seoul to withdraw north and avoid being smashed between X Corps and Eighth Army. (10)

Opposing UN forces were an amalgamation of various NKPA units under the newly formed 31st Rifle Division or Seoul City Regiment, numbering approximately 8,000 to 10,000 men. The 31st Rifle Division consisted of units from the 25th NKPA Separate Infantry Brigade, 18th NKPA Rifle Division, 42d NKPA Tank Regiment, 19th NKPA Anti Tank Regiment, 513th NKPA Artillery Regiment, 10th NKPA Railroad Regiment, and the 36th Battalion, 111th NKPA Security Regiment. (11) The NKPA defenders also employed a large majority of Seoul's inhabitants as forced labor to construct their barricades. (12)

To defend the nucleus of Seoul, the NKPA developed a potentially deadly defensive scheme. On the outer edges of the city core, the NKPA employed ambushes and sniper teams in order to attrit and disrupt Marine or Army attacks. Photojournalist David Douglas Duncan, with A Company, 1st Battalion, 1st Marine Regiment, testified to the frustrating effects of these ambushes in his book *This Is War: A Photo-Narrative of the Korean War*. He stated, "Other Reds, armed with rapid fire burp guns and hiding behind the gutter walls along the way, squirted quick bursts at the steadily pushing Marines — then melted away. (13)

After the ambushes had taken some toll on the attackers, the NKPA hoped that their series of successive strongpoint defenses or barricades would destroy them. Barricades were established every 400 to 600 yards. If the attacker could not be halted, the NKPA's defensive depth would allow their defenders to break contact, withdraw, and then occupy a supplemental or alternate barricade. (14) The major weakness of the NKPA's defense was that many strongpoints were isolated and lacked mutual support. As author Bevin Alexander explained in his book *Korea: The First War We Lost*, "Thus the Americans were able to reduce each barricade independently with no fear that the enemy could develop a coordinated counterattack or pose any threat to possession of the city." (15)

Despite the NKPA's lack of an overall coherent defensive plan, at the small unit level each barricade was individually formidable and deadly to the potential attacker. These barricades were essentially fortified islands. As author Robert Tallent, who was with D Company, 2d Battalion, 1st Marine Regiment, stated: "In actions of this type there can be no flanking of a position — only so many men can get into the fight. The width of the street, available cover and strength of the enemy fire dictate the number of troops that can be brought to bear on any one position… The barricade is a separate battle all to itself." (16)

Each barricade was centered on a street intersection. The entire width of the street was blocked with a wall constructed of rice bags filled with earth. The barricade was generally eight feet high and approximately six feet deep, making it impervious to machine gun or small arms fire. Many barricades were reinforced with

various materials such as overturned trolley cars, automobiles, barrels, streetcar rails, or other debris. In front of each barricade were rows of antitank mines. Covering this kill zone were interlocking fires from towed 45mm antitank guns, individual T-34 tanks or SU 76 self-propelled guns, antitank rifles, and Maxim heavy machine guns. (17)

Each barricade was also tied into adjacent buildings. NKPA soldiers occupied defensive fighting positions inside the buildings and fired from doors and windows. (18) These positions offered excellent cover and concealment and degraded the attacker's target acquisition. Snipers also fired from rooftops. Staff Sergeant Lee Bergee of E Company, 2d Battalion, 1st Marine Regiment, stated that, "It seemed that every building in Seoul housed an enemy sniper." (19) Each barricade was also supported with mortars and artillery fires, which were often registered in front of the enemy barricades. For extra defense against tanks, the NKPA also resorted to suicide detachments armed with satchel charges. (20)

Against these defenses, the X Corps commander, Major General Edward Almond, ordered General Oliver P. Smith's 1st Marine Division to seize Seoul. Smith planned a multi-pronged advance that was centered on major roads in Seoul, in an effort to capture the city quickly. (21) Based on the limited intelligence of NKPA defenses in Seoul, the operation was essentially an urban movement to contact. On September 25, the 1st Marine Division began its attack on Seoul. In order to support the 1st Marine Division's attack and isolate the city from the south, the 32d Infantry Regiment of the 7th Infantry Division seized South Mountain and cleared the surrounding urban area.(22)

Marine Regimental Combat Team One, consisting of the 1st Marine Regiment and the 2d Korean Marine Corps Battalion, attacked in zone (its "zone of action" approximately one mile to one and half miles wide with a final objective of six miles in depth —the high ground near the northeastern outskirts of Seoul) oriented on the Ma Po Boulevard. In RCT-1's zone were Seoul's main business and hotel section; the main Seoul railroad station; the French, American, and Russian consulates; City Hall; the Duk Soo Palace; and the Museum of Art. (23) To give the reader a flavor of the scope of RCT- 1's mission, General Edwin Simmons stated that their attack was analogous to "moving up Pennsylvania Avenue to capture the Capitol, taking Union Station along the way." (24)

Regimental Combat Team Five, consisting of the 5th Marine Regiment and the 1st Korean Marine Corps Battalion, attacked in zone (its "zone of action" also approximately one to one and a half miles wide, with a final objective of six miles in depth — the high ground overlooking the Seoul-Uijongbu Road) oriented towards the northwestern part of the city, which included the Government House, Sodaemun Prison, Changdok Palace, and the Royal Gardens. Regimental Combat Team Seven, consisting of the 7th Marine Regiment, the 1st Marine Recon Company, and the 5th Korean Marine Corps Battalion, was originally ordered to protect the division's left flank and seize the high ground astride the Seoul-Kaesong Road to the northwest of Seoul in order to block enemy escape routes. (25) However, after Smith realized the intensity of the fighting in Seoul, he reoriented RCT-7s axis to the south down the Kaesong- Seoul highway and ordered them to attack abreast of RCT-1. (26)

Despite MacArthur's premature pronouncement of the city's liberation on September 26, the seizure of Seoul did not come quickly. After defeating a NKPA armored counterattack during the night of September 25, the Marine forces soon became bogged down in a street-by-street war. As Colonel Lewis "Chesty" Puller, the commander of the 1st Marine Regiment stated, "Progress was agonizingly slow." (27) Sometimes, the Marine regiments averaged a total of 1,200 to 2,000 yards a day. (28) This was due to the fact that the lethal NKPA traps produced murderous amounts of fire and posed significant challenges for the Marine or Army attackers. They also had the propensity to inflict large numbers of casualties. Private First Class Jack Wright of G Company, 3rd Battalion, 5th Marine Regiment, remarked that his company nicknamed one intersection "Blood and Bones Corner." (29) Army Signal Corps Lieutenant Robert Strickland, who was with the Marines in Seoul, stated: "The air was whipping with everything from flying stones to big antitank shells… Right after this, we got so much fire of all kinds that I lost count. There was more mortar shells, more antitank stuff, and more small-arms fire, and then it started all over again. I have seen a lot of men get hit in this war and in World War II, but I think I have never seen so many men get hit so fast in such a small area." (30)

Given the nature of the intense fighting described above, it becomes abundantly clear that the "sugar-coated version" of precision MOUT could not have possibly overcome these defenses. (31)

Instead, in order to breach these barricades and destroy the NKPA defenders, the Marine and Army forces developed a highly effective combined arms team, in which tanks played an indispensable role. Most UN forces quickly discovered that rifle or machine guns lacked the penetrating power and punch to overcome the hardened NKPA barricade defenses. Moreover, only the tank proved to be effective at physically breaching the barricade. It simply blasted it to shreds with its main gun or plowed through it. (32)

The typical tactical pattern for the Marines or Army units began with a bombing or strafing of NKPA positions by Marine Corsairs. Next, mortars and artillery suppressed the enemy while a team of infantry and armor moved into support-by-fire positions. Tanks destroyed NKPA machine guns, tanks, and antitank guns, while engineers breached the minefields. After a breach lane was created, tanks rolled forward and demolished the barricade. Then infantry, following behind the tanks to take advantage of their armor protection, entered buildings and completed the destruction of the enemy. On the average, this whole process took about an hour per barricade. (33) Staff Sergeant Chester Bair of the Heavy Tank Company, 32d Infantry Regiment, which was often attached to Marine units, praised these tactics. He stated: "The Marines used tanks very well. They would use the telephone located on the rear of each tank which talked to the commander inside. In this way the Marines acted as our eyes. Buttoned up inside, depending on a periscope, our vision was limited. Working outside in the streets, the Marines tremendously increased our ability to close with the enemy and to direct our firepower." (34)

The two tanks that were used by UN forces during the Battle of Seoul were the M-26 Pershing and the M4A3 Sherman. The M-26 Pershing was used by the Marine Corps. Its armament was a 90mm main gun and two .30 caliber machine guns. The Army used the M4A3 Sherman. Also, some Marine units received support from the Sherman tank companies of the 7th Infantry Division. The Sherman's armament consisted of a 76mm main gun and three .30 caliber machine guns. In addition to the Pershing and Sherman tanks, other variants, such as flame-thrower tanks and bulldozer tanks, were also used. (35)

Tanks were often rotated in order for the attacking units to sustain the momentum of the attack and prevent many withdrawing NKPA soldiers from bolstering the defense of the next barricade. Chester Bair stated, "As soon as one had been eliminated, there would be another. After a tank overran three or four of them, another one would replace it. In this manner each tank could refuel, clean its guns, receive ammo, and allow the crew to work and do maintenance." (36) If a tank "rotation" policy was not possible, attackers waited for tanks to rearm and refuel before continuing on to the next barricade fight. (37)

One hallmark of the tank's effectiveness was its ability to generate large amounts of accurate and deadly firepower in a very short time. During the destruction of one barricade by D Company, 2d Battalion, 1st Marine Regiment, Tallent stated that it appeared that the "tank guns went into a rampage." (38) Tanks assisting companies from the 1st Battalion, 1st Marine Regiment were also instrumental in destroying NKPA defenses around the railroad station and government compound. (39) Often, tanks proved to be the decisive arm when the momentum of attacks began to stall and fire superiority needed to be regained. Duncan observed: "From behind their barricades they (the NKPA) started spraying endless rounds into the station and its plaza out in front. The Marines burrowed into the shell holes and dared not raise their heads, for the crack of bullets overhead was close and constant and meant for them. Back along the street, other Marines heard the fire, leaned dangerously far out from their own barricades to see how they might relieve their buddies, and had found no answer — when deep, ground-shivering roars took the problem from their shoulders… tanks, those long-overdue tanks, growled up across the railroad tracks, into the plaza — and met the enemy fire head on. The tanks traded round for round with the heavily-armed, barricaded enemy — and chunks of armor and bits of barricade were blown high into the air." (40)

Tanks were also very effective at quickly destroying NKPA heavy weapons and armored vehicles which, left alone, would have cut advancing infantrymen to pieces. During a fight near Duksoo Palace, Lieutenant Bryan J. Cummings's M-26 Pershing destroyed two NKPA SU-76s and allowed the Marines to seize the enemy barricade. (41) Blair's Sherman crew also destroyed a NKPA T-34 in a battle in the street, "ripping their turret completely off" with one round. (42)

Attacks that were launched without tank support often ended in failure. In fact, many of these units had to be rescued by tanks; the presence of a few tanks often favorably shifted the tide of the battle towards the UN side. For example, on September 26, a platoon from C Company, 32d Infantry Regiment encountered a NKPA defense in vicinity of the Seoul City Racetrack. Suffering heavy casualties within seconds and lacking any tank support, the platoon established a hasty defense and began fighting for their lives. The platoon just

simply did not have enough firepower to overcome the NKPA defenses. The platoon leader, Lieutenant James Mortrude, wisely requested assistance from some tanks that he saw in an adjacent sector. As author Shelby Stanton described in his book, *Ten Corps in Korea, 1950*:

> He (Lieutenant Mortrude) spotted a trio of three tanks clanking forward to their assistance, and dashed 25 yards through withering enemy fire to reach them before more casualties were inflicted on his platoon. Grabbing the external interphone system phone on the rear of the "buttoned-up" lead tank, he yelled directions to commence firing immediately into the enemy-held roadway. The tanks smothered the road berm in geysers of blackened earth as the uninjured and walking wounded retreated to safety. (43)

The initial advance by D Company, 2d Battalion, 7th Marine Regiment is another vignette that demonstrates the vital need for tank support during the urban fight at Seoul. Moving to conduct link-up with elements of the 5th Marine Regiment, D Company was punished by NKPA defenses near the Arch of Independence, suffering heavy casualties within minutes. D Company was soon surrounded by NKPA counterattacks and had to establish a perimeter defense and wait for support. The next morning, tanks smashed through the enemy's defenses and liberated the lost company. (44)

The liberation of Seoul actually occurred on September 28, when fittingly, a flame-thrower tank destroyed the last real NKPA defense near Kwang Who Moon Circle. (45) Seoul was ripped from the hands of the NKPA at a high cost. For example, the 1st Marine Division lost 121 killed in action and 589 wounded. NKPA casualties were estimated at 4,284 dead or wounded. (46) U.S. tanks proved to be quite resilient. Not one tank was destroyed by an NKPA tank but several were destroyed by suicide detachments or mines. (47)

The use of armor during the Battle of Seoul provides the modern military leader with key insights on the possibilities of future urban warfare and the need to train units to meet this challenge. The Marine and Army experience in Seoul demonstrates that armor plays a critical role in destroying a resolute enemy in urban battles. Armor has the ability to rapidly destroy enemy strongpoints and create breach holes for the infantry assault, while using its armor protection to survive on the battlefield.

Like the Marines and the Army at Seoul, successful future MOUT operations should be conducted with combined arms teams, with armor or infantry fighting vehicles playing a requisite role. The current fad of believing that infantry alone, employing "discriminatory" rifle fire and hostage rescue tactics, can overcome an urban defense may well be a recipe for disaster. Precision MOUT techniques, while admirable and alluring in its concept of minimizing noncombatant casualties and collateral damage, does not pass the test of history.

Editor: The North Korean defenses possessed many of the characteristics of the urban hybrid threat of the 21st century. The North Koreans altered the urban terrain to their benefit, they incorporated a variety of capabilities into their operations, including heavy ordnance, tanks, antitank systems, small arms, and suicide teams. They also sought to use the urban environment to restrict US mobility, offset American firepower, and minimize the impact of air power. The development and integration of strongpoints was designed to force the American attackers into time consuming and casualty inducing urban combat.

Against this threat, the importance of combined arms operations became paramount. Tanks could not reduce each strongpoint alone, but nor could unsupported infantry. Tanks provided the necessary mobile, precision firepower to eliminate heavy weapons, destroy fortified positions, and suppress the enemy—particularly in positions difficult to eliminate with indirect fire weapons or airstrikes. These actions enabled infantry teams to clear and secure one strongpoint after another, thereby sustaining the momentum of the attack. Tanks proved capable of maneuvering in the face of enemy fire to apply firepower where needed, but they benefited from the ability of infantry to identify targets and communicate this information directly to tank crews. The use of combined arms teams that included tanks ensured the steady reduction of barricade after barricade. Where infantry attacked alone, they generally fared badly, requiring armored relief.

Symptomatic of more contemporary and future threats, the only tank losses incurred resulted from mines and suicide attacks. The availability of armor was sustained through regular rotations of tanks into and out of combat operations, providing necessary periods for resupply, maintenance, and rest.

Notes

1) Sean D. Naylor, "Urban Crisis," *Army Times*, 20 November 2000, [on-line].

2) The definition of precision MOUT can be found in the Department of the Army *Field Manual 90-10-1, An Infantryman's Guide to Combat in Built-Up Areas* (Washington, D.C.: GPO, 1993).

3) John E. Jessup and Robert W. Coakley, *A Guide to the Study and Use of Military History* (Belmont, Calif.: Wadsworth Publishing Company, 1998), 38.

4) Donald Knox, The Korean War, Pusan to Chosin: An Oral History (New York: Harcourt Brace Jovanovich, 1985), 293.

5) William T. James, "From Siege to Surgical: The Evolution of Urban Combat from World War II to the Present and Its Effect on Current Doctrine," (M.M.A.S. thesis, United States Army Command and General Staff College, 1998), 27.

6) Clay Blair, *The Forgotten War: America in Korea*, 1950-1953 (New York: Times Books, 1987), 231-232.

7) James L. Stokesbury, *A Short History of The Korean War* (New York: William Morrow, 1988), 66.

8) Roy E. Appleman, *United States Army in The Korean War: South to the Naktong, North to the Yalu* (Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1961), 531; Knox, 288; James, 27-28.

9) Edwin H. Simmons, "The Battle For Seoul," address to the U.S. Marine Corps Amphibious Warfare School, 15 March 1985, [on-line], http://www.geocities.com/pentagon/6453/seoul.html, accessed 14 September 2000.

10) G.W. Smith, "The Blinding Sand of MacArthur's Hourglass: The Race to Seoul," *Marine Corps Gazette* (September 2000), [on-line], accessed 7 Sep 2000; Robert E. Everson, "Standing at the Gates of the City: Operational Level Actions and Urban Warfare," (M.M.A.S. thesis, School of Advanced Military Studies, United States Army Command and General Staff College, 1995), available from the Center for Army Lessons Learned Database (Public Access), https://calldbpub.leavenworth.army.mil/call.html, accessed 8 September 2000; Bevin Alexander, *Korea: The First War We Lost* (New York: Hippocrene Books, 1986), 214; James, 29.

11) Lynn Montross and Nicholas A. Canzona, *United States Marine Corps Operations in Korea, 1950-1953, Volume II: The Inchon-Seoul Operation* (Washington, D.C.: Headquarters, United States Marine Corps, 1955), 325--326.

12) Shelby L. Stanton, *Ten Corps in Korea*, 1950 (Novato, Calif.: Presidio Press, 1996), 106.

13) David D. Duncan, *This Is War! A Photo-Narrative of The Korean War* (Boston: Little, Brown, and Company, 1990).

14) Robert Tallent, "Street Fight in Seoul," in *The Leathernecks: An Informal History of the U.S. Marine Corps* (New York: Franklin Watts, 1963), 240-241.

15) Alexander, 218.

16) Tallent, 240.

17) Robert D. Heinl, Jr., *Victory at High Tide: The Inchon-Seoul Campaign* (New York: J.B. Lippincott, 1968), 229; Andrew C. Geer, *The New Breed: The Story of the U.S. Marines in Korea* (New York: Harper and Brothers, 1952), 171; Simmons; Tallent, 240-241; Montross and Canzona, 271-272; Knox, 289.

18) Alexander, 215-216.

19) Knox, 289.

20) Montross and Canzona, 272.

21) Anthony Harrigan, "Combat in Cities," *Military Review* 46, No. 2, (May 1966): 29; Montross and Canzona, 255-256.

22) Montross and Canzona, 273-274.

23) Ibid., 255-256; Appleman, 531.

24) Simmons.

25) Montross and Canzona, 255-256; Appleman, 531.

26) Montross and Canzona, 264.

27) Ibid., 272.

28) Montross and Canzona, 273; Heinl, 242.

29) Knox, 292.

30) Stanton, 108-109.

31) George Mordica, "Urban Combat: It's A Dirty Business, But Someone Has to Do It," Center for Army Lessons Learned Newsletter — *Urban Combat Operations: Tactics, Techniques, and Procedures*, November 1999, No. 99-16, 1-2. Mordica coins the term "sugar-coated," when referring to precision or surgical MOUT.

32) Tallent, 244; Heinl, 229-230.

33) Heinl, 229-230; Alexander, 216; Appleman,535.

34) Knox, 294.

35) Birchard L. Kortegaard, "Korean War: Tanks and Fighting Vehicles," http://rt66.com/~korteng/SmallArms/tanks.htm, accessed on 15 November 2000; Appleman, 535.

36) Knox, 293.

37) Heinl, 242.

38) Tallent, 243.

39) Montross and Canzona, 279.

40) Duncan.

41) Montross and Canzona, 278; Heinl, 245.

42) Knox, 294.

43) Stanton, 106-107.

44) Appleman, 534-535; James, 32.

45) Appleman, 535.

46) James, 35.

47) Appleman, 540.

Breakout and Pursuit Operations by Task Force Lynch

Editor: The following article by MAJ Arthur W. Connor, Jr. appeared in the July-August 1993 issue of *Armor* magazine under the title, "Breakout and Pursuit: The Drive by the 1st Cavalry Division and Task Force Lynch." It details the operations of Task Force Lynch in its efforts to break free from the Pusan Perimeter, drive through North Korean-held territory and establish a linkage with other American forces that had landed at Inchon. The article highlights the risks associated with a high speed drive through unsecured areas at night.

> *"Some of our scientists do not understand the psychology of warfare. Infantry has a mortal fear of enemy tanks. The greatest morale-raising factor of this war was the arrival of American tanks which could knock out the Russian T-34. The tank is an essential member of the combat team."* – Major General Hobart Gay, Commanding General, 1st Cavalry Division in Korea, 1950. (1)

On the 25th of June 1950, the North Korean Peoples Army (NKPA) surprised the United States and the world by crossing the 38th parallel and invading South Korea. The Republic of Korea (ROK) Army fell back in disorder as the Communist forces drove deeply into South Korea, spearheaded by Russian-built T-34 tanks. The initial American forces sent to Korea could only slow the advance of the NKPA.

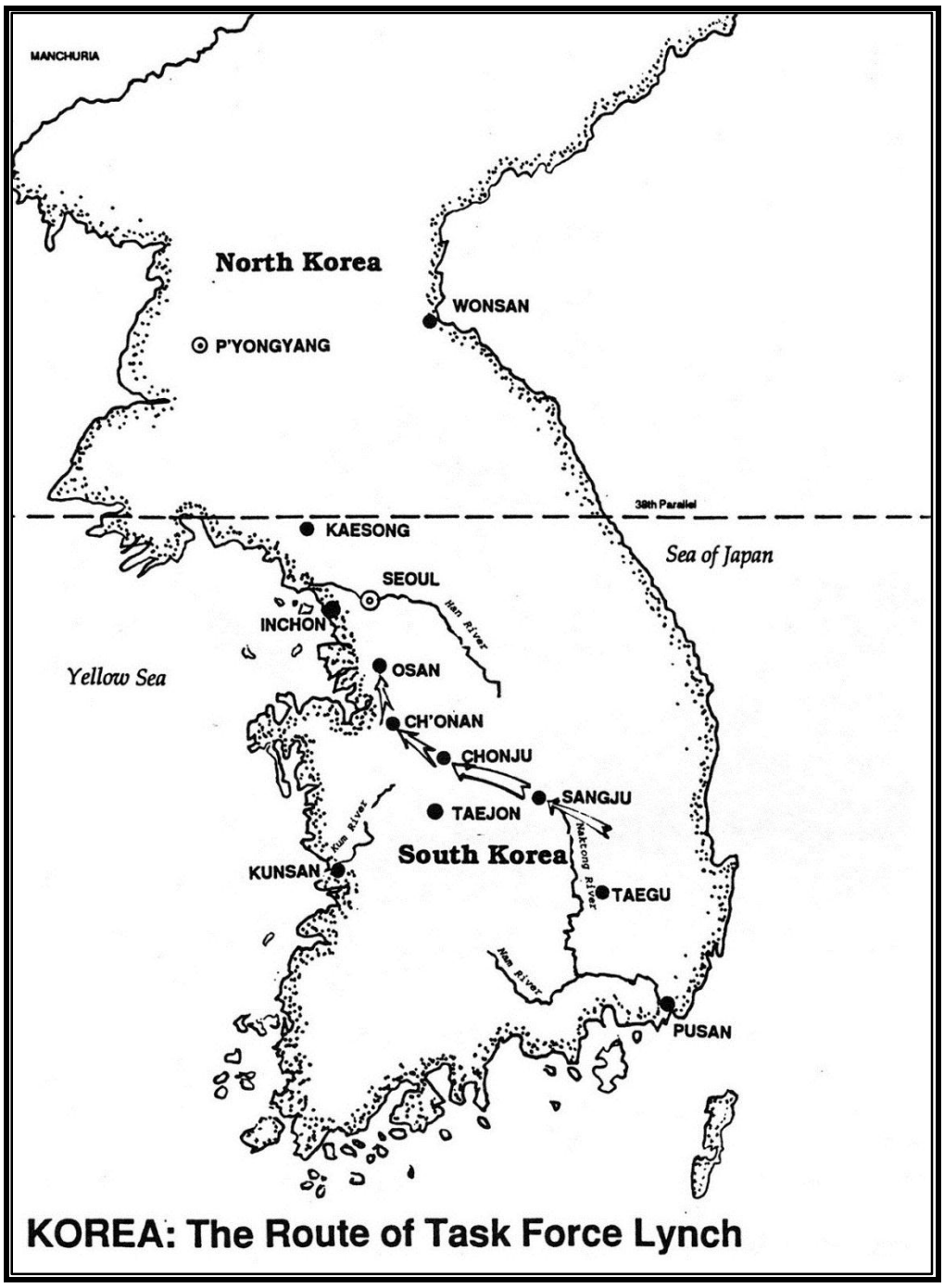
By the first week of August, Eighth United States Army and its ROK allies had been forced back into a perimeter around the port of Pusan. Grim resistance marked the battles of the Pusan Perimeter, as General of the Army Douglas MacArthur fed reinforcements to Eighth Army while planning a counterstroke aimed at Inchon. With the situation in the perimeter stabilized in mid-September, MacArthur launched X Corps (1st Marine Division and 7th Infantry Division) at Inchon on the 15th, directing Eighth Army to break out of the Pusan Perimeter and drive north to effect a link-up.

After securing a bridgehead over the Naktong River from 21-25 September 1950, the 1st Cavalry Division was poised to drive north and do just that. Major General Hobart Gay met with his regimental commanders at 0830 on the morning of 26 September 1950 at the schoolhouse in the village of Sangju. After almost three months of intense combat and constant fighting in defense of the Pusan Perimeter, the 1st Cavalry Division was finally going to go on the offensive and hurl its tanks and men into the heart of the North Korean Peoples Army.

The 7th Cavalry would lead the dash of the division northwest to the linkup with X Corps. Lieutenant Colonel James H. Lynch's 3d Battalion, 7th Cavalry (designated Task Force Lynch) would lead his regiment and the division in the breakout from the Pusan Perimeter. Colonel William A. Harris, commander of the 7th Cavalry and the regimental command group would follow Task Force Lynch, with 1st Battalion, 7th Cavalry (designated Task Force Witherspoon) bringing up the rear and prepared to leapfrog past Task Force Lynch should the need arise. (2) The 70th Tank Battalion's M4A3 Sherman tanks would provide firepower and shock effect for the cavalrymen, with 2d and 3d platoons of C Company attached to Task Force Lynch.

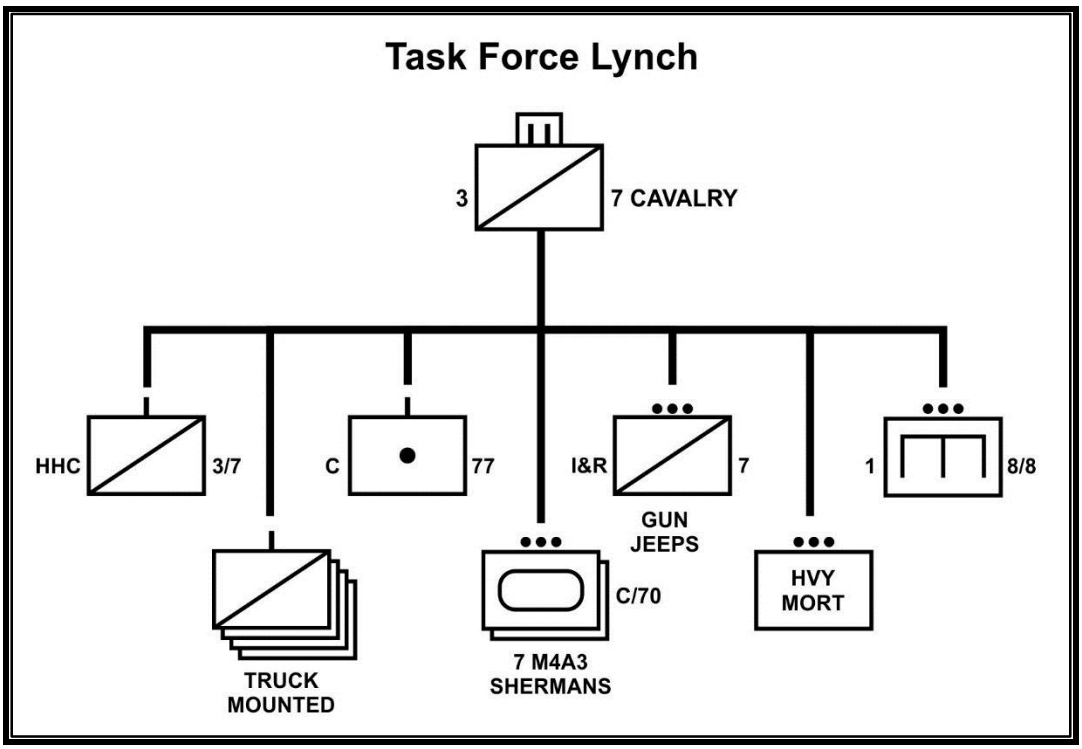
Task Force Lynch moved out at 1130 hours with the Intelligence and Reconnaissance (I and R) Platoon leading Lieutenant Robert Baker and the three tanks of 2d platoon, C Company, 70th Tank Battalion. Baker's tanks were followed by an engineer platoon from B Company, 8th Engineers; Colonel Lynch's command group; I, L, and M Companies; 3/7 Cavalry Headquarters Company; K Company, C Battery, 77th Field Artillery (105-mm towed); with 2d Platoon, C Company, 70th Tank Battalion bringing up the rear. The infantrymen of the Task Force rode in two-and-a-half ton trucks in order to keep up with the swift moving lead elements. The task force objective was the village of Osan, nearly 102 miles away.

For miles there was no opposition, only the cheering of liberated Koreans as the task force moved through the countryside. At 1430 hours, the I and R Platoon and Baker's tanks reached the outskirts of Chongju, where Colonel Lynch moved the tankers into the lead instead of the unarmored jeeps. Baker entered the town and found it deserted, even though some Korean women told him that the NKPA would shoot their husbands if he continued into the town. (3) The column left Chongju with the gun jeeps of the I and R Platoon back in the lead.



KOREA: The Route of Task Force Lynch

At 1800 hours, after traveling approximately 64 miles, the task force halted to refuel the tanks. To the consternation of Colonel Lynch, the refuel truck for the tanks had not moved out with the rest of the task force. As it was getting dark, Colonel Lynch consulted with Colonel Harris, who was accompanying the column, about the possibility of proceeding to the rendezvous with the 7th Infantry Division with the headlights of the task force turned on! Colonel Harris agreed, and his bold decision was relayed to Lieutenant Baker and the rest of the troopers in the force. (4) Baker received this order with a degree of discomfiture, but his immediate worry was refueling his thirsty tanks.



Baker moved down the line of the vehicles collecting all of the five-gallon cans of gasoline that he could find. As he passed the trucks carrying the infantry of 3/7 Cavalry, each truck closed up to the vehicle in front of it along the edge of the road. Colonel Harris chewed out Lieutenant Baker for causing the column to close up and become more vulnerable, asking the tank platoon leader if he hadn't had to correct him for doing the same thing before. (5) The beleaguered lieutenant continued to collect gas cans when the lead squad of the I and R Platoon came running back down the road toward the tankers, screaming that a North Korean tank was coming their way.

Baker's men mounted up and were ready to fire, when the "tank" turned out to be three NKPA trucks. In the near darkness, the enemy drivers did not recognize the Americans until it was too late. Panicking, they bailed out of the trucks and ran away, but not before one of the drivers crashed his truck into a jeep of the I and R Platoon that was parked astride the road. The tankers and scouts searched the trucks and discovered enough gasoline aboard them to refuel Baker's three tanks and the three tanks of the 2d Platoon at the rear of the task force. The generosity of the enemy allowed the column to move out again at approximately 2000 hours. (6)

The moon was up, but it was a cloudy night when Lieutenant Baker led Task Force Lynch into the village of Chonan and onto the main highway to Osan. The headlights of the force burned brightly as it ground its way north through enemy territory and toward the link-up with X Corps. Baker was given permission to engage enemy soldiers if he needed to, but a captain from the command group told him to "go slow for about ten minutes, and then highball as fast as you can." (7)

Baker complied and entered Chonan from the south. He found the village full of enemy soldiers who did not seem to mind the presence of the American tanks. The numerous streets of the village did not match those on his map, so Lieutenant Baker stopped his tank at an intersection that had a single NKPA soldier standing guard. The tank platoon leader brazenly pointed at one of the roads, and asked the North Korean "Osan?" The befuddled soldier pointed out the right road, then recognizing the tank as American, fled in panic. Lieutenant Baker cut him down with machine gun fire, and then moved out. (8)

Moving north from the village, the tankers passed dozens of enemy soldiers and vehicles. The tankers sprayed the NKPA with machine gun fire and high explosive (HE) rounds from the main guns of their Shermans, but they did not stop. Baker caught a company of NKPA in full uniform and camouflage just after leaving Chonan, and chewed them up. One of the enemy soldiers was run over by Baker's tank when he and

another soldier collided while trying to get out of the way of the charging Americans. Several enemy soldiers on bicycles and two jeeps were also crushed by the tankers. Baker attempted to contact Colonel Lynch, but he had not been able to establish radio contact since entering Chonan. Since he could see the headlights of the task force behind him, he plowed on toward Osan. (9)

Meanwhile, Colonel Lynch was becoming very uneasy with the rapid progress of the tanks and I and R Platoon. The trucks carrying the rest of his soldiers could not keep up with the lead elements, creating a gap in the column of vehicles. North of Chonan, Colonel Lynch found himself "in the lead" of the main body of his force. After passing groups of enemy soldiers as large as 10 and 15 men, Lynch decided that discretion was needed. He pulled over and reorganized the task force, putting a platoon of infantry in trucks in the lead, with the lead truck carrying a .50-caliber machine gun in a ring mount, and a 3.5-inch bazooka. (10)

Ten miles south of Osan, Colonel Lynch could hear the sounds of sporadic artillery and small arms fire. Deciding that the "parade was over," Lynch ordered the headlights of the vehicles turned off. (11) Farther to the north, Lieutenant Baker and a squad of the I and R Platoon roared into Osan at full speed. Stopping briefly just north of the village, Baker identified numerous T-34 tracks, but he did not spot any of the tanks themselves. The T-34 was Russian-built and heavily armored, with an 85-mm main gun. Like the Sherman, the T-34 was a World War II veteran, with the NKPA fielding a brigade of T-34s at the start of the war.

Moving out, Baker's tanks started taking small arms and antitank fire. Baker kept moving, and identified American M-26 Pershing tracks in the road. With his headlights still on, the tanks barrelled forward when suddenly an antitank round fired from their rear hit the third tank in line, killing the tank commander. A white phosphorus grenade exploded near Baker's tank illuminating his diminutive force in its glare. Someone shouted up at Baker, "What the hell are you doing out here?" Baker shouted back, "I'm from the First Cavalry!" Jumping from his tank, Baker shook hands with a lieutenant from the 31st Infantry Regiment of the 7th Division. It was 2226 hours on 26 September when this happened, 106 miles from their starting point in Poun earlier that day. (12)

The rest of Task Force Lynch moved toward the village of Habungni about an hour behind Baker. After bypassing a downed bridge just south of the village, Colonel Lynch drove past a T-34 tank on the side of the road that had its gun tube pointed out across the road. Lynch joked about the tank, thinking that it was destroyed. Suddenly the tank opened fire on the column with its machine guns and main gun. Another tank, hidden along the side of the road, joined the first in raking the column with fire. Colonel Lynch's jeep lurched to a stop, with the passengers scrambling to find some semblance of cover in the ditch along the side of the road. (13)

All along the length of the task force, vehicles stopped and the men in them scurried to meet the enemy threat. Lieutenant John Hill, Lynch's S2, moved forward to collect the infantry platoon that was the point element and bring them and their 3.5- inch bazooka back to attack the enemy tanks. The crews of the T-34s became nervous and started the engines of their tanks, but they did not move. It was a fatal mistake for the enemy tankers, as Lieutenant Hill led an attack that destroyed one of the T- 34s with a shot from a 3.5-inch bazooka. Before the second tank could be engaged, it lurched forward onto the road and ran over two jeeps and several trucks before it ran off the road into a rice paddy, several hundred yards from its starting point. A barrage of 57-mm and 75-mm recoilless rifle fire crashed into the enemy monster, immobilizing it in the darkness. (14)

A brave trooper, Sergeant William Hopkins, ran up to the T-34 and climbed aboard. Hopkins tossed several grenades inside the tank, but the motor kept running. Frustrated at their inability to "kill" the tank, Lieutenant William Woodside, the L Company commander, brought a five-gallon can of gasoline forward and dumped a small amount into the engine compartment of the tank. When the tank still ran, Captain James Webel, the regimental S3, jumped on the tank and took the can from the hands of the lieutenant, pouring the whole thing into the engine compartment. A huge explosion blew Captain Webel 30 feet in the air, as the tank began to bum fiercely. Luckily, Captain Webel suffered only minor burns to his hands and face. (15)

At 0012 hours on the morning of 27 September, Colonel Harris was able to get through to the 1st Cavalry G3 on the radio and inform him that Task Force Lynch was in a fire fight. Harris did not ask for help, but indicated that the enemy resistance would be readily dispatched. He was not so sanguine just an hour later when he reported that Lynch was being held up eight miles south of the objective. "Send tanks forward

immediately. We cannot disengage," radioed Harris. (16) After the first two enemy tanks had been dispatched by the cavalrymen, more NKPA tanks clanked down the road toward the stalled task force.

The village was burning and several of the trucks that had been run over by the rampaging T-34 were also on fire. Colonel Lynch heard the roar of tank motors and the clanking of treads coming down the road from the north. He held out the hope that they were Lieutenant Baker's tanks, but realized they were not when he saw two more T-34s clearly illuminated in the glare of the collective fires. It seems that Baker's three tanks and the I and R squad that reached Osan had somehow bypassed a strong enemy contingent of tanks and infantry along the road. Lynch ordered his driver, Corporal Billie Howard, to get in the closest truck and move it astride the road to block the movement of the NKPA tanks. (17)

Corporal Howard dashed to the truck and got it in position with two enemy tanks only 100 meters away. The two tanks halted at this brazen and quizzical action by a truck in what should have been a secure area. The tank commander of the lead tank opened his hatch and shouted in Korean; "What the hell goes on here?" The Americans answered this query with a hail of small arms and recoilless rifle fire that set the truck ablaze, and caused the tanks to slam their hatches shut. Eight more T-34s rumbled up behind the two now sitting at the burning truck. They arrived just as 2d Platoon, C Company, 70th Tank Battalion had finally been able to make its way to the front of the column past the entire task force. (18) The American and NKPA tanks exchanged shots from almost point blank range. Nearly simultaneously, one T-34 and two of the Shermans were hit. The lead American tank fired again and penetrated a T-34 with a Hyper Velocity Armor Piercing (HVAP) round just to the left side of the gun mantlet. There were simply too many T-34s, however, and their combined fire immobilized the last M4A3. (19) One of the T-34s pulled out from where the truck had stopped the first two tanks, and began to meander down the line of the stopped task force vehicles. Once again, jeeps and trucks were crushed and machine gunned. As the tank wound its way through the column, it came to where the Headquarters Company of 3/7 Cavalry was stopped. Incensed at the destruction being caused by the tank that he thought was "friendly," Captain Robert McBride,the company commander, jumped out into the road and started screaming and shouting at the tank commander for running over his jeep. A burst of machine gun fire creased the captain in the rear end and sent him scurrying into the ditch. (20)

The rogue T-34 continued down the line of vehicles. The courageous Sergeant Hopkins fought it with grenades, but his luck did not hold with this tank, and he was killed. As the tank approached the rear of the force, Captain Theodore Wardlow, commanding the artillery battery, unlimbered a 105-mm howitzer with three of his men, and manhandled it into firing position astride the road. The men fired several rounds into the oncoming tank, with the final round blowing the turret off the tank when it was only 30 meters away from the howitzer. (21)

Colonel Lynch moved back south among his troops in an effort to reach Colonel Harris and to coordinate hunter-killer operations against the remaining enemy tanks. He did not have to worry about his men, as they had already formed several groups that were stalking the NKPA tanks in the darkness. Over the next hour, four more of the T-34s fell victim to 3.5- inch bazooka teams. Finding Colonel Harris amid the din of battle, Colonel Lynch and he decided to consolidate their position for the night before attempting to continue north. A perimeter defense was organized, and by 0200 hours the fighting died down. Seven of the enemy T-34s were destroyed in the night's fighting, with the other three moving away to the north. (22)

At 0700 hours, Colonel Lynch reorganized his task force for a foot approach to Osan. Scattered resistance was encountered and quickly silenced by the lead company. At 0800 hours, the force was in Osan, and 26 minutes later, Task Force Lynch linked up with H Company, 31st Infantry. The drive was complete, but fighting would continue for the next two days, as trapped pockets of NKPA soldiers and tanks attempted to escape the converging American forces. C Company, 70th Tank Battalion destroyed four more T-34s on 28 September in Pyongtaek and Osan, while Air Force planes caught two more in the open and destroyed them. (23)

The drive of the 1st Cavalry Division and Task Force Lynch had eaten up enemy terrain in a spectacular fashion. The task force and the division had cut across enemy lines and linked up with X Corps because of the courage of leaders at all levels of command. A large sign erected at the north end of the road leading out of Osan boasted of the movement of the 1st Cavalry Division, the 7th Cavalry Regiment, and Task Force Lynch.

It read—

> At 0826 hours on 27 September 1950, forward elements of Company L, 7th Cavalry, 1st Cavalry Division made firm contact with Company H, 31st Infantry, 7th Infantry Division at this location, thereby making a solid United Nations front from Pusan to Seoul. This drive from Taegu to Osan, a distance of 196 road miles and 116 air miles, marked the longest advance in the history of the American Army through enemy held territory. GARRY OWEN (24).

A young tank platoon leader led that advance for 106 miles.

Editor: The operation depicted highlights the difficulties of balancing force protection with rapid movement. The Task Force intended to rely upon speed and surprise to move over 100 miles through unsecured territory to establish contact with friendly forces advancing from the Inchon beachhead. In this operation the emphasis upon speed outweighed that given to force protection, evidenced by the instructions relayed to Lt. Baker to move as fast as possible and by the decision for the task force to run with headlights on. The task force possessed limited antitank capability with only two under strength tank platoons, bazookas, and towed artillery. Only the tanks possessed the ability to rapidly engage hostile armored targets at other than minimal ranges. They were allocated to the forward and rear echelons of the task force column, while the machine gun jeeps of the Intelligence and Reconnaissance platoon assumed point. This disposition probably provided the best means of all round security for the column. Its efficacy depended on the retention of task force cohesion, which collapsed when Lt. Baker's tanks and the I&R platoon began moving too fast for the rest of the task force to keep pace and radio contact was lost. This split left the main column with minimal antitank capability and no reconnaissance other than what could be seen from moving vehicles at night. When Col. Lynch recognized that he had lost contact with his lead elements he reconfigured the task force with truck-mounted infantry in the lead, leaving his only tank element at the rear of the column, where it could not rapidly engage targets that might suddenly appear.

Speed provided Lt. Baker's tanks and the I&R platoon the element of surprise. He was able to drive through enemy positions, inflict casualties upon the North Koreans without loss, and even receive directions from an enemy soldier. However, the task force following in his wake did not benefit from the same surprise factor from an alerted enemy. Moreover, by moving rapidly at night, the I&R platoon's ability to detect enemy positions was minimized, while the lack of radio contact removed its capacity to warn the task force. Baker's composite force penetrated enemy lines, but it had no clear sense of the North Korean forces through which it passed and no means to communicate this information to the parent task force even if it had. These factors resulted in the near catastrophic encounter between T-34s and the task force column. The retention of the remaining tank platoon in the column's rear gave the enemy tanks free rein to engage the trucks and infantry with initially little interference. The combination of bazooka teams, artillery direct fire engagement, grenade attacks, and the belated engagement by the rear echelon tank platoon finally defeated the T34s, but at a cost in men and vehicles. Hence the task force proceeded on foot.

Lt. Baker contacted X Corps elements after a record road march through unsecured territory, but little coordination for the linkup seems to have occurred. The 7th Infantry Division was surprised by the sudden appearance of Baker's tanks and engaged them, causing friendly fire losses.

Given the inherent chaos that traditionally surrounds night operations, it might have been more prudent to keep the entire task force together and move slower, relying upon the I&R platoon to provide advance warning of enemy forces and reduce the risk of sudden contact situations. It is not at all clear what the rapid dash accomplished that could not have been done by a more measured and secure movement that did not incur the losses of the sudden contact with North Korean armor. The feat was impressive; the losses were not, and a more aggressively handled enemy tank force may have inflicted more casualties. Task force commanders must weigh carefully the benefits of speed against the heightened risk associated with a rapid, night movement.

Notes

1) General Gay as quoted in Eighth Army Armor Section, "Report of Observations of Performance of Ordnance Equipment in Korea," 2 December 1950, copy found in 70th Tank Battalion War Diary, December 1950, Washington National Records Center, Suitland, Maryland, Record Group 407 (hereafter WNRC), Box 4433.

2) 7th Cavalry War Dairy, September 1950, Box 4431, WNRC.

3) Statement of First Lieutenant Robert W. Baker, found in 70th Tank Battalion War Diary, September 1950, Box 4433. Hereafter cited as Baker Statement.

4) Statement of Lieutenant Colonel James H. Lynch, found in 7th Cavalry Regiment War Diary (hereafter cited as Lynch Statement), September 1950, Box 4431; 7th Cavalry War Diary, September 1950, Box 4431.

5) Baker statement.

6) Ibid.; 7th Cavalry War Diary, September 1950, Box 4431.

7) Baker statement.

8) Ibid.

9) Ibid.

10) Lynch Statement.

11) Ibid.

12) Baker statement; 70th Tank Battalion War Diary, September 1950, Box 4433. Quotations taken from *Stars and Stripes, Pacific Edition*, Thursday 28 September 1950, copy found in 70th Tank Battalion War Diary. The 31st Infantry Regiment War Diary for September 1950, Box 3179, records the link-up time as 2345 hours instead of 2226 hours.

13) 1st Cavalry Division War Diary, September 1950, Box 4409, WNRC; 7th Cavalry War Dairy, September 1950, Box 4431; Lynch Statement.

l4) lbid.

15) 1st Cavalry Division War Dairy, September 1950, Box 4409; 7th Cavalry War Diary, September 1950, Box 4431.

16) 1st Cavalry Division War Diary, G3 Journal, 27 September 1950, Box 4409.

17) Lynch Statement; 1st Cavalry Division War Diary, September 1950, Box 4409

18) Ibid.

19) 70th Tank Battalion War Diary, September 1950, Annex Number 1, "Actions in Which M4A3E8 Tanks Were Damaged or Destroyed," Box 4433.

20) Lynch Statement.

21) Ibid. 7th Cavalry Regiment War Diary, September 1950, Box 4431.

22) Lynch Statement; 7th Cavalry War Diary, September 1950, Box 4431.

23) Lynch Statement; 70th Tank Battalion Command Report, September 1950, Box 4433.

24) 7th Cavalry War Diary, September 1950, Box 4431.

Armored Task Force Operations

Editor: This report provides an example of armored task force operations aimed at the destruction of hostile combat power without a related requirement to seize and hold a ground objective. Hence, this type of mission plays to the mobility and firepower strengths of the armored force. In this particular case, two armored task forces were created and employed to carry out a series of destructive raids intended to trigger combat and generate significant enemy loss. This particular item was taken from an Armor School Armor Officer Advanced Course student paper entitled "Armor in Korea—the First Year," Vol. II, (Armor School, 1952), pp. 166-176, 196. The paper was compiled by a committee of students, using unit battle reports, interviews, and related source materials.

Operation PUNCH. Operation PUNCH is one of the better examples of a completely integrated team of armor and infantry working together.

During the early part of February 1951, the 25th Infantry Division had its command post in the town of Suwon along with the command post of I Corps. At this time the enemy held the high ground to the north of the town and was well dug in and organized on this ground. I Corps issued an operations order for what was to be called Operation PUNCH. This order called for the infantry to seize and secure the high hill mass at Hills 440 and 431 by direct assault. At the same time the armor was given the mission of attacking into the flanks and rear in order to disorganize and disrupt the enemy and to inflict maximum casualties upon him. Two armored task forces were organized for this operation. The first was Task Force BARTELETT which was composed of the following units:

- 64th Medium Tank Battalion (minus Company C)
- 2d Battalion, 27th Infantry Regiment
- 1 platoon of M-16s (quad cal. .50 machine guns)
- 1 platoon, Company A, 65th Engineer Combat Battalion
- Medical and Signal Detachments, 25th Infantry Division
- TACP

The second task force was Task Force DOLVIN which was composed of the following units:

- 89th Medium Tank Battalion (minus Companies A, C, and D)
- Company C, 64th Medium Tank Battalion
- 1st Battalion, 27th Infantry Regiment
- 1 platoon of M-16s (quad cal. .50 machine guns)
- 1 Platoon, Company A, 65th Engineer Combat Battalion
- Medical and Signal Detachments, 25th Infantry Division
- TACP

Note: *The references to the M16 refer to an M3 halftrack with four .50 caliber machine guns mounted together. This system provided defense against aircraft, but it also proved deadly against enemy personnel.*

The plan for the utilization of these two task forces, as envisioned by the 25th Infantry Division, was for Task Force BARTLETT to attack along the left road toward Mokkam-ni and then east in the direction of Anyang-ni. Task Force DOLVIN was to attack along the main supply route leading through Anyang-ni to Yongdungpo. Upon reaching Anyang-ni they were to turn west and continue the attack until effecting a junction with Task Force BARTLETT. It must be remembered that the objective for these attacks was to inflict maximum casualties on the enemy and not to gain ground or seize definite terrain objectives.

On 3 February both task forces moved into assembly areas in the vicinity of Suwon. Here they began their preparations for the coming operation.

On 5 February at 0745 hours Task Force BARTLETT crossed the line of departure. The objective for this day, as set down by the battalion commander as a means of control, was the ridge line in the vicinity of Mokkam-ni. The column advanced through moderate to heavy resistance and secured the objective by 1525 hours. During the advance they ran into several mine fields besides the resistance offered by enemy infantry.

Upon reaching their assigned objective and notifying the Division Commander of the 25th Infantry Division of that fact, they were ordered to return to their original assembly area. The task force retraced its path and arrived in the vicinity of Suwon prior to dark.

On the same day, 5 February, Task Force DOLVIN crossed the line of departure at 0700 hours. The objective which this battalion established for the day was the high ground to the east Anyang-ni and the eastern portion of the town. The column advanced without any great difficulty and secured the objectives by 1250. It was also ordered to return to its assembly area and succeeded in closing into the area prior to darkness.

These withdrawals back to the assembly areas were not included in the original operation plan but were made necessary because the flanks of the two penetrations had not been secured and it was feared that the columns would be very vulnerable to infiltration attacks during the night. Another consideration in this matter was the expectation that those withdrawals would cause the enemy to reoccupy those positions from which he had been expelled. It was felt at this time that this action on the part of the enemy would be very favorable to the accomplishment of the mission, which was to inflict maximum casualties upon him. In other words, the division was attempting to fight the enemy on ground which we had chosen.

At this time the plan for the two task forces to Join east of Anyang-ni was changed by the division commander to a more ambitious plan, which called for the junction to be made in the vicinity of Yosen, which is north of the main Yongdungpo-Inchon highway.

Task Force BARTLETT again crossed the line of departure at 0720 on 6 February. The task force crossed with two teams abreast and advanced approximately 2000 yards beyond the previous day's advance. The enemy resistance on this day increased considerably over that of the previous day. This may be attributed in part to the lessening of the element of surprise. It was also found that roads which had been cleared of mines the previous day had been remined to a great extent. Although this caused no material damage, it did slow the advance materially. At 1205 hours the team was ordered to again return to the assembly area.

On this day, Task Force DOLVIN crossed the line of departure at 0745 hours. By 1400 hours it had reached a point about 1000 yards further than the limit of advance of the previous day. It sent a patrol along the MSR to a point about 3000 yards north of Anyang-ni. At 1420 hours this patrol had become heavily engaged and was forced to return to the task force. At this time the task force commander received orders to return to the assembly area. As was discovered in the zone of Task Force BARTLETT, it was found that enemy resistance was considerably greater and that the roads had been remined.

On 7 February both task forces crossed their respective lines of departure at 0700 hours. Both task forces advanced through moderate to heavy resistance during the morning and early afternoon. By 1430 hours Task Force DOLVIN had reached a position about 2000 yards north of Anyang-ni. Here it was relieved by the 2nd Battalion of the 35th Infantry Regiment. Upon completion of the relief the task force returned to an assembly area in blocking position behind the main line of resistance. By 1500 hours Task Force BARTLETT had reached the same east-west line as that attained by Task Force DOLVIN on this day. It was relieved in this position by the Turkish Armed Force Command and also returned to an assembly area in a blocking position behind the MLR. This is the first time that the gains made by either of the task forces had not been relinquished to the enemy in the early afternoon. By this time the 25th Infantry Division had been able to clear the enemy from the area between the roads and was able to effect the relief without fear of creating dangerously exposed salients into the enemy lines.

During the relief of Task Force DOLVIN on 7 February, troops of the task force observed troops on a hill to the southwest of the task force. Not knowing whether these observed troops were enemy or friendly, they contacted task force headquarters. They were informed that there were no friendly troops in the area so they proceeded to take the troops under fire with small arms. Artillery was called for on the target by the team commander. Before the artillery was able to bring these troops under fire the task force informed the team commander that the supposed enemy troops they had observed were friendly elements of the relieving force. Fortunately no casualties were suffered through this mistake in identity. This brings out the point that task forces must work in very close coordination with friendly units in the rear and on both flanks, and insure that communication and liaison are established with these units if possible.

On 8 and 9 February the two task forces continued their advance and by 1500 hours on 9 February both were in a position where they could fire their tank cannon into the city of Yongdungpo. Both task forces were dissolved that night and replaced by Task Force ALLEN, which was to operate directly under I Corps control. The mission of this task force was to inflict maximum casualties on the enemy and to clear the zone south of the Han River.

In this operation the original order did not specify the tactics to be adopted by the task forces. The division commander of the 25th Infantry Division made the decision to withdraw the two task forces each night. This decision was made on a daily basis about 1200 hours each day.

The method of operation adopted by both task forces is worthy of notice. Each tank company was teamed with an infantry company. The infantry and tank company commanders were together continuously, with the infantryman riding on the rear deck of the tank company commander's tank. The infantry commander actually ordered the halt of the column when encountering resistance as well as directing their fire and deployment. No tank guns were fired while infantry was mounted on the tanks. The M-16s were split into two sections and each lead team was given one of these sections. Air and artillery support were used at every opportunity and their fire was very effective.

At the completion of the operation a total of 4,251 enemy dead were counted while the United Nations forces casualties totaled less than 100.

Lt. Col. Dolvin had this to say of the operation: "The complete success of the operation was due to the complete integration of the two staffs. We thought and acted not as tankers and infantrymen, but as men confronted with a single problem… and I'll add that the quad .50s are an extremely effective weapon in this type of operation."

Comments on armored action

1. The decision to pull the tanks back at night during Operation PUNCH points out the fact that tanks are extremely vulnerable to enemy infiltration during darkness.

2. The tank-infantry cooperation and mutual understanding of the each other's problems was extremely effective during Operation PUNCH.

Editor: This operation offers an example of combined arms action used to inflict maximum damage rather than seize ground. It illustrates the importance of careful planning, preparation, and execution of operations to ensure maximum employment of all assets. This attention to detail and the dissemination of key information ensured that relief operations generally occurred without incident. Command oversight and monitoring of the task force operations proved critical to preventing the operation from devolving into a stalemated attritional battle that negated the lethality, survivability, and mobility advantages of the armored task forces. Command oversight also proved critical in determining when each task force should disengage each day. The concerns expressed about the vulnerability of armored forces at night may have been overstated, but they did reflect a healthy appreciation of the danger posed by the inability of friendly forces to maintain a continuous linear front and the tendency for Chinese Communist Forces to launch night attacks and infiltrate friendly areas. In these operations the daily withdrawal of each task force to a prearranged assembly area ensured time for resupply, maintenance, and crew rest. Hence, each day's operations began with high operational readiness among the task forces. Mines proved prevalent and were encountered nearly every day. More significantly, however, they did not inhibit the task forces' ability to maneuver or accomplish their missions.

Tank-Infantry Coordination

Editor: Following are two extracts from Armor School Armor Officer Advance Course student report No. 45.4-35, entitled "Employment of Armor in Korea: The Second Year" (1953), pp. 28, 36. These two passages underscore the importance of unit and task force knowing the capabilities and limitations of attached tank assets to ensure their availability and most effective employment.

64th Heavy Tank Battalion, October 1951

The tank unit commanders of the 64th Heavy Tank Battalion complained that throughout the past operations the infantry commanders unit would not permit the tanks to fire as close to the attacking Infantry as the tank unit commanders would have liked to fire. According to the tankers, the infantry commanders considered the tank fire as if it were artillery with a large dispersion instead of a direct fire, high velocity weapon with pin point accuracy. In many instances the tanks were in a position to the flank of a ridge, down or up from which the friendly infantry was trying to advance. When the tanks were forced to lift their fire it was necessary for the tanks to sit and watch friendly infantry receive machine gun and grenade casualties from enemy positions which could have been taken under tank fire with no danger to the friendly infantry.

73rd Tank Battalion, December 1951

Reports from the 73rd Tank Battalion stated that the combat and training requirements to which the M46 tanks of the battalion were subjected during December resulted in placing over half of our tanks on the deadline because of mechanical abuse inherent in meeting the tactical demands for use in rugged terrain. On divided slopes tracks are thrown; on continuous climbing of steep grades output shafts and final drives give out. To alleviate this to some extent, the tank commander should be given as much latitude as possible in the selection of approaches and in determining grades which are too steep for the mechanical ability of the tank. Before ordering his tanks to perform a task which is mechanically ruinous, the Task Force commander or the commander to whom the tanks are assigned should carefully consider the risk involved in losing the tanks through mechanical failure, a loss which is as serious to the current mission as a loss from enemy fire.

Editor: These examples highlight the importance of commanders understanding the capabilities and limitations of attached tanks. Without this knowledge, tanks are likely to be used in a manner which minimizes their effectiveness or reduces their availability. In both cases, the ability of the tanks to support units by eliminating opposition and sustaining momentum is undermined. The first example illustrates the problems faced when infantry commanders do not understand basic armor capabilities. Tank armament enables accurate, flat trajectory fire to be placed on specific targets. It can and should be used to eliminate targets not otherwise addressed by indirect fire weapons or small arms. The failure to do so made the tanks unwelcome spectators to an infantry assault rather than active participants with the ability to help secure objectives and minimize friendly losses. In the second instance, the ability of tanks to traverse all types of terrain without regard to the mechanical cost resulted in a high deadline rate. The problem again lay in the lack of understanding of tank capabilities and limitations. The tank unit was required to repeatedly maneuver over steep, rugged terrain without regard to the impact upon the vehicles. The resultant loss to mechanical failure meant the unavailability of armor support for future operations. Both instances underscore the importance of armor unit commanders being considered subject matter experts regarding the employment of tanks and given the necessary latitude to determine how best to maneuver to accomplish the mission. Note, too, that problems with the integrated use of tanks and infantry were not endemic to the Korean War. They can be overcome through regular combined training or by leveraging the expertise of the armor commander.

Armor Breaks the Heartbreak Ridge Stalemate

Editor: The article below illustrates the employment of an armored battalion in a larger combined arms framework to outmaneuver and defeat a resilient, entrenched enemy amply supported by artillery and mortars. It was written to demonstrate AirLand Battle concepts, but the details of the operation have a more timeless applicability. The article first appeared as CPT Scott D. Aiken, "Depth and Synchronization at the Battle of Heartbreak Ridge: The 72d Tank Battalion in Operation TOUCHDOWN," *Armor (*September-October 1992), pp. 44-48.

Early in the autumn of 1951, General Matthew B. Ridgway authorized limited objective attacks to seize important terrain features across the Korean front. Lieutenant General James A. Van Fleet, Eighth Army commander, determined that it was necessary to improve the position of his right flank. This decision led to the Battle of Heartbreak Ridge being fought by the 2d Infantry Division. (1)

Heartbreak Ridge was an extension of Bloody Ridge and was located in the eastern part of the Eighth Army's sector. As shown on the map, Heartbreak Ridge was a long, narrow ridge running north to south. It was located between the Mundung-ni Valley to the west and the Satae-ri Valley to the east. (2)

Operation TOUCHDOWN was conceived after the 2d Infantry Division conducted several unsuccessful piecemeal, frontal assaults against strong North Korean defenses from 13 September to 1 October. These attacks were never larger than battalion strength and repeatedly stormed Hills 931 and 851. These endeavors proved costly and ineffective. Despite the valiant efforts of the 2d Infantry Division, the enemy retained Heartbreak Ridge with strong defenses. Positions were so elaborate that some bunkers could hold an entire 1,000-man North Korean regiment. (3) Major General Robert N. Young, 2d Infantry Division commander, decided that these frontal attacks should cease. Instead, he called for a coordinated attack by the entire division, supported with powerful combined arms assets. (4) This attack was designated "Operation TOUCHDOWN."

Operation TOUCHDOWN was so named because it involved a "long end-run" around the flank of the enemy at Heartbreak Ridge to cut his lines of communications, concentrated at the northern entrance to the Mundung-ni Valley. (5) General Young believed that Operation TOUCHDOWN would work because the simultaneous advance of all three regiments in the division would eliminate the enemy's advantage of being able to concentrate his fire, particularly mortars. Once the attack commenced, the enemy would be hard pressed to move reinforcements from one sector to another. (6)

The advance of the regiments would be supplemented with two powerful armored thrusts. One attack would be conducted up the Satae-ri Valley. This task force would break behind enemy lines, disrupt his communications, and inflict casualties. The second armored thrust was the key to Operation TOUCHDOWN. It was to be a tank/infantry drive up the Mundung-ni Valley. (7) Operation TOUCHDOWN was a drastic shift of technique in the Heartbreak Ridge battle, trading relentless frontal assaults for maneuver against the enemy's weak points.

The effective use of armor by the 2d Infantry Division was to be the key to Operation TOUCHDOWN'S success. Task Force Sturman was organized with tanks and elements from the 23d Infantry Regiment. It began operations on 3 October as a supporting effort. Task Force Sturman was to conduct several raids in the Satae-ri Valley east of Heartbreak Ridge to engage the North Korean emplacements from the rear. When the infantry attacks began, the task force was to keep the enemy pinned down.

On the opposite side of the division sector, the advance of the infantry would provide cover for the division's engineers building the tank track to Mundung-ni. When the job was finished, the tanks of the 72d Tank Battalion would duplicate the job of Task Force Sturman but on a larger scale. (8) Operation TOUCHDOWN made great use of the tank/infantry team to conduct extended maneuver into the enemy's rear.

Supporting arms would play an important role in the attack of the 72d Tank Battalion up the Mundung-ni Valley. The five days before Operation TOUCHDOWN were used to extensively plan and coordinate supporting arms. (9) Artillery, mortars, and close air support would be used considerably before and during

Operation TOUCHDOWN. Additionally, the machine guns of the 82d Antiaircraft Battalion were used to suppress enemy positions in the hills overlooking the valley where vital engineer projects were being conducted. This suppression allowed the engineers to clear the valley floor of enemy mines and obstacles with little opposition from communist patrols or snipers. (10) This is an example of the efficient use of all available resources allocated to the division commander to increase his combat power.

The 72d Tank Battalion's foray in the Mundung-ni Valley was reinforced by a massive engineer effort. Preliminary engineer endeavors began as early as 1 October, when Lieutenant Colonel Robert W. Love, the division engineer officer, was ordered to get a road to Mundung-ni ready for tank traffic. The time schedule would not allow for an entire road to be built. The existing road would have to be widened and repaired in some parts and completely built in others. Sections had to be bypassed and built or widened later.

One detour used was a stream bed, which complicated the effort. Enemy antitank mines were hidden throughout the valley. (11) “The road... leading to the Mundung-ni Valley had been virtually obliterated by an elaborate pattern of cratering done with the avowed purpose of blocking a tank thrust." (12) Countermine operations, obstacle reduction, and road building in the Mundung-ni Valley was extensive and lasted throughout the operation. However, the fruits of the engineer's efforts would be reaped when the 72d Tank Battalion violently overran Mundung-ni.

The logistical preparation for the 72d Tank Battalion's actions was supervised by Lieutenant Colonel Arthur Comelson, 2d Infantry Division G4. This preparation began around 1 October. Special equipment would allow tanks to move over obtacles or wet areas. This equipment was obtained and issued to the 72d Tank Battalion. (13)

A requirement for numerous explosives and for tactical bridging was foreseen before the operation and was acquired. (14) The 2d Engineer Battalion would later use over 40 tons of explosives in clearing mines and building the road up the Mundung-ni Valley. (15) This liberal use of explosives was the only technique that would allow such a massive engineering endeavor to take place rapidly. Extensive logistical preparation allowed for this requirement of explosives to be met. This expense in explosives was fully justified by the reduction of vehicle and equipment losses. (16)

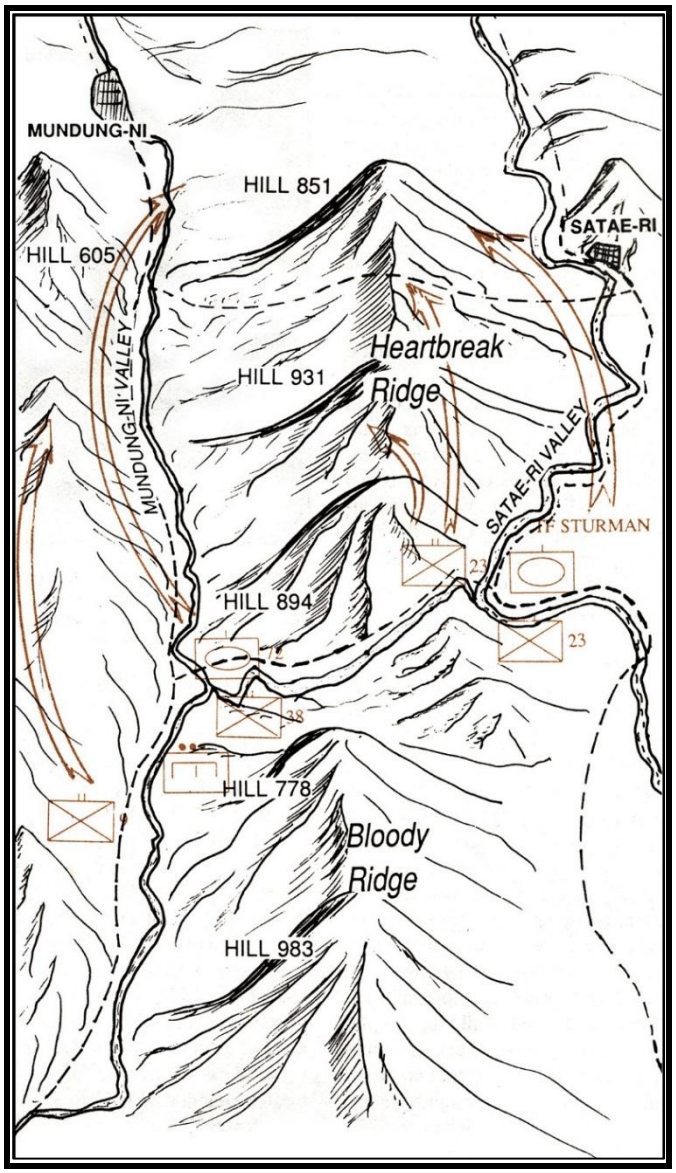
The projected daily expenditure of artillery ammunition for the division totaled 20,000 rounds. This made up the bulk of the 1,200 tons of supplies that needed to be moved forward each day, more than the division's organic transportation would allow. Thus, the use of forward supply dumps and air delivered supplies would supplement the division's trucks. Air drops of food, ammunition, and medical supplies were of inestimable value during Operation TOUCHDOWN. (17)

By 2 October, the logistical portion of the operation order was nearly complete, and planning continued for an ammunition supply point and emergency Class I and Class III dumps. The task then turned to stockpiling fuel, rations, and ammunition at these forward areas. (18) Considerable forethought and effort by the 2d Infantry Division G4 ensured that all fuel, demolitions, and ammunition requests were met. This allowed the 72d Tank Battalion to conduct its attack fully supported with supplies, engineer efforts, and indirect fires.

Considerable preparatory bombardment of the Mundung-ni Valley by U.S. warplanes and artillery began days before the operation. On 3 October, 35 sorties were flown on planned objectives. On 4 October 7,100 rounds of artillery ammunition and 45 sorties of air strikes were used. (19)

Task Force Sturman was active on 4 October. In less than three hours, the force knocked out 14 bunkers of the North Korean 19th Regiment in the Satae-ri Valley. (20) By 5 October, over 45,000 rounds of artillery ammunition were trucked to the ammunition storage point near Pol-mal. Additionally, 20,000 gallons of fuel and large amounts of rations were moved to forward supply dumps. (21)

As H-hour approached, artillery expenditure increased dramatically, and Marine Corps Corsairs attacked enemy positions with napalm, rockets, and machine guns. (22) Supporting arms were brought to bear on the initial objectives of all three regiments. On the evening of 5 October at 2100, Operation TOUCHDOWN commenced. The 2d Infantry Division initiated the attack with the 9th, 23d, and 38th Regiments abreast. By early the next day, the central peak of Heartbreak Ridge at Hill 931 was in the 2d Division’s possession as the attack moved to the north. (23)



Map showing the area of 72d Tank Battalion operations in the Mundung-Ni and Satae-Ri Valleys

Task Force Sturman continued its effective runs up the Satae-ri Valley. On 6 October, the task force destroyed 35 enemy bunkers. (24) This armored task force continued its success on 9 and 10 October by destroying several enemy bunkers on Hill 851. (25)

On 10 October, the road to Mundung-ni was complete. Infantry from the 23d and 38th Regiments seized Hills 931 and 605. (*See map*.) With these hills under friendly control, the tanks would be protected from enemy antitank squads in most of the restrictive Mundung-ni Valley. (26) On 10 October at 0630, the 72d Tank Battalion complemented the division attack with an armored drive up the Mundung-ni Valley. (27) This drive consisted of 68 Sherman tanks and a battalion of the 38th Infantry Regiment that accompanied the tanks to counter any enemy antitank squads. (28) This allowed for the maximum mutual support between the tanks and the accompanying infantry. The division plan called for the 72d Tank Battalion to withdraw only as far as necessary to get infantry protection. All gas, maintenance, and ammunition was to be taken forward to them. (29) This was accomplished thanks to the extensive logistical planning and stockpiling before the operation.

The success of the 72d Tank Battalion in making its eight-mile attack up the Mundung-ni Valley was due in part to detailed staff planning. Extensive ground reconnaissance, aerial observation, engineering skill, and infantry support was coordinated to produce a highly synchronized attack. On 10 October, the village of

Mundungni was seized. The tanks then pushed one kilometer north of the village and placed fire on the reverse slope of Hill 841 (slightly NW of Hill 605 on map). Tank losses for the day were surprisingly light, with two tanks destroyed and five damaged. (30)

The communists were surprised at the appearance of tanks in their rear areas. (31) The unexpected appearance of tanks at Mundung-ni had caught the Chinese troops of the 204th Division, 68th Army, in exposed positions. These troops were then in the process of relieving elements of the mauled North Korean Fifth Corps. (32) The presence of Chinese units was proof that the North Koreans had been badly hurt by Operation TOUCHDOWN to the degree that help had been sent. (33)

After 10 October, the 72d Tank Battalion made daily thrusts further up the valley on 11 and 12 October, destroying enemy forces and supply dumps each day. The tanks would pull back to the forward infantry units each night for protection. (34) These daily thrusts are an example of depth in time. The attacks by the 72d Tank Battalion kept relentless pressure on the enemy for three days.

The last objective on Heartbreak Ridge was Hill 851. It was finally seized by the 23d Infantry Regiment on 13 October. After several counterattacks in an attempt to reclaim Heartbreak Ridge, the assault was beaten back. (35)

The 2d Infantry Division won the Battle of Heartbreak Ridge at the cost of 3,700 casualties. (36) Estimates of enemy losses totaled close to 25,000. (37) This battle marked the last major UN offensive before the resumption of peace talks in 1951. (38) However, months of heavy fighting remained while peace negotiations were ongoing. During these months, the front line along the Eighth Army sector remained exactly where it had been placed by Operation TOUCHDOWN. (39) Operation TOUCHDOWN can, therefore, be considered one of the final decisive actions of the Korean War.

The 72d Tank Battalion's action in Operation TOUCHDOWN was a classic example of the AirLand Battle tenet of depth. Depth is the extension of operations in time, space, and resources. By using depth, a commander can obtain the necessary space to maneuver effectively. He can also gain the necessary time to plan, arrange, and execute operations and the necessary resources to win. (40)

The attack by the 72d Tank Battalion was extended in space, time, and resources. The armored thrust of several miles to Mundung-ni was an extension of the division attack deep into the enemy's flank and rear. It was possible due to exhaustive engineer mobility efforts. The duration of the operation placed relentless combined arms attacks against an outmaneuvered enemy. Prolonged artillery and aerial bombardment in support of the armored thrust also contributed to the extension of Operation TOUCHDOWN in time and space. Additionally, the resources dedicated and expended on the 72d Tank Battalion gave depth to the effort. A massive logistical build-up preceded the operation and ensured that ammunition, fuel, and other supplies were available for a protracted armor campaign in both duration and space.

Synchronization is the management of all forces and actions on the battlefield in time, space, and purpose to produce maximum combat power at a decisive point. (41) Synchronization includes the integration of maneuver forces, supporting arms, and combat service support forces for the desired results.

The synchronization of the preparatory artillery and aerial bombardments, the engineer efforts, the supporting attack by Task Force Sturman, and the armored drive of the 72d Tank Battalion all led to the build-up of combat power against the communist forces in the Heartbreak Ridge and Mundung-ni area. Vigilant operational security allowed concealment of the progress of the engineers along the road to Mundung-ni. This contributed to the surprise of the armored thrust up the valley. (42) The shock effect of massed armor in the enemy's rear areas discouraged his initiative toward repelling the infantry assaults to his front. This helped in the capture of Heartbreak Ridge. (43) Thorough logistical planning allowed for the sustainment of this combined arms force once the operation was launched.

All of the battlefield activities before and during the period of 10-12 October focused on the enemy's rear, at the decisive point of Mundung-ni. This is where communist supply lines were eventually cut. The combination of infantry and tanks, supported by close air support, artillery, engineers, and logistical efforts produced a group of synchronized combat systems that could fight in depth. These forces overwhelmed the static defenses of the North Koreans and led to the successful conclusion of the Battle of Heartbreak Ridge.

Editor: The operations of the 72d Tank Battalion showcase how the mobile, protected firepower of armor can be applied to surprise and unbalance an opponent. In this case, the tank battalion engaged the enemy, drew his attention away from other attacking forces, and struck into his flank and rear. The successful operation was part of a larger combined arms attack by the 2d Infantry Division, whose commander insisted upon the employment of all available assets in his combined arms team. He also placed command emphasis upon subordinates to ensure the maximum effective use of these assets. Careful attention to supply and mobility considerations ensured the ability of the 72d Tank Battalion to reach its operating area over difficult terrain and to sustain operations once there. Such planning, coupled with command oversight, is necessary to ensure the greatest chance of success. The 2d ID commander's emphasis on a combined arms operation increased this probability even more, since the actions of the armor battalion integrated with those of the infantry, artillery, and air support. In short, the overall operation presented the North Korean and Chinese Communist Force elements with multiple, simultaneous tactical dilemmas, including the sudden eruption of a mobile armor unit to the flank and rear. The integrated and effective employment of all assets available—to include armor—improved the likelihood of success for each member of the combined arms team. In this case, the impact proved overwhelming to the enemy, and a ridge line that had defeated one attack after another for months fell within days.

Notes

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2) Harry G. Summers Jr., *Korean War Almanac* (New York, New York: Facts on File, 1990), p. 134.
3) Virgil E. Craven, "Operation Touchdown Won Heartbreak Ridge," *Combat Forces Journal* (December 1953), p. 25.
4) Ridgway, p. 189.
5) Sam Freedman, "Tankers at Heartbreak," *Armor (*September-October 1952), p. 26.
6) Craven, p. 26
7) Robert W. Love, "Engineers in Operation Touchdown," *Military Engineer* (September-October 1954), p. 325.
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9) Ibid., pp. 26-27.
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17) Ridgway, p. 189.
18) Arned L. Hinshaw, *Heartbreak Ridge: Korea*, 1951 (New York, New York: Praeger Publishers, 1989), p. 86.
19) Ibid., pp. 95-96.
20) Ibid., p. 93.
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22) Craven, p. 28.
23) Hinshaw, p. 101.
24) Love, pp. 328-329.
25) Clark C. Monroe, *The Second United States Infantry Division in Korea 1950-1951* (Tokyo: Toppan Printing Co., Ltd., 1951), p. 172.
26) Ibid.

27) Craven, p. 29.
28) Freedman, p. 26.
29) Hinshaw, p. 112.
30) Ibid.
31) Love, p. 330.
32) Hinshaw, p. 112.
33) Craven, p. 29.
34) Hinshaw, p. 113.
35) Summers, pp. 134-135.
36) Ibid., p. 30.
37) Ibid., p. 135.
38) Love, p. 331.
39) Craven, p. 25.
40) Department of Army, *Field Manual 100-5: Operations* (Washington, D.C.: Department of Army, 1986), p. 16.
41) Ibid.
42) Love, pp. 331.
43) Freedman, p. 25.

Vietnam War

Editor: This chapter highlights the use of armor in a counterinsurgency environment in Southeast Asia. The experiences are remarkable due to the lack of effective doctrinal guidance, leaving armored commanders to determine the best tactics, techniques, and procedures on their own. The selections included cover mounted units in a relief operation, use as a quick reaction force, and the general challenges facing a tank battalion in Vietnam.



M48 and crew of the 2d Squadron, 1st Cavalry Regiment.
(US Army Armor School)

Ambush and Destruction

Editor: The following excerpt was taken from Kirk A. Luedeke's article entitled "Death on the Highway: The Destruction of Groupement Mobile 100," published in the January-February 2001 issue of *Armor* magazine. It details the factors that resulted in the destruction of a veteran French motorized column at the close of French-Indochina War.

Strategic Setting

In late June 1954, the French-Indochina War was all but over. (1) The massive French defeat at Dien Bien Phu, along with a proportional yearly increase in French casualties since the conflict began in 1946, had drained France's desire to continue with the hostilities. France was beginning to call her soldiers home.

The fledgling Vietnamese National Government believed their victory at Dien Bien Phu was not enough to guarantee the concessions they desired from the French government. (2) As such, orders went out to continue to fight the French military and to inflict as many casualties as possible. The more French blood was spilled in Vietnam, the stronger the position of Vietnamese negotiators at Geneva, Switzerland.

The French Army garrison at An Khe was one of several outposts that was abandoned in the wake of Dien Bien Phu. In many cases, civilians and high ranking military officials were flown out of An Khe, while the majority of French soldiers evacuated An Khe in armored columns along the winding colonial routes that snaked across the Vietnamese Central Highlands. One such convoy was known as Groupement Mobile 100, a conglomeration of infantry and artillery units that had been fighting the Viet Minh in the Central Highlands for over a year. Bloodied and tired, yet proud, the soldiers of G.M. 100 were ready to return home when they departed their garrison on the 24th of June, 1954. Most would never make it, dying in a little-known ambush that resulted in the destruction of their once-mighty task force. While not a major engagement by the standard of the French-Indochina War, the death of G.M. 100 was characterized by savage fighting, and doomed by the mistakes of its senior leadership. The soldiers of G.M. 100 were some of the best in the French Army, and it was for that reason that any of them at all were able to reach the safety of Pleiku several days after the ambush.

Antagonists

Prior to 1941, Indochina had not been an important colony in the French colonial empire. French involvement there began with priests who first came to Vietnam in the 17th century in an attempt to convert the natives to Christianity. By the 19th century, the French government had discovered that Vietnam's three great rivers might allow them a more direct trade route to China. While the rivers turned out to be useless for trading purposes, the French were in Vietnam to stay.

French rule did not benefit the Vietnamese people. France built a modern infrastructure of roads, railways, and ports, but this was not done to help the local people, but to exploit them. (3) Unlike the British, the French did not allow their colonies a degree of self-rule. As a result, a number of clandestine groups formed to resist French rule, but they lacked dynamic leadership to unite them. Ho Chi Minh would change that.

Ho Chi Minh attempted two uprisings in the 1930s in the name of the Vietnamese Communist Party, but France suppressed both. Ho escaped Vietnam and waited for another chance to free his country from the yoke of colonial rule. After the fall of France to the German blitzkrieg, France was allowed to keep her holdings in the Far East. Japan demanded they be allowed to use Indochina as a staging area for their army and navy, as well as use of Indochina's natural resources.

Japan's defeat in 1945 created a power vacuum in Vietnam. Ho Chi Minh and his supporters established a provisional government in Hanoi and attempted unsuccessfully to get the United States to recognize the government as legitimate. France, adamant that Indochina was still its colony, prepared to go to war against Ho and his Viet Minh. Hostilities between France and the VM broke out in November, 1946. The conflict would rage on until July 20, 1954 when the French-Indochina War officially ended.

Area of Operations

Located in the central highlands of Vietnam between the provincial capital of Pleiku and Qui Nhoi, on the coast of the South China Sea, An Khe was an important French Army outpost. Because of its proximity to the few Vietnamese roads in the highlands, the French military was able to patrol the area with its mechanized forces and could interdict Viet Minh combat units as they attempted to infiltrate south. (4)

By late June 1954, the French Command, recognizing that the Viet Minh were in position to launch a major offensive in the Central Highlands, and with no reserves with which to combat them, ordered An Khe evacuated. The VM intended to strike at the French as they withdrew, positioning themselves to intercept the French columns as they made their way to the various link-up points throughout Vietnam.

Late June 1954 was dry season in Vietnam. The roadways were easily trafficable, making movement along the Route Coloniales (R.C.s), a rapid affair. Having been in Vietnam for well over a year, the French troops were acclimatized to the summer's brutal heat.

Terrain played a major role in the destruction of G.M. 100. The road between An Khe and Pleiku (R.C. 19), was bordered by tall elephant grass and dense jungle vegetation which provided excellent concealment for attackers. In many places along R.C. 19, the rocky terrain channeled the road into narrow defiles, severely restricting any kind of mounted maneuver. The Mang Yang Pass was the link-up point where G.M. 100 and G.M. 42 would join, 20 kilometers from An Khe. Colonel Barrou viewed the pass as key terrain.

Comparison of Antagonists

When the French-Indochina War began in 1946, France firmly believed that her superior technology and military machine would defeat the Vietnamese peasants quickly enough. France received a good deal of military equipment from the United States and Great Britain and benefited from the support of both nations. France set up a series of provincial commands in Vietnam's towns and cities from which it would launch attacks into the northern portion of Vietnam, using overwhelming combat power to grind the Viet Minh into submission. To help them in their fight, the French also used special operations troops to recruit mountain tribesmen who disliked the Vietnamese. France underrated the ability and fighting savvy of their opponents and would continue to do so for the duration of the war. (5)

The Viet Minh had no illusions about their capabilities against the French military, nor how they would wage their war for independence. The VM initially fought a guerrilla war against the French, ambushing light convoys, overwhelming under-defended outposts and striking at supply and ammunition depots to hinder France's resupply efforts while adding to their own cache of weapons and ammunition. As the years progressed, the VM, receiving military aid from China in the form of equipment and military advisors, were able to fight larger engagements with French forces, oftentimes overwhelming French forces with human wave tactics. VM doctrine attempted to avoid the set piece battle unless they enjoyed an overwhelming force ratio, as evidenced in their 12-to-1 advantage against the French defenders at Dien Bien Phu. Ho Chi Minh's strategy was to bleed France dry, knowing that his people were in it for the long run, while the French were not.

The G.M.s were designed as self-sustaining motorized brigades modeled after the U.S. Army's World War II combat commands. The G.M.s typically consisted of three infantry battalions with one artillery battalion, along with elements of light armor or tanks, engineer, signal and medical assets, totaling 3,000-3,500 soldiers. The G.M.s were effective at rapidly reinforcing threatened sectors in the Delta, but the hills and swamps, prevalent in Vietnam, hindered their effectiveness, restricting the G.M.s to narrow roads. Their mobility quickly became their Achilles heel, as their vehicles could not traverse the restricted terrain. (6)

> ***Note:*** *The issue here was the largely wheeled nature of the French groupements. Their lack of tracked transportation limited vehicular maneuver in contrast to the predominantly tracked platforms of the later U.S. mounted columns.*

The French order of battle included:

- Groupement Mobile 100, Colonel Barrou, commanding.
- Headquarters Company 100, Capt. Fievet, commanding.
- Regiment de Coree (Korea Regiment), Lieutenant Colonel Lajounie, commanding.

- 1st Bataillon de Coree (Korea), Major Kleinmann, commanding.
- 2nd Bataillon de Coree (Korea), Major Guinard, commanding.
- Bataillon de March /43e Regiment d'Infanterie Coloniale, Major Muller, commanding.
- 10e RAC (Artillery), Major Arvieux, commanding.
- III Escadrille/5e Rgt Cuirassiers ('Royale-Pologne'), Captain Doucet, commanding.

Groupement Mobile 100 was a veteran force with a paper strength of 834 soldiers in each infantry battalion. The Korea Regiment had distinguished itself fighting alongside the U.S. 2nd Infantry Division in Korea and proudly wore the unit's Indianhead patch. (7) Many of its officers had taken a reduction in rank to serve in the Coree. The 43rd Coloniale was a crack unit of Cambodian and Vietnamese soldiers who had fought well in the past. (8)

It can also be said that G.M 100 was tired from the bloody fighting and many saw their withdrawal as a sign that the war for them was over. G.M. 100 was well-led by officers and NCOs, at the company level as well as in senior leadership positions. Colonel Barrou was a compassionate officer who recognized the Groupe Mobile's vulnerabilities early in his command when he wrote in his diary:

> The most delicate problem remains that of the protection of the artillery and of the means of command and communications, since the largest possible number of infantrymen must be left free to search out the enemy and fight him.
>
> The very means of support and coordination which makes the strength of the G.M. also create some enormous obligations in a mountainous area where roads are rare and of poor quality.(9)

These words would haunt the colonel later, considering the fate of his unit. G.M. 100's leadership was strong, consisting of blooded, dedicated officers who were no strangers to the war in Vietnam. Perhaps it is a tribute to them — the sergeants, lieutenants, captains and majors of the G.M. — that any of its soldiers survived the bloody ambush at PK 15.

Viet Minh Regiment 803

The Viet Minh enjoyed widespread support among the civilian population of Vietnam, and dealt harshly with those who had profited from the French presence. The Viet Minh army was formed from tough peasants, ideologically committed to an independent, Communist Vietnam. The sufferings heaped upon the people by corrupt Vietnamese in power, as well as military operations and atrocities by the French military, ensured a continuous stream of volunteers into General Vo Giap's VM Army. Those less willing to fight could provide invaluable service to the army as porters. It was the porters or "coolies" who had hauled hundreds of mortar and artillery pieces and ammunition across the Vietnamese countryside and up to the high ground surrounding the French base at Dien Bien Phu. It is estimated that each regular division needed approximately 50,000 porters to move equipment and supplies. (10)

Most of the VM regular units were formed in the Viet Bac and after 1949, at Chinese Camps at Wenshan, Long Zhou, Jing Xi, and Szu Mao. Trained by Chinese Red Army soldiers, the Viet Minh were molded into a fanatical fighting force capable of marching for days with only a few rice balls for sustenance. (11)

The Viet Minh 803rd Regiment had fought the French in the Central Highlands for two years and had exacted a bloody price from the soldiers of G.M. 100 since February, 1954 with ambushes and mortar attacks on An Khe. It was a price that G.M. 100 had paid in kind at Dak Ya-Ayun in March. It seemed only fitting that the 803rd would be the ones executing the ambush two months later that would signify the death knell of the French unit.

The 803rd's leadership is unknown. There is no record of any of the names of its regimental or battalion commanders, for theirs was a war of anonymity. The Viet Minh won its battles at great human cost and therefore, many of its officers did not survive the vicious fighting. A private in one battle could very well find himself leading VM troops as a sergeant or lieutenant in the next. As their struggle was one for freedom and liberty, the Viet Minh did not recognize individuals, but fought as a collective. Viet Minh leadership was different than that of the French, but it was effective enough. There was much politics in the VM Army, as commissars often worked in conjunction with the officers and NCOs who led the Viet troops to ensure their dedication to the Communist cause.

The Destruction of G.M. 100–Opening Moves

With the fall of Dien Bien Phu complete and no French reserves available to stem the tide of the imminent Communist offensive into the central plateau, the French high command gave the order for G.M. 100 to evacuate An Khe and move to Pleiku, 80 kilometers west over enemy-held road. G.M. 100 was to depart on 25 June, upon completion of the air evacuation of French civilians, high-ranking officials, and equipment from An Khe.

By the 23rd of June, intelligence reports indicated that the Viet Minh 803rd regiment was on the march to R.C. 19 from its base near An Hoa. Indications were that the 803rd had every intention of stopping the evacuation force before it could reach Pleiku. This information proved to be critical, leading to Colonel Barrou's first costly mistake that contributed to the destruction of his force. Moving the departure date up one day to the 24th of June, Barrou decided that G.M. 100 would drive 22 kilometers to Mang Yang Pass, where elements of G.M. 42 and Airborne Groupe 1 were waiting to link up and escort the An Khe convoy into Pleiku. Barrou intended to drive the distance quickly, forsaking reconnaissance and security for speed. The original plan had called for G.M. 100 to halt at kilometer (PK) 11 while one company from the 43rd Coloniale conducted a recon of the next 11 kilometers before committing the rest of the force to the narrow defiles and restricted maneuver terrain between kilometers 12-20. Barrou now called for the column to move to PK 22 in one bound. He hoped to beat the 803rd to Mang Yang Pass and was prepared to sacrifice security to do so.

G.M. 100 departed An Khe at 0300 hours on 24 June, 1954. The Cambodian- French 43rd Coloniale led the column, followed by the 2nd Korea and the 1st Korea. All three battalions had dismounted and were providing a screen for the Groupe's vehicles. Also present in G.M. 100's formation was the 520th Tieu-Doan Kinh-Quan (TDKQ or Commando Battalion), a unit comprised of Vietnamese schooled in the fighting methods of the Viet Minh and designed to close with and destroy the Communist guerilla units. The TDKQ unfortunately were an undisciplined force, and their presence in the armored column that fateful day would end up having dire consequences for Colonel Barrou and his men. (12)

Each of the infantry battalions in G.M. 100 had one artillery battery task organized to them. Headquarters Company and the Groupe's mobile command posts were placed in the convoy behind the 520th TDKQ. By dawn, the column was on its way to Pleiku followed by 300 or so civilians from An Khe who had not been evacuated by air. Although it was against the orders of the French High Command to allow civilians to move with a military convoy, nobody in G.M. 100 seemed to either notice or care. As the formation moved down the open road, French B- 26 bombers destroyed the ammunition and supplies left behind at An Khe. The road march was underway.

The Viet Minh 803rd Regiment knew where G.M. 100 was going and at this point, they were in a footrace to reach Route Coloniale 19 before the French could rendezvous with G.M. 42 and AG 1. The VM knew that if the French were successful in linking up, the VM would not have the combat power to interdict their move to Pleiku. It would be critical to the mission's success that they hit the French column somewhere between PK 11 and 15.

Colonel Barrou did have one asset at his disposal he fully intended to use. A company of Bahnar tribesman led by Captain Vitasse, an elite French commando who had fought in Vietnam for over four years, was positioned in the jungle to the north of R.C. 19. Any Communist unit attempting to cross the road west of An Khe would be spotted by Vitasse and thus provide the French with early warning.

At 0900 hours, the convoy reached PK 6 and was hit with automatic small arms fire. Several soldiers in the 1st Korea were wounded, but the enemy withdrew as quickly as it had come. First blood went to the VM. As the column continued its march, the Groupe's soldiers grew increasingly edgy, sensing the dangers that potentially lay in the dense jungle surrounding them.

G.M. 100 conducted a short halt at PK 11, the initial target for the road march's first day. After PK 11, the road, surrounded by the thick jungles and rocky overhangs, passed through numerous sites along the route ideal for ambush. It was here that Colonel Barrou decided to split the convoy into four elements, each consisting of infantry, artillery and light armor, each a self-contained unit capable of defending itself if trouble arose, while preventing the entire column from annihilation in the event of a VM trap. The first element of the 43rd Coloniale, its first company led by the veteran Captain Leouzon, left PK 11 at 1250, the second element

at 1300, the third at 1330 hours and the fourth and final element departed at 1400. All groups maintained radio contact as the march resumed.

At 1330, Captain Vitasse sent an urgent dispatch that G.M. 100's radio truck received: "Important! Viet Minh elements 3 kilometers north of R.C. 19." Almost simultaneously, a French reconnaissance plane identified another VM formation at Kon-Barr, 8 kilometers north of PK 11. Soon, the 105s of 4th Battery, who had not yet left PK 11, were sending rounds at the grid the spotter plane had identified near Kon-Barr. With this critical information, it seemed the French convoy had what it needed to avert disaster.

G.M. 100's radio truck compiled the reports and relayed them down the line to the different elements of the convoy. The 520th TDKQ, 1st and 2nd Korea, 10th Colonial Artillery battalions all acknowledged the transmission. The problem was, the radio truck never contacted the 43rd Coloniale, and they were leading the march! It was never discovered how this fatal error happened, for the radio truck and its personnel were all killed in the battle that followed. However, Colonel Barrou had complained several times previously that he was short 20 radio operators from his authorized strength. Without the critical warning that the VM were at R.C. 19, Leouzon and the rest of the 43rd Colonial Infantry marched on unaware.

Luckily for G.M. 100, Captain Leouzon was a savvy jungle fighter who had seen his share of VM ambushes in his several years of fighting. At PK 15, the road stretched out into a small plain covered with 6-foot-tall elephant grass through which the road wound further west. It was quiet. Too quiet. There weren't even any birds to be seen and this made Leouzon nervous. Contacting Major Muller, his battalion commander, he requested permission to send out a screen prior to moving the entire column through the area. Muller was concerned about the time it would take to do so. He also felt that if Leouzon ran into enemy, Muller's other companies would not be able to support him with the dense vegetation obscuring their fields of fire. Undaunted, Leouzon proposed a compromise:

> Well, then let's cut the problem halfways. I'll leave the road with my company and just cut across the arc of the road through the high grass. If there is nothing that close to the road, it'll give us an additional screen, and if I get caught, it'll give you an early warning and permit you to support me without having to weaken the convoy.(13)

Muller gave his consent and Leouzon's 1st Company left the road and moved cautiously through the elephant grass, attempting to move to a small hill in the middle of the plain that would afford them a better view of the surrounding area. Sergeant Li-Som, a Cambodian, and one of Leouzon's best soldiers, stopped and told his squad to be silent. He listened intently, eyes widening when he realized what he was hearing. When a large body moves through elephant grass, the long strands make a "knack" sound as they return to their normal position after having been trampled out of place. Li-Som quickly deduced that the Viet Minh were there and ready to destroy G.M. 100 as they moved through the wide open area without cover. Suddenly, two VM machine guns opened up on another platoon of Leouzon's Cambodians at a range of about 30 meters. Sergeant Li-Som charged towards the machine guns' reports, ordering his platoon with him. As he threw the grenade that destroyed one enemy gun, the other gun killed Li-Som with a hail of bullets. The time was 1420. The battle had begun.

The Battle and Subsequent Actions

Leouzon's 1st Company immediately went into action, returning fire. Leouzon's RTO attempted to contact Major Muller, but his radio had been smashed by a .50 caliber bullet. Destroying the rest of the radio set so that the VM would not be able to use it, he joined the battle. The VM savaged the 43rd Coloniale with fire from their machine guns, bazookas, recoilless rifles, and heavy mortars. The 803rd was in fact fully-deployed along PK 15 and now executing a perfect ambush of a confused and disoriented foe. The elements observed by the spotter plane had apparently been decoys, for the 803rd had been in place for several hours prior to the arrival of G.M. 100. The French had lost the race to Mang Yang Pass and were now fighting for their lives.

Prior to 1420, Colonel Barrou traveled behind the armored platoon, consisting of three half-tracks and two M-8 armored cars. Barrou was in an open jeep, but moved with the Groupe's radio truck, which informed him of a light stone barricade in the road at PK 15 at 1405 hours, as reported by another light recon plane.

By 1415, Barrou noted that the lead element of the convoy picked up speed and the armored platoon widened the gap between the lead element and headquarters company to keep up. Barrou ordered the radio truck to tell the armored platoon to slow down. Immediately after the platoon leader acknowledged the transmission, Barrou heard the machine gun burst and Li-Som's grenade explode. Suddenly, the Headquarters Company was struck by heavy mortar and recoilless rifle fire. Trucks and vehicles began exploding and the screams of men struck by bullets and shrapnel threatened to drown out the explosions.

Within four minutes, the armor platoon was destroyed. All three halftracks and one M-8 were ablaze. The remaining M-8, though immobilized, located an enemy machine gun raking halted French vehicles on the road, and tore it apart with a blast of automatic fire. At 1425, G.M. 100's radio truck took a direct hit from an enemy 57mm recoiless rifle and exploded in a ball of fire. Anybody inside who might have explained why the 43rd Coloniale had not been warned of the presence of the Viet Minh in the area died a fiery death. Along with the truck went Colonel Barrou's ability to command and control the convoy. The 43rd Coloniale and Headquarters Company were both in contact, having to fight separate battles for survival. Chaos reigned.

Colonel Barrou and Captain Fievet, Headquarters Company's CO, attempted to rally soldiers for a counterattack on VM positions on the hill crest north of the convoy that was continuing to rake the halted vehicles of G.M. 100 with murderous fire. Fievet fell, mortally wounded, while Colonel Barrou was also hit in the thigh and rolled into a ditch next to the dying Fievet where he conferred the Officer's Cross of the Legion of Honor on Fievet before he expired.

Lieutenant Colonel Lajouanie, CO of the Korea Regiment, also counterattacked against the enemy-held hill. The surviving M-8's canister shells were suppressing the enemy positions there and it appeared that the French might be able to take the hill in a flanking maneuver. However, as Lajounie led the attack, the M-8's gunner was killed and the VM turned their full fury on the charging Frenchmen who were mowed down by the murderous fire. Lajounie fell near Colonel Barrou and he too, was awarded the Legion of Honor. By 1445, Headquarters Company had been destroyed as a fighting force, and several key officers of G.M. 100 were dead.

Barrou crawled to the silent M-8 and manned the vehicle's weapon attempting to bring fire on the Viet Minh positions. Unfortunately for Barrou, he was spotted and shot before he could get the machine gun going again. Barrou was knocked from the vehicle and rolled into a ditch where he resolved to die. Tearing up his identification, he lay there until a medic bandaged him. Not recognizing his colonel who lay there covered in blood, the corpsman moved on towards positions of the 43rd after providing first aid.

Major Hipolite, the Korea Regiment's executive officer, was killed shortly afterwards and Viet Minh infantry swarmed the headquarters trucks, executing wounded soldiers and continuing the G.M.'s destruction. Ten minutes after the ambush began, G.M. 100 had lost its means of communications and all three of its ranking officers. Major Muller and his 43rd Infantry were in the fight of their lives, but help was on the way. Muller did the right thing and took charge of his element, not waiting for orders from Colonel Barrou. Little did Muller know that his CO was lying in a ditch dazed from his wounds and in no condition to lead the fight.

The 520th TDKQ, normally not a part of G.M. 100 and bearing a poor reputation as combat troops, (14) broke and ran at the outset of hostilities, leaving the Headquarters Company and the 10th Artillery's Headquarters Battery alone to fight the Viet Minh. Truck drivers carrying engineer demolitions abandoned their trucks and ran into the jungle seeking safety. At 1500, the abandoned engineer trucks, packed with pyrotechnics and demolitions began to explode under the onslaught of Viet rounds. Shrapnel tore into French soldiers nearby, who were using the trucks as cover.

The 2nd and 1st Korea Battalions arrived shortly after 1500 and pressed forward through the mass of burning vehicles in order to link up with the 43rd. Taking advantage of the Viet Minh surprise at the arrival of two fresh battalions and their artillery, the 43rd attempted to break out with as many vehicles as they could and suffered heavy losses under the VM fire. A few vehicles from the 43rd did manage to escape the carnage and arrive at PK 22 to tell of the ambush.

Major Kleinmann, 2nd Korea's CO and the ranking officer left in G.M. 100, organized a defense around the shattered convoy. He ordered his 4th Battery to set up their howitzers and fire fuzes at minimum setting into the Viet Minh positions as enemy infantry attempted to charge the French. This action undoubtedly saved the French, as the VM attack broke under the devastating artillery fire. For the beleaguered soldiers of the 43rd

and Korea Battalions, seeing the Viets cut down was a tremendous lift to their morale and they seemed infused with the elan to continue their savage fight for survival.

By 1620, ammunition was running short. Air Force B-26s arrived to provide close air support, but by then much of the fighting was occurring so close, that both French and Viet soldiers were cut down by the indiscriminate machine gun fire from the air. As dusk approached, the French realized they would not be able to hold much longer. The 4th Howitzer Battery was out of action; its crews dead and wounded, its guns out of ammunition. While the French had stopped the VM infantry attacks, enemy mortar fire rained down on the French perimeter ensuring a steadily rising casualty count.

At 1715, Major Kleinmann was ordered by French Zone Headquarters to abandon the Groupe's vehicles and break through to PK 22 on foot with his infantry and whatever wounded he could carry, to link-up with G.M. 42 and other French forces there. Kleinmann discussed options with the 2nd Korea's CO, Major Guinard. Both decided that there would be no way to carry out the seriously wounded. Having to trek a distance greater than 10 kilometers through thick jungle and doing so under fire would only create more casualties. They made the decision to leave the wounded on the road, along with all remaining medical supplies and any medical personnel volunteers willing to stay with them. The following conversation between Major Kleinmann and Major-Doctor Varme-Janville, G.M. 100's surgeon, epitomizes the self-sacrifice and dedication to the wounded that the French doctor possessed.

> "Janville, we've just received our orders. We're pulling off the road at 1900."
>
> "And the wounded?"
>
> "Janville — the wounded are staying here. You know there's nothing we can do for them once we're off the road."
>
> "Gentlemen, I don't think I can be of much further help in this. They've got good doctors up in Pleiku but my men need me here. I'll stay with them." (15)

Unfortunately for Varme-Janville, all the wounded he elected to stay with eventually died because the Viet commissars refused to allow him the supplies to treat them. It was a dark chapter in the doctor's life, for he was forced to watch his men suffer and die, all the while he was prevented from attempting to save their lives.

At 1900, the remaining soldiers of G.M. 100 broke out of the trap that had killed so many of their brethren. As they escaped into the surrounding jungle, they saw their leg- wounded comrades still with the convoy fight one last delaying action in order to buy the rest of the infantry time to escape. The battalion commanders realized that the VM would figure out that they had withdrawn and attempt to cut them off. They decided to split the remnants of the battalions into platoon-sized groups under the command of an officer or senior NCO, to make the trek to PK 22.

For the next several days, the groups encountered impossibly dense jungles, isolated Viet Minh ambushes, and mountain tribesmen who attempted to kill and rob the French. Finally, at 1130 hours on 25 June, a platoon from 4th Company, 1st Korea encountered a patrol from the 1st Airborne Group. The battered remnants of G.M. 100 had finally reached PK 22. While these men had arrived alive, their unit, the once proud G.M. 100 had died the day before at PK 15 on Route Coloniale 19.

Key Events, Outcome of Action

Sadly, for the men of G.M. 100, their ordeal was not quite over. They, together with elements of G.M. 42 and 1st Airborne Group, had to brave 55 kilometers more of enemy road, harassed continuously until they arrived in Pleiku on 29 June. Of the 222 men assigned to Headquarters Company when G.M. 100 left An Khe, only 84 were left. The 43rd Coloniale, 1st and 2nd Korea Battalions, containing 834 soldiers each could now claim 452, 497 and 345 soldiers respectively. The 2nd Group, 10th Colonial Artillery had only 215 out of an original 474. Eighty-five percent of G.M. 100's vehicles, 100 percent of the artillery, and 68 percent of the signal equipment had been lost. Fifty percent of the Groupe's rifles and machine guns were captured by the Viet Minh.

Colonel Barrou, amazingly, survived the destruction of his unit, and was discovered by a French patrol and carried out on a stretcher. The patrol was later captured by the VM and Barrou participated in a death

march over a hundred or so miles to enemy prisoner of war camps, but he did survive the war, and was eventually repatriated back to France.

The 803rd Viet Minh Regiment gave as much as it got and received a battalion of replacements within a day of the fight at PK 15. They quickly rejoined operations in the Central Highlands and continued to fight the French until the armistice was signed on July 20.

Because of the nature of the Viet Minh's operational security, it is not known how many casualties the unit suffered, but there is no doubt that the regiment covered itself in glory by destroying one of the best mechanized outfits in the French Army. Years later, the 803rd would return to action against another invading force, this time the Army of the United States.

The Viet Minh's goals for destroying the French convoys en route to Pleiku were relatively simple. By demonstrating their ability to inflict massive casualties on the French Army in the wake of the disastrous defeat at Dien Bien Phu, the VM could then dictate the terms of the peace agreement between France and Ho Chi Minh's Provisional Government of Vietnam. Under no circumstances did the VM want France to retain any portion of Vietnam, nor did they want the French to feel tempted to resume the war. By destroying France's armored convoys, the VM were kicking an enemy who was down, but they did so to send the unequivocal message that Vietnam was the victor.

The war was, for all intents and purposes, over when G.M. 100 died on the 24th of June 1954. However, by doing what they did, the VM hastened France's departure from Vietnam and resigned the French to the fact that until the last soldier withdrew, it was a fight to the death. France had lingered too long in a place they were now prepared to give up. Just to ensure there were no second thoughts, no serious French considerations to the feasibility of continuing the war in Indochina, General Vo Nguyen Giap, Vietnam's greatest general, continued to apply the pressure until France realized that maintaining its presence in Vietnam would come at the cost of more of its soldiers. Less than one month after the disaster at PK 15, the last French soldier departed Vietnamese soil.

Several events contributed to G.M. 100's destruction. Colonel Barrou normally was careful and made good use of reconnaissance and an advance guard when maneuvering the Groupe. When he received reports of the 803rd Regiment attempting to cut him off from Pleiku, he attempted to race the Viet Minh, rather than conduct the proper reconnaissance and security measures that might have prevented the ambush. Thanks to the independent actions of one Captain Leouzon, the column had a very small measure of early warning before the convoy came under direct and indirect fires. This action saved G.M. 100's destruction from being even more devastating than it was. Splitting his force also allowed the 803rd to mass on the lead elements of the convoy, inflicting heavy damage on them before the Korea Battalions could arrive to stem the tide.

The inability of the radio truck to notify Major Muller and the 43rd Coloniale Infantry that the Viet Minh had been observed near PK 15 was critical information that might have altered the method in which Muller deployed his combat power. When Captain Leouzon requested to screen the convoy's flank, neither he nor Muller had any idea that VM forces were in the area. This critical failure in communications no doubt contributed a great deal to the deaths of French soldiers at PK 15.

G.M. 100 lost all of its leadership and command and control nodes in the opening minutes of the ambush. As a result, all three infantry battalions were fighting on their own, without coordination of any kind. The battalion commanders did a superb job of fighting their units, but without any central leadership, the French were unable to make a concerted effort to break the ring of death around them, making several unsuccessful piecemeal attacks before withdrawing into a perimeter defense. The deaths of LTC Lajounie and MAJ Hipolite, and the incapacitation of Colonel Barrou, had a devastating effect on G.M. 100 and it was only because of the discipline and leadership within the infantry ranks that the entire force was not wiped out.

The commander of the 803rd Regiment did an excellent job of choosing the appropriate ground in which to kill his enemy. He used his heavy weapons effectively, destroying vehicles and thus stacking up the convoy within his kill sack where his soldiers were able to continue to inflict devastation upon the French ranks. Maintaining a steady fire with his heavy mortars, he never allowed the French an opportunity to effectively consolidate and reorganize, and was able to easily defeat the piecemeal counterattacks. When his infantry began to become attrited during their attacks, he pulled them back to allow his mortars and heavy machine

guns to weaken the French resolve. He executed a perfect ambush from which any French at all were lucky to escape.

The Principles of War

Maneuver

The Viet Minh knew that the French column, caught in the open, would not have the time or ability to maneuver once they initiated the ambush. The French infantry operated dismounted, but the tall elephant grass prevented them from coordinating their attacks with other infantry and their vehicles. This lack of ability to maneuver doomed the French to having to fight a defense in the open while surrounded by enemy who had the benefit of concealment and high ground.

Economy of Force

Although the French convoy had over 2,000 fighting soldiers at its disposal, Colonel Barrou split his force on the road, allowing the Viet Minh to attack G.M. 100 as it piecemealed into the ambush. The numbers on both sides were about even on paper, but by the time the Korea Battalions arrived, the 520th TDKQ had been routed, the Headquarters Company had been destroyed, and the 43rd was surrounded and under heavy fire. The French were never able to mass their forces at any one point, or else they might have been successful in breaking the ambush.

Mass

The Viet Minh 803rd Regiment employed mass against G.M. 100 to great effect. Employing machine gun, heavy mortar, 57mm anti-armor and small arms fire against the exposed convoy, the VM succeeded with deadly effect. Conversely, the French were unable to mass, having been separated and without the means to effectively coordinate their counterattacks. The French inability to counter the Viet Minh's superior employment of mass doomed G.M. 100 from the start.

Security

Colonel Barrou sacrificed security for speed and many of his soldiers paid the ultimate price. By not adequately reconnoitering the area west of PK 11, he allowed his mounted force to advance blind, without knowledge of the terrain or what dangers lay ahead. In doing so, he gave the VM the initiative and a clear advantage. The VM knew where the French were, and the extent of their combat power. Colonel Barrou had no concept of VM locations other than the fact they had been spotted near RC 19. Instead of adjusting his plan to create some local security, he continued on blindly.

Surprise

The French force's lack of adequate security allowed complete surprise for the Viet Minh. Although the French had an idea they were out there, the column's lead element did not. Had Leouzon's instincts not dictated that he screen the battalion's advance through the area surrounding PK 15, the surprise might have been complete and the entire column might have been caught on the open road. As it was, the Vietnamese still benefited from surprise and used it to great effect.

Unity of Command

G.M. 100 had plenty of leadership, yet disaster struck in the opening minutes when the top three ranking officers went down. Because the other battalion commanders were in the midst of the fight for their lives, nobody took charge until Major Kleinmann arrived 40 minutes after the ambush began. In those 40 minutes, the entire armor platoon was destroyed as well as most of the convoy's vehicles. Kleinmann inherited chaos and did the best he could with it, but by the time he arrived, the ability for the French to seize the initiative had passed and the battle was firmly in the hands of the Viet Minh. Barrou had no concise plan for countering an ambush, nor did he provide any guidance to his subordinates on what to do should he be taken out of action. As a result, critical time was lost in re-establishing a chain of command, and with that time went G.M. 100's ability to win the battle at PK 15.

Editor: The tactical situation facing the Groupement Mobile 100 commander will be familiar to anyone who has experienced the end of a military mission abroad and the resultant withdrawal of forces. In this instance, the Viet Minh opted to press attacks as the French departed Vietnam. The Groupement Mobile concept provided a mobile, combined arms organization capable of a varied mission set. However, in this instance the Groupement Mobile was never able to maneuver as a team. The failure to alert the lead element of the Viet Minh presence, the subsequent eradication of the unit's communications network, and the rapid elimination of the unit's senior leadership left the groupement struggling to fight as a collection of separate elements. Groupement Mobile 100's fate underscores the importance of an effective, redundant communication network. Not only did the lead element not receive warning of the pending ambush, but the quick destruction of its own communications removed its ability to warn the rest of the column. The Groupement Mobile commander suffered the loss of his own radio, which rapidly eroded his ability to direct the combat actions of his unit, which did not improve with his decision to act as a common foot soldier and enter the fight. With no centralized management of the Groupement Mobile, even with poor communications, the unit disintegrated.

The column also suffered from limited mobile combat power. Essentially a motorized infantry force supplemented with towed artillery and several armored cars and light tanks, Groupement Mobile 100 lacked the survivability to survive the initial contact and carry the fight to the enemy. Moreover, the Viet Minh possessed more than ample means to neutralize the light armor available to the French. Ironically, this battle and others like it were later used as an argument against the deployment of US armor to South Vietnam, despite the discrepancy in mobile combat power between the French light assets and American tank and armored cavalry units.

Air support to the Groupement Mobile proved belated and largely ineffective due to the close range engagements underway when the French B-26s arrived. The air support needed to be available at the start of the fight and possess sufficient precision to suppress the Viet Minh without endangering French ground soldiers. However, the responsiveness of the aircraft no doubt suffered from the early degradation to the groupement's communications. Aerial reconnaissance proved less than optimal, largely through the Viet Minh's use of decoys that drew the attention of the aerial observers. Aerial reconnaissance failed to note the already deployed mass of Viet Minh combat forces, while ground commanders—particularly in the lead element—already sensed the likelihood of an ambush. Expecting an enemy in the process of moving into ambush positions, instead they found themselves in the midst of a fully developed attack by prepared forces with heavy weapons in place.

Notes

1) Bernard B. Fall, *Street Without Joy* (Stackpole Books, New York, 1964) p.187-188.
2) Ibid., p. 190.
3) Jim Mesko, *Ground War - Vietnam 1945-1965* (Squadron Signal Pub., Carrollton, Texas, 1990) p. 3-4.
4) Fall, p. 186.
5) Mesko, p. 6.
6) Martin Windrow and Mike Chappell, *The French Indochina War* (Osprey Military Publications, Wellinborough, UK, 1998), pp. 16 17.
7) Robert Barr Smith, *Men At War* (Avon History,New York, 1997) p. 349.
8) Fall, p. 193.
9) Ibid., p. 189.
10) Windrow and Chappell, pp.20-21.
11) Ibid., p. 21.
12) Fall, p.206.
13) Ibid., pp. 210-211.
14) Barr Smith p. 350.
15) Fall, p. 218-219

Armored Quick Reaction Force

Editor: Written by 1st Sgt. Christopher P. Worick, this article first appeared in the May-June 2000 issue of *Armor* magazine entitled, "The Battle of Suoi Tre: Viet Cong Infantry Attack on a Fire Base Ends in Slaughter When Armor Arrive." It details an engagement in 1967 in which a newly established fire base in danger of being overrun is relieved by an armored task force that included the M48 tanks of 2-34 Armor and the mechanized infantry of 2/22 Infantry. The task force applied mobility, shock, and firepower to transform defeat into victory.

Prelude

In 1967 the troop buildup in Vietnam was in full swing with no end in sight. American commanders, by then equipped with more personnel and supplies, decided to revise the overall strategy of local containment for a more aggressive approach. Combined arms operations would now venture farther into enemy held territory in an attempt to draw the communist forces into battle.

Operation JUNCTION CITY, the largest combined arms operation to that date, began on February 22nd. The operation was designed to disrupt the Viet Cong Central Office for South Vietnam (COSVN), destroy the Viet Cong and North Vietnamese forces, and clear War Zone C, III Corps Tactical Zone base areas in the northern Tay Ninh Province. (1) JUNCTION CITY would reinforce the necessity for armor and cavalry for the remainder of the war.

The initial phase of JUNCTION CITY kicked off with airmobile troops lifted into the northwest corner of the operational area near the Cambodian border. (2) The mission was to establish fire support bases for the follow-on infantry and establish a horseshoe blocking position. (3) With this in place, mechanized forces began their attack north into the open end of the horseshoe toward the U end of the position. Initial enemy contact was sporadic; but mechanized units found VC base camps, hospitals, bunker systems, and small groups of Viet Cong. Dense jungle and enemy mines made progress slow for the armored forces.

Upon reaching the northern limit of advance, the mechanized units wheeled west to "squeeze" the enemy. (4) Feeling the pressure, V.C. resistance began to stiffen until they were finally drawn out in an attempt to boost their sagging fortunes. The last significant engagement involving the use of armor during Operation JUNCTION CITY occurred at a remote fire base on March 21st. It would become known as the battle of Suoi Tre or Fire Support Base Gold. (5) The shock effect of armor would turn an enemy victory into a disastrous defeat.

If You Build It, They Will Come.

On March 19th, almost a month into the operation, the 3rd Battalion, 22nd Infantry (-) and the 2nd Battalion, 77th Artillery (-) began airlifting three batteries of 105mm howitzers and about 450 troops into an egg-shaped clearing near the former village of Suoi Tre. Their mission was to establish Fire Support Base Gold and provide indirect fire support for the 4th Infantry Division's 3rd Brigade Task Force. (6) This particular area had been quiet thus far and heavy action was not expected. When the first helicopters set down in the LZ, it became obvious that something was different. Viet Cong scouts, waiting in the surrounding woods, had placed command detonated mines facing inward in the clearing. The detonation of these explosives destroyed three Hueys. Undeterred, the Americans continued to secure the perimeter and establish the fire base, despite the fact that an unusually large number of VC were spotted moving in the area.(7)

What American troops didn't know was that they had landed virtually on top of approximately 2,000 Viet Cong troops spearheaded by the 272nd Main Force Regiment of the 9th Viet Cong Division. (8) Disturbed by this sudden threat, the enemy observed the Americans for the next two days while formulating their plan of attack. Feeling that the odds were in their favor on account of their numerical superiority, the VC would use speed and surprise to overwhelm the Americans. By using human wave assaults to quickly move in close to the defenders, they would deny U.S. forces the ability to use their technological advantage.

At FSB Gold, the infantry and artillerymen continued to reinforce and improve their perimeter defenses. They built defensive bunkers, rehearsed contingency plans, conducted ambush patrols, and constructed 18

firing positions for the artillery batteries. (9) To the southwest of Gold were elements of the 2nd Battalion, 12th Infantry, the tank-mechanized infantry task force of 2nd Battalion, 22nd Infantry (Mechanized) and the 2nd Battalion, 34th Armor(-). (10)

Under the command of Lt. Col. Raymond Stailey, 2-34 Armor had moved north on 20 March as part of the 3rd Bde, 4th ID Task Force, commanded by Col. Marshall Garth. The TF had been placed under operational control of the 25th Infantry Division for JUNCTION CITY. 2-34 Armor had been conducting search and destroy operations, which consisted of clearing 10 x 10 kilometer quadrants, looking for any sign of the VC. (11) On March 20th, Col. Garth ordered 2-34 AR to link up with 2/22 IN (Mech), commanded by Lt. Col. Ralph Julian, and to continue their push north as a combined arms team toward the Suoi Samat River. Earlier that afternoon, the scout platoon of 2/22 Infantry had cleared a trail 1500 meters to the north but had been unable to find a ford. (12) The recon platoon from 2-34 would have better luck in the search.

Arriving ahead of the main body at the river, the 2-34 scouts found that the dry season had reduced the river to a muddy stream. A possible fording site had been located at a bend in the river; however, bridging assets would still be required in order to get vehicles across without getting stuck. Lt. Col. Stailey met with his scouts at the river and coordinated for an M113 to be sunk in the river and two AVLBs set across if the situation required it. This contingency plan was then passed along to all maneuver elements. Separated from the firebase by only two kilometers, Lt. Col. Stailey felt confident that if any trouble should occur, his units were in a good position to provide support. Exchanging information with the firebase commander on the task force net, Lt. Col. Stailey received the troop disposition at Gold and the extent of the outer perimeter's location. (13) With darkness approaching, 2/22 IN and 2-34 AR had conducted their linkup and began setting up for the night. Normally a clearing would have been preferred, but none had been located or indicated on the maps. With the rear elements closing in on their respective unit night positions, Lt. Col. Stailey briefed his commanders on the current situation; he decided to wait until first light and resume the move toward the river. (14)

1st Lt. Denny Hollister, executive officer of A Company, 2-34 AR, recalls the movement: "The day before the battle, our unit, A Company, 2-34 and 2/22 IN (Mech), made little progress due to the heavy jungle and various breakdowns, mainly thrown tracks. By this time our tanks, which were old when we got them, had sustained months of mine and RPG damage. Also, the daily routine of bulldozing the jungle was beginning to take its toll. Throwing a track (especially off a vehicle that was already short tracked due to mine damage) often meant that everything was wedged in a tree or other jungle growth. The process of repairing it was very labor-intensive, as only a tanker can understand. As a result of all this, we did not make our assigned objective for that day. Since our objective was mainly just driving around in the woods until we ran into someone, it really didn't matter in the overall scope of the war — but it sure did upset the brigade commander (Col. Marshall Garth). As a punishment, we did not receive any fresh water that evening." (15)

First Blood

Around 0600 the next morning, radio reports indicated possible enemy movement on the perimeter of the Fire Support Base. (16) First contact with the enemy was at 0631. (17) An ambush patrol from B Company, 3/22 IN, located 500 meters from the perimeter of Gold, broke down their ambush site when they spotted two VC. Taking the soldiers under fire, they discovered the enemy was in the tall grass all around them. With only part of the patrol making it back to the FSB, five soldiers were left pinned down. A squad was quickly assembled to provide help, but several short bursts of AK-47 fire indicated that any survivors had been killed. The sound of mortar rounds leaving tubes sent men diving for cover as 61mm and 82mm rounds began exploding throughout the fire support base. (18) Within minutes, the mortar fire shifted to the western side of the perimeter.

As the enemy continued to pound the western perimeter and the artillery batteries in the center of the FSB, the tempo of the battle increased. Scores of Viet Cong troops emerged from the jungle in a three-pronged assault along the eastern side of the perimeter. Small arms, RPGs, and recoilless rifle fire peppered the defenders along the outer perimeter. As counter-mortar fire went out, the amount of incoming fire in the FSB diminished. It was only 0638, seven minutes since the ambush patrol had set off the VC attack. (19) Immediately, it was obvious that this unprecedented daylight attack was not a small enemy force. The enemy's boldness and sheer numbers indicated that they were determined to overrun the fire support base.

While tactical air support was called in, all platoons along the eastern perimeter reported enemy in the wire. The enemy surrounded some positions, with one platoon reporting hand-to-hand combat. The Artillery Reaction Force, which had rehearsed this move the day prior, was put on standby. With his company decisively engaged, the B-3/22 IN commander called for 105mm howitzer fire as close to the perimeter as necessary. He wanted to plaster the wood line and get as many troops emerging into the open as possible. A forward air controller notified the fire base that four sorties of fighters were inbound and would be on station shortly. (20)

Monitoring the situation from his helicopter, Col. Garth ordered the armored units to move across the river in an effort to assist the embattled fire base. Lt. Col. Julian, commander of 2/22 IN (Mech), immediately ordered C-2/22 and an attached tank platoon from 2-34 to move across the river and head northwest using the trees for cover. Camping near the river the night before, a fording site was found that would not require bridging assets. (21)

With the C-2/22 IN team on the move ahead of the TF main body, the remaining units were cranked up, waiting to move. At 0700, incoming mortar fire landed among 2-34 Armor's tank positions. Although ineffective, the mortar fire caused the tanks to disperse in order to get out of the impact area. (22) Straddling each other's tracks to clear a path wide enough for the tanks, the M113s pushed forward as fast as the jungle growth allowed. The smell of diesel smoke filled the air as the two battalions crashed through the underbrush. The mortar fire gradually tapered off, with no casualties or vehicle damage reported. Although initial progress along the trail went well, maintaining dispersion and getting all the vehicles to converge on the fording site proved time-consuming. Col. Garth, anxious to get a relief column to the fire base, radioed, "If a vehicle throws a track, leave it. Let's get in there and relieve the force!" (23)

As the mechanized forces moved toward the sound of the guns, the situation at Gold deteriorated. The outer perimeter along the eastern side was collapsing. The B Company, 2/22 IN commander called for the artillery reaction force in an attempt to reinforce the line. Additionally, he told his fire support officer to move the artillery fire to within 100 meters of the perimeter. With all three platoons fighting hand-to-hand, it appeared that the reaction force would not make it in time. Ammunition was being consumed at an alarming rate. The 3rd platoon leader reported that he had VC in the foxholes at the center of his position. Suddenly the 1st platoon leader reported that the reaction force had arrived and was counterattacking on line across his positions. For a brief moment the situation had stabilized. (24)

At 0715, a silver Phantom jet swooped overhead, passing along the edge of the woods to the east, and pulled up to the north, followed by the thunder of ordnance exploding. The Air Force had arrived! A second F-4 repeated the lead plane's maneuver. The FAC plane could be seen circling to the southeast, directing the fighter-bombers. Then two more Phantoms appeared and dropped their loads along the eastern edge of the fire base. Trying to catch enemy troops in the open, the FAC moved some of the air strikes more closely along the southeast corner of the perimeter and to hit the VC with napalm. (25)

By the time the planes launched their sorties, enemy mortar fire had tapered off because of continuing artillery countermortar fire. The VC were still shooting at the artillery positions with RPG, 75mm, and 57mm recoilless rifle fire from the wood line. (26) The enemy raked the firebase with automatic fire as the attack on the eastern perimeter intensified.

At 0745, the FAC plane was shot down by heavy machine-gun fire and crashed into the trees beyond the fire base, killing both the pilot and observer. (27) As the ramifications of the loss sank in, there was a lull in the air strikes until a new FAC could come on station. (28) The battle would now take a radical turn of events.

Desperate Measures

The B Company commander directed 105mm artillery rounds, known as "beehives," to be loaded immediately; the rounds had not been used previously because of their classified nature. Packed with thousands of small steel flechettes in a single projectile, a beehive could cut a wide swath in the enemy ranks. The B Company commander decided to use the beehives in the 1st platoon sector first. After telling the platoon leader to get his men under cover, the commander instructed the guns to fire toward the east and southeast. The telltale effect was immediate. Although wide gaps had been blown in the attackers' ranks, more were requested along the whole eastern side. Due to a shortage of beehive rounds, a reaction force from A-

3/22 was requested at 0800, to reinforce the B Company infantrymen. The A-3/22 CO, said that his 20-man force was on the move enroute to Bravo's positions. (29)

Within minutes, the reaction force linked up with B Company. Despite the best efforts of the artillery firing over the defenders heads, the VC were in scattered foxholes. More importantly, ammunition was now in short supply. With troops still emerging from the wood line, the order was given at 0820 for the eastern perimeter troops to fall back to secondary positions. Platoons began bounding back to their alternate positions in a move rehearsed the day prior. By 0840, B Company had completed its move. (30) This allowed the artillerymen to drop the tubes and fire at point-blank range making the beehives even more effective. A Company now experienced problems of its own. The VC overran a quad .50 caliber machine gun, positioned on the northern perimeter. Attempting to turn it on the defenders, it was destroyed by a direct hit from a 105mm howitzer. (31)

Alarmed by the radio reports at Gold, the tank/infantry task force moved with all possible speed through the heavy vegetation in its attempt to relieve the base. Although sporadic sniper fire hampered their movement, they made progress. A new forward air controller arrived back on station at 0845 and coordinated more airstrikes. (32) Helicopter gunships had also been called in to assist the defenders. CH-47 Chinook helicopters dropped fresh supplies of ammunition directly into the firebase. (33) From his vantage point above the battlefield, Lt. Col. Stailey helped to direct his battalion's lead elements to the river from his helicopter. Calling forward the AVLBs and an M113 from the headquarters section, the contingency plan went into effect. The APC was driven to the middle of the river to act as an abutment. Once the crew was clear of their M113, the scissor bridges were set in, finally spanning the river. (34)

As the TF main body closed on the fording site, air strikes were within 100 meters of Gold. Napalm was burning up the foliage around the base that enemy troops were using for concealment. Indirect fire to hit the troops still emerging from the jungle was on hold because of the aircraft in the area. Like a swarm of ants, the VC continued to advance on the defending troops. With beehive rounds expended, the artillerymen resorted to firing HE at point-blank range. Enemy troops were within hand grenade range of the command bunker and five meters of the 3/22 IN Battalion Aid Station. Having borne the brunt of the enemy's repeated attacks, B Company was on the verge of being overrun. A Company, under moderate pressure, still held its original positions, but in some places the VC were within 15 meters of their line. (35)

Into the Maelstrom

With C Company, 2-34 leading the TF main body across the Suoi Samat, the 2nd Battalion, 12th Infantry, had already moved up on foot and were just to the south of Gold in the woodline. (36) C Company, 2/22 IN, with its attached tank platoon, had also made it to the edge of the trees in good time. The situation at the fire base had rapidly gotten worse. VC soldiers continued to pour from the woods from the north and east. Unknown to the VC troops, 2-34 Armor and 2/22 Infantry were consolidating in the wood line preparing to assault. The plan called for C-2/22 IN to attack northwest through the FSB and swing north. (37) The task force main body would skirt the wood line moving east and emerge swinging north, immediately spreading out to have room for fire and movement. They would continue along the wood line destroying all enemy forces in order to secure the eastern perimeter and prepare for a counterattack.

As the end of the column moved up to within 50 meters of the wood line, preparing to counterattack, the defenders at Gold were in dire straits. Some of the troops had begun to destroy their weapons to prevent capture. Along the B-3/22 sector, many troops were down to one grenade and two magazines apiece. (38) Small pockets of men, out of ammunition, had resorted to using weapons or entrenching tools as clubs in desperate battles for survival. 2/12 Infantry began its attack by firing directly into the VC flank as they emerged at the southern end of the clearing. Artillery fire was immediately adjusted to prevent hitting the friendly troops. (39) As the VC continued to advance through the smoke, a new sound was added to the chaos, growing louder from the south.

Fire and Maneuver

At 0912, with canister rounds exploding among the troops in the open and machine guns blazing, the tanks and APCs broke cover of the trees and began to fan out on line, suddenly throwing the enemy off balance. (40) Skirting the tree line toward the north, one tank crewman observed, "It was like shooting fish in a barrel." (41) Responding to this new threat, groups of VC began to rush the vehicles but were quickly

crushed by the rolling juggernaut. Others foolishly attempted to climb onto the tanks and had to be taken off with pistols, hand grenades, and even pioneer tools. Anatol Kononenko, a 4.2 mortar forward observer with 2/22 IN, observed two tanks actually fire at each other using canister rounds to remove VC troops from their tanks. (42) Pvt. First Class Gary Lapp, of C Company, 2-34 AR, was assigned as loader on C-25. Moving into the battle area, Lapp recalls the battle:

> As the tanks were racing up and down the trails to get to Gold, I was down inside. The center of gravity on a tank is so high, that once it starts bucking back and forth, it is very difficult to stay up top in the loader's hatch without getting thrown around. Down inside I was having a hard time holding on to anything that would give me support. Sitting on the loader's seat with feet spread apart for directional support, my right hand was on the steel grid that protects the radios from the spent 90mm shell casings and my left hand was placed on the gun carriage. That was the best place to be. Once we broke through onto the LZ, Staff Sgt. Badoyen told me to get ready. One of the prides I had in being a lowly loader, was that I knew how to keep the coax machine gun going, and I could load the main gun so fast it sounded like a semi-automatic. I remember racing across the opening for some distance before we opened fire. I also remember soldiers of the 77th Artillery, waving and cheering as we raced around them moving northeast. We had still not opened fire and were now in the clearing. I jumped up in the loader's hatch and I could see the black grill doors of three other tanks in front of us. Once I had jumped down inside to begin loading the main gun and keep the coax from jamming, I kept thinking: 'This is it, this is real combat. I wonder if an RPG will come through the front slope and kill us all? I hope Staff Sgt. Badoyan has his pistol ready to keep anybody from jumping up on the tank and throwing a grenade inside. I just kept loading that main gun and keeping the slack belts feeding into the coax. I recall the empty shell casings falling on the floor and using my boot to keep them away from the turret ring. When several shell casings stack up, they can roll into the drive gear and jam it up.(43)

Fatal Blows

Stunned by the unexpected armored onslaught, VC troops hesitated, unsure of what to do next. Now fighting a threat from two directions, the only logical course of action was to withdraw before being enveloped and cut off. The VC were truly between the hammer and anvil. The majority of enemy troops were caught in the open and were cut down by direct fire before they could reach the cover of the trees. A mechanic, aboard the A Company, 2-34 Armor tank recovery vehicle, sat calmly on top, filming the action with his home movie camera while the rest of the crew threw grenades and fired their .50 cal. machine gun at the fleeing enemy. (44) With the VC on the run, artillery was immediately shifted farther east into the woodline in an attempt to kill as many enemy as possible with indirect fire. (45) C Company, 2-22 IN, moving through the FSB, found a VC aid station just to the north of Gold. Tying in with 2/12 IN, the armored vehicles quickly established a firing line outside the original perimeter and consolidated their combat power preparing for a counterattack. (46)

Once it was established that the VC had broken contact, treatment of the wounded and policing of the battlefield began. C Company, 2/22 Infantry located the missing ambush patrol. Four of the men were dead, but one soldier had miraculously survived. (47) Captured enemy soldiers and documents provided a wealth of information.

With 2,500 VC soldiers participating in the attack, 647 now lay dead with another 200 believed killed and dragged away. Friendly casualties included 31 KIAs and 187 wounded. (48) Due to the large numbers of enemy dead, a mass grave was scooped out by one of 2-34 Armor's M-88 recovery vehicles. (49) Surveying the devastation, the survivors at Gold estimated that if the armor had arrived 15 minutes later, the VC would have overrun the base. (50)

Lt. Col. John Bender, the fire base commander commented, "It was just like the 10 o'clock late show on TV. The U.S. Cavalry came riding to the rescue." (51) Master Sgt. Andrew Hunter recalled, "They haven't made a word to describe what we thought when we saw those tanks and armored personnel carriers. It was divine!" (52) For their participation in the battle, the 2nd Battalion, 34th Armor was awarded the Presidential Unit Citation.

Conclusion

The battle of FSB Gold was over but not forgotten. The VC had lost more soldiers at Suoi Tre than any other single engagement of the war. The 9th VC division, although decimated on March 21, 1967, would fight in other battles throughout the rest of the war. (53) Once the smoke had cleared, after-action reports of the battle immediately concluded that the use of armor had turned the tide of battle in the Americans' favor. Initially hesitant about using armor in the jungle, senior officers were beginning to rethink their tactics in favor of the use of combined arms teams whenever possible. The geography of Vietnam would pose special problems for armored forces. When properly employed, however, tanks and mechanized infantry proved be a powerful combat multiplier, as was the case at Suoi Tre.

Editor: The battle of Suoi Tre provides a clear example of the combined shock and firepower effect of an armored task force. In this case, the sudden emergence of tanks and mechanized infantry triggered a collapse of the Viet Cong attack that turned into a retreat with heavy losses. Further destruction might have ensued had the avenues of withdrawal been blocked with ground forces rather than left to indirect fires. Nevertheless, the engagement marked a clear win for the armored task force, whose high morale was best represented by the mechanic sitting on top of his vehicle filming the action.

The original fire base location suffered from the prior failure to note the concentration of enemy forces in the area. Fire Support Base Gold paid the price in a high casualty rate. Moreover, while the initial location of the armored task force lay only two kilometers from the fire support base, the connecting rout required traversing a jungle trail with vehicles already worn out by extensive jungle operations and crossing a river. Prior reconnaissance located a fording site and a plan was in place facilitate crossing the river, but the task force was not in position to counterattack until nearly three hours after the Viet Cong assault began and the fire support base nearly overrun. It is difficult to see how the task force might have arrived sooner, since its dispatch depended upon the need for relief, which did not become obvious until after the Viet Cong attack began. The key lesson lies in understanding the time delay that such terrain imparts upon the movement of armored forces.

Other items of note include the rapid infiltration of the fire support base, suggesting a high level of Viet Cong planning and likely rehearsals—indicators of an aggressive threat force ready to exploit the unexpected occurrence of the insertion of a small American force into its immediate area of operations. The Viet Cong also understood the importance of the forward air controller aircraft (FAC) to direct accurate close air support attacks and shot it down.

Notes

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3) Starry, p. 95.

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6) Dave Gehr account, C/3-22 Infantry, (1966-1967), http://www.22ndinfantry.org/vietnam.htm, downloaded 9/20/99, p. 2.

7) *Time Magazine*, March 31, 1967, p. 26.

8) Ibid.

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10) Starry, p. 100.

11) Col. (Ret.) Raymond Stailey, telephone conversation, October 5, 1999.

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24) *Vietnam Magazine*, p. 25.

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28) *Vietnam Magazine*, p. 26.

29) Ibid.

30) Ibid.

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34) Stailey conversation.

35) *Vietnam Magazine*, p. 27.

36) Stailey conversation.

37) *Vietnam Magazine*, p. 27.

38) Hollister account.

39) *Vietnam Magazine*, p. 28.

40) Gehr account, p. 3.

41) Konenenko account.

42) Ibid.

43) Gary Lapp, (loader C-25), C/2-34 AR, 1966-67) Eyewitness account, correspondence dated June 21, 1999.

44) Ibid.

45) Starry, p. 101.

46) *Vietnam Magazine*, p. 28.

47) Ibid.

48) Ibid.

49) Hollister account.

50) Eric M. Bergerud, *Red Thunder Tropic Lightning* (Viking-Penguin, March 1994), p.159.

51) *Tropic Lightning News*, Vol. 2, No. 13, April 3, 1967, front page article, "Reactionary Drill Saves Artillerymen."

52) Starry, p. 101.

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Armored Relief Operation

Editor: This excerpt from John B. Poindexter's "The Anonymous Battle," *Armor*, CIX, 1 (January-February 2000), pp. 18-33 highlights the role of an armored cavalry organization employed to relieve and evacuate an infantry force pinned by North Vietnamese Army elements. The troop commander's account of the action near the Cambodian border in March 1970 provides a sense of the chaos of combat in jungle conditions and related command responsibility.

Foreword

The unifying theme of this fragment of the regiment's history is the American fighting man. His obedient and gallant performance in South Vietnam has been obscured over the years by reports of drug abuse and civilian atrocities and by numerous analyses of our country's conflicting feelings about the war. We veterans of America's first defeat have said little in public about all of this. Some among us may feel that they were coerced into bearing a disproportionate share of the wartime burden by an ungrateful society. Others, including your predecessors, the combat veterans who attend the regiment's annual reunions, share a different attitude.

The men in ground combat units, probably no more than 10 percent of in-country personnel, performed their hazardous duties with skill and, if not always with dedication, at least with resignation. None of them "gave" his life, though each risked death continually for many months at a stretch under conditions that would earn the respect of soldiers of any era. Likewise, no American "lost" his life, though 59,000 were slain by a resourceful and motivated enemy. Personal confidence born of harsh experience and an innate sense of obligation, first to their buddies and then to their unit, are the qualities that sustained our men in South Vietnam.

Alpha Troop's "Welcome" to War Zone C

More than a thousand square kilometers of multi-canopied jungle 100 kilometers northwest of Saigon, War Zone C was a swamp in the wet season and a blistering, dust-caked oven during the rest of the year. The area was a free-fire zone astride the most obvious of the invasion routes from officially neutral Cambodia to Saigon. Long deserted by civilians, it had been an enemy sanctuary and a southern terminus of the supply route from Hanoi since the defeat of the French Colonial forces. Within two years, Loc Ninh, a town near War Zone C's western boundary, would become the provisional capital of the advancing communist government. The 1st Squadron of the 11th Cavalry had been assigned without respite during the past year to the Iron Triangle, the Loc Ninh area and, finally, through Alpha Troop alone, to War Zone C. Exhaustion was near.

Our first mission in War Zone C was to secure a road construction operation directly through its heavily forested heart to the abandoned village of Katum and the Tin Nhon Special Forces camp near the Cambodian border. The most effective form of protection that Alpha Troop could provide the vulnerable South Vietnamese and American engineers was aggressive patrolling against the invisible enemy. As the engineers' bulldozers hacked the overgrown jungle away from the ancient French roadbed, the troop reconned into territory where non-communist forces had been absent or ineffective for decades. On occasion, our tanks hammered through virgin vegetation and broke into clear oases not entirely reclaimed by the forest. Here once had been a rudimentary civilization, but the area was marked now only by eroding rice paddies and, sometimes, by an incongruous, vine-strangled concrete bridge whose road had long since vanished in the monsoons.

When the highway neared completion, less combat-vital units took over its security. Our 150 men and armored equipment soon were reassigned to serve with a straight-leg infantry unit, the 2nd Battalion of the 8th Cavalry, 1st Cavalry Division (Airmobile), then situated in the Dog's Face region of War Zone C. Not until 1 May 1970, when U.S. forces invaded Cambodia, did we learn why the Army had expended so much effort to build an apparently useless, all-weather road through the center of War Zone C.

Because armored cavalry and unmechanized infantry units are organically incompatible, we had to devise an effective plan of joint action. The best solution seemed to be to cut out a huge swath of jungle and combine

an infantry company — Alpha Company of the 2nd of the 8th— with Alpha Troop and allow "Team A" a free hand within the area's specified boundaries. The plan called for the infantry to ride aboard the cavalry vehicles and to either support armored assaults or patrol independently, thereby securing for Team A the advantages of speed, superior force, and intensive terrain coverage. As it turned out, this unorthodox field expedient performed well in terms of at least one criterion, enemy body count. But it also drew us into firefights more frequently than might otherwise have been expected, exacting a heavy toll of combat injuries and fatigue-induced accidents.

By the evening preceding the anonymous battle, Team A had learned to draw its vehicles and infantry into a tight circle, much as a wagon train might have settled in for the night on the western plains more than a century ago. However, at close range — and nothing else mattered in the dense jungles along the Cambodian border — ominous dissimilarities were visible even in the dim moonlight. Instead of fluffy prairie schooners, Alpha Troop's six surviving M551 Sheridan tanks were oriented flat into the jungle wall 50 meters out. The troop's M113 armored cavalry vehicles filled the spaces between the Sheridans at 10-meter intervals. Called "tracks" or "ACAVs" by their crews, 21 of the normal complement of 27 still functioned. Each stood in the defensive circle so that its single caliber .50 and two M-60 machine guns, mounted behind steel gunshields, pointed dead-on into the black curtain of vegetation. In the center of the night defensive position were three 4.2-inch mortar tracks, two armored administrative vehicles and a now crewless ACAV disabled by a landmine two days earlier.

Weary and depleted, Alpha Company, numbering something less than 100 survivors, was dug into shallow holes scooped out between the armored vehicles. One grunt was supposed to remain awake at each position during darkness, but sleep usually proved irresistible to the infantrymen as long as the reassuring armor was nearby.

Each ACAV crew had placed a shrapnel-projecting claymore mine out front. A thin detonating cord snaked from the mine back to the sentinel's position at the caliber .50 machine gun. Each tank's main gun tube was locked and loaded with a 152-millimeter canister round, which could do to humans what a 12-gauge shotgun does to small birds. Unlike the infantry, most of the cavalry sentinels remained fairly alert, a victory of sorts for personal anxiety over the everlasting fatigue. The explanation for this welcome uptick in discipline was, unlike the peace we often heard about, at hand.

Some weeks before, Alpha Troop had been thrown, without notice, into an earthen fortification north of Tay Ninh City that was garrisoned by the South Vietnamese Army. Our new headquarters had warned us to prepare for an NVA sapper attack on this, the troop's first night in War Zone C. During the moonless night, misty figures crawled in inch by inch, their explosives and assault weapons in tow. The North Vietnamese lost 17 and whatever number of dead and wounded they were able to drag away from the eyeball-to-eyeball struggle. Alpha Troop's casualties required several helicopter evacuations. The South Vietnamese detachment needed none.

2300 Hours, 25 March 1970

By late evening, after the refueling, maintenance and rearming chores that had followed another tense day of jungle reconnaissance, nearly all was still in the diesel fume-permeated air at the night defensive position. On my final circuit of the perimeter, I stepped over Captain Jim Armer's inert Alpha Company infantrymen and tapped on the steel gunshield of one of the ACAVs in the second platoon line.

"Huh, what the …?" The drowsing crewman supposedly on guard awoke with an irritated start. "Oh, how's business, Captain?" He yawned under heavy eyelids. Not much more than teeth and the dull glint of his machine gun barrel stood out in the dusty moonlight.

"All right," I replied in a tone somewhere between disapproval and hopeful encouragement. "You going to be able to keep your eyes open or do we need to get the next man up?" Although sleeping on guard duty was a serious offense, punishment was without meaning. Jail represented an improvement in lifestyle. As for fines, the threat was humorous in view of the inability to spend military scrip in the jungle. Only habit born of common sense, peer pressure, and the example set by most of the officers and NCOs held the troop together. The purer degrees of leadership were reserved for life and death situations.

"No sir. I'm cool." Smile. "Don't need to wake up nobody else." No man wanted to listen to his buddy complain throughout the next day about double sentry duty. With his eyes now fixed on the wood line where

the darkness of the ground merged with the slightly less inky texture of the trees, the guard acted as though he might last awhile.

"OK." I walked on, mumbling meaningless phrases to the other sentries in the alert.

At least twice during the quietest hours of the night we scheduled a "mad minute" during which the command radio operator ordered all vehicles to fire their weapons simultaneously toward the wood line for several seconds. NVA sappers staging a night assault would, thus, be hit on the open ground as they crawled slowly toward our perimeter. This technique had the further advantage of awakening all of the guards. Also, at random intervals during darkness, the mortar section chief fired on pre-selected trail junctions, likely stream crossings, and areas of suspected enemy activity to discourage NVA movement in the vicinity. And to keep the guards awake. These precautions, together with frequent and erratic movement within our area of operations, had ensured that the troop and its infantry attachment were not attacked at night, a rare achievement in Vietnam and especially in War Zone C. When offensive action was warranted, we set out infantry ambushes and readied a cavalry platoon as a night reaction force. The previous week, an ambush had killed two NVA soldiers who were prowling through a defensive position that Team A had abandoned quickly when mortar fire from across the occasionally neutral Cambodian border chased us away. Another night's sleep lost, or more accurately, invested.

The arrangements for the evening appeared satisfactory. I headed for the M577 armored administrative vehicle in the center of the perimeter, where the duty radio operator had accumulated the evening's messages from battalion headquarters. Pushing aside the grease- stiffened canvas flap, I walked into the tent extension attached to the rear of the tall, ungainly track. The sweating radioman, stripped to the waist, was reading a letter from back home in "the world" in the dim light.

"Hi, sir. Nothing special, just the usual stuff. The XO says we got three newbys on the way to replace the medevacs from the mine. Can't get a new track, though. And headquarters wants to know what the plans are for tomorrow. What'll I say?"

"I haven't figured out anything yet. Wait an hour or so until they've all hit the rack, then call Flange Control. Tell battalion that we're going to recon in force near" — we bent over the plastic-coated map with its coded check points that lay on the deck — "charlie papa Kentucky. I'll probably change that in the morning to something a little tougher, but that's OK for now. You got the times for the mad minutes?"

"Sure, right here." He returned to his letter as I walked back through the canvas entrance to a cot devoid of bedding that had been set up in the less-stifling air outside. I tossed my olive-drab, dirt-grey and exhaust-black fatigue jacket on the ground and my skinny body on the flimsy cot. Sleep was instantaneous as there were no insects for a change.

The sudden explosion was both awful and very, very wrong. Awful in its ear- shattering, breathtaking proximity and wrong in that it was outside the carefully defined tactical arrangements. Yet, somehow, flames shot 30 feet into the sky from the mortar tracks just a few dozen meters away. The glow illuminated the team's position against the surrounding wood line for the enemy — an unthinkable predicament. Explosion after explosion shook the three mortar tracks, one of which seemed covered with fire. Men screamed in agony. Exhaustion instantly became wide-eyed terror.

Dressed only in fatigue trousers and without boots, I clutched the ever-present .45 and ran toward the mortar vehicles. At the same time, I shouted to the RTO to radio for a casualty evacuation mission.

"Flange Control, Flange Control, this is Writer. At my last reported november delta papa I need an emergency dust off…," began the calm, well-exercised voice directed at the bank of radios lining the relatively safe walls of the M577.

Oddly, I saw no muzzle flashes from the wood line. Nor were incoming rocket or artillery rounds exploding in the now brightly lighted fields inside and around the troop's perimeter. If the NVA were not shelling the position — an improbable event given Team A's frequent relocation — then the disaster must be self-inflicted. But how?

Speech was useless in the growing din as the nearest tracks were waved off the perimeter, away from immediate danger. Their drivers' heads popped up through the forward hatches, eyes squinting in the unaccustomed glare. Smoke spouted from cold exhausts as the clumsy tracks pulled out. With care, the crews

might not run over the confused infantry or the claymores. However, they almost certainly would run down many of the chain-link vehicular screens, designed to entangle incoming rocket-propelled grenades but requiring 20 irritating minutes to erect each evening.

The intensifying heat reached a few of the mortar rounds that crews had prepared for the evening firing program and stacked near the tracks from which they would later be shot. The whistling sound of steel shrapnel added to the blasts of the projectiles exploding inside one of the mortar carriers and the hissing of the burning mortar charges.

From the darkness, a crewman ran skirting the flames, his eyes the merest of slits in the smoke, to the only mortar vehicle that appeared undamaged. He dove through the open rear ramp and, moments later, started the engine with a crankshaft- damaging roar. The track lurched off blindly into the night, the scalding heat preventing the driver from extending his head through the hatch to guide the vehicle and its nearly ignited load of fuel and ammunition. This singular act of heroism saved lives that night and would help to save more within 24 hours.

A quick glance up close at the two remaining mortar vehicles was sufficient to determine the cause of the tragedy. A defective round had exploded inside the mortar aboard one of the tracks as it was being fired, destroying the gun tube and igniting the basic load of fuel and ammunition.

"That tube looks like a damn tulip," a voice muttered in the flickering orange light. "Jee-sus!"

Not half a minute had elapsed since the initial blast. Now, in the aftermath of the first paralyzing shock, more men began to react to the spreading danger. Many calmly led vehicles or helped their buddies away from the radiating heat of the burning diesel fuel and charges. Some of the wounded slowly dragged themselves farther from the flames, clutching bleeding and burned limbs. Two remained where they had been thrown, immobile and broken. A few men thrashed about a couple of meters from the disintegrating mortar track, alive but almost on fire.

Several of us crouched at the edge of the scorching heat, licking grimy, cracked lips, mesmerized by the flames near the writhing victims. Shrapnel screamed overhead. No one knew at what moment the fuel in the second mortar track might go up or whether the heat might reach a large group of prepped rounds, causing a second devastating explosion.

Certainly it was not patriotism nor any desire to win acclaim, but first one man and then another rose from his place of safety. Some clutched rags and towels to their faces as we, half naked, sprinted across the short stretch of smoldering grass, almost into the fire.

In the brightness where there was no breath lay the sergeant who had been in charge of the night firing crew. He was a handsome African-American who had requested a transfer from the field a few days before. Denied: the only responsible reaction available to me. A ruthless toss of the dice had deposited most of us here, and reprieve was out of the question until the allotted time was served. The black sergeant had been too proud to take advantage of one of the many dishonorable routes out of the field.

I clumsily groped at him under his armpits, squinting through nearly closed and streaming eyes. It seemed almost easier to see through my glowing eyelids than to open them. I began to drag him back into the now shiveringly cold night. He felt weightless.

The sergeant opened his eyes and looked into my sweating upside-down face inches from his own as we struggled back through the dirt. "Why did this have to happen to me?" Quietly he whispered, bemused, over and over. "Why to me? Why?"

Ripping my eyes from his bleeding face, I scanned him for serious wounds in that second nature style that so quickly became routine. There were no visible holes above the waist and his head, though swollen, was still together. Then further down. Oh God! There were no legs. Nor anything between the short stumps where his legs had once been. He died without a whimper as we hunkered down behind a pile of debris with some of the others. The fuel of the second mortar track became a momentary fireball a short time later.

The danger ended for the time being as there was nothing remaining in the immediate area to ignite or that was likely to explode. Those involved in the rescue seemed to have come out whole, more or less. We lay,

the injured and the merely singed, tangled together for a few moments in a clump at the end of a converging network of drag marks. Then the medics arrived and each man rose silently to go or to be carried away.

At length, the fires receded and the dust-offs arrived, guided by the diminishing glow in the inky jungle. Our medics hustled injured through the dirt storms created by the rotors of the hovering aircraft. Then, once again, we were alone. Six casualties, mostly from the mortar section, were evacuated. Only the calm handling of the armored vehicles prevented more. The poncho-covered dead and their recognizable parts were laid beside the shattered hulks of their tracks. For them there was no haste.

We established a new night defensive position about 100 meters to the southwest in the same dry swamp bed. Like the transitory but real professionals that they were, the cavalry and infantrymen ignored slight injuries and marched away in the fading artificial light, lugging those pieces of gear that lay conveniently at hand. The following morning they would return to salvage all that could be recovered and destroy the remnants so that the enemy could not use them against us.

As the men slumped down to gain what slight rest the night still afforded, there may have been a flicker of envy for those who had been evacuated with readily mendable injuries. Except from their closest friends, there was little pity for the maimed and the dead. The reservoir of this emotion was at low ebb perpetually in War Zone C.

What the ubiquitous North Vietnamese thought of the turmoil is unknown.

Dawn, 26 March 1970

A few hours later, at first light, I walked through the dry-season dust haze to the site of the tragedy. Soon, senior officers would begin arriving to receive reports on the disaster. It was imperative that the various staffs with some form of jurisdiction — the cavalry squadron and regiment, the infantry battalion and division and others — agreed on the basic facts. Incongruities would lead to questions and doubts. Accusations would follow. Ultimately, company grade officers would be held responsible for the disaster unless they, like their superiors, were agile enough to pass the blame along.

What had gone wrong last night? Had we made some terrible mistake? As I contemplated the shrouded bodies, no real answers came to me, only superficial explanations. "Yes sir, very bad luck indeed. About 0100 hours, a defective round during the evening firing program. Step over here, sir. Notice the splayed tube? Gutted the track and ignited the adjoining vehicle as well. The men responded superbly. The infantry, too. We had no injuries except those directly related to the original explosion of the round. A few citations are on the way. Right, sir. Thank you very much." Piece of cake.

But beyond the official explanations, straightforward though they would be, there was much more to ponder when lives were lost. Why, as the dying mortar section sergeant had asked me, did this have to happen? The men of Alpha Troop were competent, an evaluation supported by our well-maintained weapons and vehicles, our tactical responsiveness, and our combat record. We rarely committed ignorant mistakes, a fact that our observant enemy surely had come to recognize. But if the real answer for last night's events was not human error, then it must, once again, merely be the randomness of war — our terrifying inability to predict the luck of the draw.

I remembered another day something like this one, a month before and at the opposite end of War Zone C. Late in the afternoon, the Sheridans, working behind three bulldozers equipped with massive steel blades, led us through a thick jungle where visibility was measured in feet. Suddenly, small arms fire erupted from the green wall on the right, splashing on steel gunshields like hail. More rounds immediately began to pour in from the front and left.

Automatically, the machine gunners ripped the oily towels from their weapons and began to blast into the leaves just inches from their muzzles. The lead tanks shouldered their way forward between the dozers, whose operators had abandoned them for the relative safety of the ground. Shotgun-like canister rounds from the tanks began to carve channels into the forest. Twenty-seven unmuffled engines jockeyed for position, their roaring and screeching merging with the painful, eardrum-piercing staccato of the machine guns. The detonations of the tank main guns at close range were nearly unendurable, yet reassuring.

We had slashed into a camouflaged bunker complex like a fist penetrating a nest of hornets. The first and third platoons came on line in the direction of the main complex to the right while the second platoon pushed

in the opposite direction to clear a landing zone for the evacuation of the wounded and those yet to be hit. Alpha Company jumped off the decks of the vehicles and clustered at the rear of the armor. For the moment, the grunts could only search for snipers.

There is only one cavalry reaction to any but the most overwhelming ambush: assault. The armored vehicles bulled forward, squirming around trees and old bomb craters, spewing forth furious stream of fire. Well-trained North Vietnamese regulars answered from fortified underground bunkers that we could not see until too late. Worse, the dreaded rocket-propelled grenades began to explode around us. When an RPG hit a vehicle and penetrated the thin armor, the effect was similar to a pipe bomb thrown into a bathroom. When there was no armor penetration or a detonation in the trees, the grenade's shrapnel devastated everything within several cubic meters.

Our enemy — always the North Vietnamese regulars and never the less effective Viet Cong — held the tactical advantage in their protected underground positions. They had only to await the troop's advance in our tall, awkward vehicles over ground they knew well. It is true that we had overwhelming firepower, but they usually got the first shot at individual vehicles. Often, the tactical situation devolved into a series of isolated duels between a single bunker and a cavalry crew. Victory went to the side most willing to stand fast and slug it out.

The battle moved forward and we began to uncover bunkers that, almost always, were empty except for equipment abandoned by the NVA as they scurried away through tunnels and trenches. Our drivers steered to and fro over some bunkers, crushing their reinforced roofs, but it was primarily the infantry's task to deal with the revealed fortifications. Crawling about in darkened tunnels, expecting a grenade to roll around the next turn was a job best left to the grunts.

A-66, the command ACAV, unexpectedly churned up two NVA soldiers from a partially destroyed bunker we had shot up and overpowered. The two lay stunned for the moment, sticking out of the earth a few feet to the rear of our track. I gestured wildly to Jim Armer, the A Company commander kneeling behind us.

"Take 'em alive!" I pointed to our interpreter, a converted NVA regular riding on a track nearby. "Interrogation."

Jim's radioman grabbed his shoulder and pointed him toward A-66. "OK," Jim mouthed back into the racket, nodding widely. "Chui hoi! Chui hoi!" he shouted, using the Vietnamese term for surrender, as much to his own men as to the enemy. His grunts, already aiming their M-16s at the finally visible enemy, subdued the overwhelming urge to kill. The two NVA in their unfamiliar olive uniforms remained unharmed.

"Six" — my call-sign — "I'm hit! RPGs all over the place!" Bill Nash, the first platoon leader, located two vehicles to the left of A-66, was in big trouble. One RPG had already scored a glancing hit on the aluminum armor surrounding his engine compartment. Fortunately, the rocket missed the crew, but it left a deep network of scars to provide an aiming point for the next round.

The POWs were forgotten instantly. Nash's best chance was that the NVA grenadiers might be distracted by an unexpected attack. Perhaps he could pull back — if his engine still worked. Only the crew of A-66, having overheard Nash's plea on the command frequency, could react in time.

Instinctively, after the briefest of commands, our driver crashed directly into a thick curtain of bamboo several meters out front. As the vegetation flattened, all in one great wave, A-66 rode atop it, stranded and powerless to move farther. And there, squatting in a foxhole under a stunted thorn tree was an RPG grenadier. The point of his weapon was no more than four feet from the left side of our thin-skinned track. All that he need do to destroy us was press the trigger of the launcher resting upon his shoulder. The left machine gun could not be brought to bear despite the maniacal exertions of its gunner.

Yet, randomness prevailed once more. As A-66 accelerated forward, throwing all of us in the fighting compartment askew, I drew my pistol and struggled over to stand at the elbow of the left gunner. As the grenadier aimed his rocket launcher, trying to decide whether to fire at such suicidal close range, I leaned over the side of our track and, staring directly into his face, squeezed the trigger of the .45. And again. The rounds slashed into his naked chest. His eyes rounded and his mouth opened, the scream lost in the pandemonium. The launcher fell to the ground. He crawled only a few feet.

Just then, an exploding hand grenade threw fragments and dirt directly against the rear of A-66, and rifle fire began to ricochet from our steel fittings and pit the aluminum plate. A sudden firefight had developed between the grunts following us and the NVA inside the partly crushed but still defiant bunker we had left in our rear. Perhaps A-66 had collapsed the escape tunnel leading from the bunker and the North Vietnamese had returned to fight it out.

The grunts snaked their way up, finished off our two intelligence sources without hesitation and rolled grenades into the apertures of the buried fortification. Sub- surface blasts lifted inches into the air the infantry lying on their stomachs nearest the bunker. Other grunts trotted up to our rear ramp and began to pepper the brush forward of A-66, while the nearest vehicles lumbered ahead and arranged themselves on our flanks. Nash and his scarred track bounced back, as if expelled from the grasping wall of vegetation.

Very soon, almost abruptly, the enemy fire died out and the field was ours.

After the battle, a crewman examined the captured RPG launcher. Later, he casually remarked that the firing pin had pitted the percussion device but failed to ignite the rocket. None dared ask whether he was serious. Randomness: A faulty rocket, the hand grenade that missed A-66, a defective mortar round last night. Was it all so capricious?

There was no answer to this question, no reassurance, only each man's very private accommodation to the cruel facts of survival. For some, apathy. For others, escape into drugs or resistance to the system. But for most of the survivors in Alpha Troop, the response was a quiet, abiding sense of confidence in themselves and their fellow crewmen. Together with a driving need to strive against the luck of the draw.

My memory of that battle a month earlier ended abruptly when a radio telephone operator shouted from the edge of the new perimeter 100 meters away. "Hey, Six! Headquarters on the horn. They're on the way."

Walking through the sluggishly stirring encampment, I decided that it would be a good idea to plan a quiet day and give the men a break. As March is the height of the dry season, the best time of the year for operations, we could make up the lost day later. Maybe just a light recon for now. How very wrong I was. Again.

1200 Hours, 26 March 1970

The official processions had come and gone without much comment. Lieutenant Colonel Conrad, the thin, sunburned commander of the 2nd of the 8th, was the most understanding, as expected. Jim Armer and I sent the cavalry platoons out at mid-morning on simple close-in missions designed to allow the platoon leaders maximum flexibility in not noticing that their crews and the attached infantry were napping. The three combined arms platoons were aimed in separate directions with instructions to lightly search areas that we knew were devoid of recent enemy activity.

After their departure, however, ugly things began to happen. The sounds of a serious battle erupted nearby, and each of us knew at once that someone was in trouble. The men of the first and third platoons could hear only the flat report of the 500-pound bombs, perhaps five kilometers away. But the cavalry and infantrymen of the second, most northerly platoon could distinguish M-16 rifle fire from the shriller tone of the enemy's AK-47s. The unit engaged, we soon learned, was Charlie Company, from the same battalion as Jim Armer's Alpha Company. Worse, Charlie Company had ridden with us and made friends for weeks until the time of Alpha Company's assignment to Team A.

During the mid-morning hours, M-16 rifle fire dominated the contact. But as noon approached, it became clear to 1LT Mike Healey and his second platoon of cavalry that the North Vietnamese had gained the advantage. After 1100 hours, each pause in the American firing and aerial bombardment was shattered by enemy weapons, apparently well supplied.

Our monitoring of local radio traffic revealed that Charlie Company was up against a reinforced battalion of the elite 272nd North Vietnamese Regiment. The enemy troops seemed to be leaving their protected bunkers and encircling the grunts as responses from the Americans became weaker. There were hard to believe reports of North Vietnamese firing on low-flying American choppers from the upper branches of trees.

The constellation of helicopters overhead had acknowledged appeals for ground assistance from the infantry company commander, Capt. George Hobson, but the requests were, so far, unfulfilled. Pinned down

and vastly outnumbered, the Americans could not break out to a landing zone even if there had been a cleared area nearby. Neither, due to the lack of adjacent LZs, could infantry reinforcements move in to provide relief in time. Charlie Company's ammunition was already low and declining, and the NVA were so close that chopper kickouts would resupply the wrong guys. Fixed-wing air strikes and helicopter gunships only delayed the inevitable.

"Writer Six, this is Writer Two-Six." Two-Six, Mike Healey, was the most experienced lieutenant in the unit following the recent transfer of 1st Lt. Nash.

"What's going on now?" I stepped into the M577 and took the hand mike from Seege, the chief radio telephone operator. He sauntered out to open a couple of cokes for us.

"Two-Six, this is Six," I responded. "The grunts are still taking a pasting to the north, at the stream junction. "They've got plenty of casualties now and can't move out. It looks bad."

"This is Two-Six, roger. Has Flange Two-Nine" — Lt. Col. Conrad's radio call sign — "said anything about us?"

"Nope. We'll probably contact him soon. What are you doing?" I could picture Mike, bony and almost delicate in appearance, lounging atop his ACAV behind the track commander's cupola, relaying comments to his crew and platoon. In a land without television, gossip and speculation were the common forms of entertainment, and nothing was quite as interesting as someone else's firefight.

"This is Two-Six. My current location, from charlie papa Kentucky, down one point two, left zero point nine. The grunts're cloverleafing and we've got a couple of bunkers, nothing fresh. I'm still paralleling that old trail to the north. Over." Mike was near to but not on the enemy trail. The troop never moved over previously used ground that could have been mined or strewn with booby traps.

"Six, roger, out. One-Six and Three- Six" — the call signs of the other two A Troop platoons — "did you monitor?"

"This is One-Six, affirmative. Same location as my last. Grunts are still checking the area out. No sign of any dinks here." The acting first platoon leader was Platoon Sergeant Willie McNew, a veteran of more than 20 years. Willie, perpetually pink and balding, did not belong in the field at his age, but the troop leadership was depleted, and there was no alternative. He was an NCO of the old school, respectful of immature officers' clumsy attempts to exercise authority, always helpful.

"Ahh, Six, this is Three-Six, ahh, wait a minute." Long pause. "OK, I'm located from check point Nevada up one point four, right one point two. Over?" 1st Lt. Bob Henderson of the third platoon was a newby and, except for a brief action about a week before, had never seen a firefight. Ideally, Bob should have been combined with Willie so that he could not endanger himself and his platoon while he learned. Perhaps he might pick up a few things before...

"Six, out."

Inside the M577, the temperature was a humid 100 degrees or more, and the tiny, erratic fan did little to alleviate the discomfort. Most of us at the command post would have preferred to be out with the platoons where it was cooler and less monotonous under the jungle canopy. That was especially true today, when the mission involved minimal danger. Out there, the principal concern would be falling trees and branches, which produced only a couple of minor injuries each week.

Our war was an exercise in boredom, relieved by abrupt intervals of terror and pain. Only time-consuming attention to detail and competently applied experience minimized the costs of combat. Under conditions as unpleasant as these, it would have been reasonable to expect soldiers to seize any pretext to leave the field. In Vietnam, many pretexts were available.

We usually sent a troublemaker or someone with a real or imagined psychological disability back to headquarters. Hard drugs and grass, although uncommon in my experience with the 1st Squadron, could be purchased everywhere in the rear areas and were a constant temptation. Failure to take the troublesome anti-malaria pills or the consumption of unchlorinated drinking water often produced illnesses that required treatment at a field hospital. And in most troops, when a vehicle malfunctioned through negligence or exhaustion, the practice was to send some or all of the crew from the field during its repair.

Thus, those who desired could get out if they were willing to pay the usually moderate price. Yet few did. The men thrashing through the jungle that day had freely elected to remain at their assigned stations. They chose to "do their jobs," as it was phrased, without using drugs in the field or taking their anger out on civilians—on the rare occasions that they saw any.

Grabbing my coke, hot by now, from Seege, I walked down the M577's ramp and slumped into a canvas chair in the tent extension attached to the vehicle's rear. The tent cover was invaluable in the miserable five-month rainy season. Its value in the equally miserable seven-month dry season was questionable. A couple of field mechanics and mortar crewmen stood around outside, trying to decide whether a delicious meal of C rations and dust was worth the effort.

"Flange Two-Nine, this is Racer Two- Nine." George Hobson came up on the battalion net again. I'm getting down toward the last of my smoke grenades and a few magazines per man. Over."

"This is Flange Two-Nine, roger. We've got some more air for you now, so get ready to mark your position." Flange Two-Nine, Lt. Col. Conrad, sounded reassuring as he continued to do all he could, but those grouped around the radios in the M577 had listened to the traffic on the command frequencies for much of the morning. Charlie Company had about eight hours left until darkness. Charlie Company had about eight hours left.

Racer Two-Nine's voice, cracking under the strain of a four-hour firefight against severe odds, betrayed the despondency of a man who had exhausted his limited options and was merely awaiting the final outcome to be thrust upon him. Lying on his back with a painful face wound amid the bullet and shrapnel-scarred trees, George stared into the unclouded sky at the aircraft circling symmetrically overhead. He could read a map and he now knew the size of the enemy force. It had to be clear to him that he faced the North Vietnamese, not the Viet Cong, and that they would not run away from the bombs and the gunships.

"Well, what are we going to do? It's about four and a half klicks, maybe five from us to George." Jim Armer laid his plastic-coated sectional map on a five-gallon water can next to his chair in the tent extension and smiled. We were now face to face with the subject that had brought our never robust pace of conversation to a near standstill for the past hour. Except for the busy radios, there was silence under the canvas. Outside, an engine fired up, probably to heat a few cans of C rations.

"Four hours for the whole trip, maybe more," our new and still overweight First Sergeant ventured. The shrinkage of waistlines was directly proportional to the number of weeks in the jungle. "The busting looks pretty bad, but at least there aren't any big streams between Charlie Company and us. It'll mean a night operation coming back and the men are just about shot after last night."

The sergeant in charge of the landmine- damaged ACAV marooned inside our perimeter, with many more months in country than our First Sergeant, was obviously preparing to unburden himself. At least our small part of South Vietnam was free, admission to the M577 was not restricted and everyone was entitled to an opinion. "There's a good chance of an ambush on the way with all them dinks around here. Do you want to volunteer, sir?" He spat as he laid down the challenge.

"No." Jim recoiled from the TC's question, which had but one sensible response in Vietnam. "But if I was with those guys, I'd sure want somebody to get me out." Since his men rode where we drove, Jim's planning inputs tended to be suggestive rather than determinative. The company commander of our infantry detachment sat patiently next to his map, a sturdy young man in a sweaty olive undershirt, glasses and slowly corroding steel dog tags.

I worked through the logic yet again. It was unlikely that the infantry-oriented senior officers overhead imagined that Alpha Troop could traverse the impossible forest terrain to Charlie Company in time to be effective. On the other hand, someone in the command structure might decide later in the afternoon that it was necessary to try, resulting in an unduly perilous night mission for the troop. And, of course, the resourceful Lt. Col. Conrad might have a last-ditch plan that employed Team A reasonably. But would it not be best to stand up right now and carry out this unsought task our way?

The rawest newby sitting around listening to the intermittent conversation could tell that to be involved at all probably would cost lives, perhaps his own. It was not entirely paranoiac to suspect that the NVA

considered the troublesome Team A to be the real objective and was setting us up. Still, there were almost 100 Americans trapped and already dying up there. The sweat ran freely.

After some moments, the right answer, the only answer, could no longer be avoided. "Seege," I sighed.

"Sir?" The Chief RTO sat as if he expected to be slapped but was resigned to the blow.

"Call Flange Control and tell Conrad that Team A is prepared to react."

"Roger. What else?" There had to be more, of course. It was never so straight- forward.

"Tell One-Six and Three-Six to pick up their grunts and move back here ASAP. Two-Six is to continue busting a trail north. Don't say north, just tell him to continue as rapidly as possible in his current direction after picking up his people." Mike would know we were joining him when we arrived, and we did not need to inform the North Vietnamese monitoring our frequencies. The men under the canvas, their tension now dispelled by the immediacy of action, scattered into the sun to prepare their vehicles and collect their gear. Team A would start upon its mission before LTC Conrad ordered us to move. Jim smiled for the last time that day, relishing our macabre little game of military one-upmanship.

1330 Hours, 26 March 1970

Within 15 minutes, the first and third platoons had returned to the night defensive position and had married up with the command section, consisting of A-66 and the medic and artillery forward observers' ACAVs. As soon as the expected instructions arrived from a preoccupied Lt. Col. Conrad, we were on the move north to join the still-rolling second platoon. At the night defensive position, only the M577 with Seege's radiomen, the depleted mortar section, the recovery vehicle, and one disabled track remained. We left two squads of infantry for their protection, but we took the crewmen from the inoperative ACAV to fill vacancies in their platoon. Thus, the first big risk of the mission was a dangerously thin night defensive position that hadn't been moved in two days. No choice.

Closing on the second platoon, the troop quickly reorganized into jungle reconnaissance array and pushed toward the encircled Charlie Company. Each cavalry troop had its own set of formations designed to deal with particular tactical situations. In thick brush and forest, we reconned in three columns. The left and right columns each consisted of one platoon with the platoon leader's ACAV immediately behind his lead tank and the balance of the unit following at five-meter intervals. The last platoon squared off the rear of the formation and was usually deployed as the maneuver element in small engagements. The center column contained the troop headquarters, led by a Sheridan tank from one of the line platoons with A-66 second. Positioning the troop and platoon command tracks so far forward was illogical but unavoidable because the American soldier is willing to be led but is reluctant to be directed.

As we snaked through the multi-canopied jungle, more than 200 cavalry and infantry perched atop 27 metal boxes, each man keenly aware of the inevitability of battle and of the possibility that an ambush could erupt at any moment. For these men, unlike their horse cavalry antecedents, there was no heart-pounding charge across an open field in an all-or-nothing gamble. In Vietnam, victory went not to the bold but to those who best withstood the tension and committed the fewest mistakes. We were opposed by masters in the art of patience, whom we had to seek out on their terms and on their own ground. Every advantage of temperament and terrain was theirs.

Among American soldiers, the crew of A-66 was fairly typical. Topper, the left machine gunner, had an open, trusting face and a thick shock of hair barely concealed under his helmet. He was a fairly recent replacement and too green to brood over dangers that he could visualize only dimly. His buddy on the right M-60, also being broken in, was similarly naive. Both would soon be more wary. On the other hand, our driver, Marty, was well seasoned but so steady under fire that it was clear to me he did not fully appreciate the seriousness of his situation. During one battle, he had been observed reading an issue of the limp pornography included in the publications shipped to the troops in the field. He seemed undistracted by the heavy caliber .50 machine gun pumping away just over his head and the M-60 working over his left shoulder. About one inch of aluminum plate separated him from incoming frontal fire, and a layer of sandbags below his seat provided some protection from landmines.

Sergeant Dennis Jaybusch, the track commander, was a tall, gangly fellow with a light blond mustache and all the grace of an adolescent giraffe. When handling the radio, his soft, conscientious voice reliably

backed me up on the invisible network that was our sole lifeline to the world. However, it was becoming obvious that Dennis was just about through. He'd been exposed in his cupola behind the caliber .50 for too long and now merely plodded through the remaining few weeks before his rotation date.

Peering intently into the thick underbrush, the closely packed infantry and armored crewmen on A-66 and the other tracks attempted to spot the camouflaged enemy before they heard the incoming. The lead tanks, always working with a 152-millimeter canister round in the chamber in hopes of an early shot, squirmed around large trees and smashed smaller ones as the underbrush flattened into a path. The loaders on the jungle- busting Sheridans had the difficult and dangerous assignment of riding outside on the rear decks to brush fallen branches and debris away from the engine air intakes.

Each vehicle followed in the path of its predecessor to avoid detonating randomly placed mines. Sweat soaked into bulky flak jackets and caused ink to run on forgotten letters in dirty pockets. The humidity was so high under the foliage that it was almost possible to watch rust form on the well-oiled machine guns.

For the first hour, the troop made exceptionally good progress, covering perhaps 100 meters of the dense forest every five minutes. At this rate, however, the lead Sheridans overheated, their power plants too light for the brutal work of busting jungle. We rotated the leads every 30 minutes as the retiring tank crews pulled over to the side of the route, swung their turrets off center and removed radiator caps. Careful handling prevented anyone from being scalded by the resulting geysers of steam.

Crashing forward, we wrenched a path from the unwilling jungle with about as much stealth as a parade down Main Street. But not a single vehicle threw a track from the road wheels despite the logs, stumps, and eroding bomb craters that we traversed. Not one engine, drive, or mechanical system malfunctioned from misuse or poor maintenance. Had a single vehicle gone down, an infantry platoon would have had to remain with it until the repair was completed or the vehicle was dragged back to the night defensive position. In a jungle where enemy battalions roamed about, this was an unthinkable risk.

As the troop progressed, the gravity of the mission penetrated deeply into the consciousness of those crewmen who had not gathered around the M577's radios during the morning. Within the first hour of the march, as details spread among the last to be informed, gunners loosened the protective towels around the operating mechanisms of their weapons. Crews removed a few of the more accessible ammunition cans from stowage on the floors of the ACAVs and spaced them about on upper decks, mainly to place them within easy reach but also in a very human attempt to pile bulk between the crew and incoming fire.

Crews took extra machine guns from internal racks and placed them in convenient positions atop the ACAVs. No M-60 gunner was ever seen trying to replace an overheated barrel or damaged firing mechanism during a firefight. Men passed around pistols and rifles, even though no one favored hand weapons over the heavy machine guns. In battle, there is a perverse satisfaction in the feel and sound of the large automatic weapons. It is almost as if the enemy can be frightened away by the noise alone. Almost.

Over the radio, George again reported that his ammunition and pyrotechnics were nearly exhausted. When the last of Charlie Company's smoke grenades was expended, the forward air controller overhead would have to place air strikes from memory in the failing light. The artillery would be directed by Lt. Col. Conrad or his S3, Maj. Charles Blanchard, in the same risky manner. At that point, the danger to the infantry increased astronomically, but the alternative was a stand-up ground assault by the unharried enemy. With compasses and melting grease pencils, the more experienced of the platoon leaders and I bent over our map cases. Jim Armer talked nonstop on his PRC-25 on the rolling rear deck of A-66. The hours passed.

Driving hard, A-18 in the rear of the first platoon column began to pour more than its usual volume of smoke from the engine compartment. This was our tiredest Sheridan and the overheated insulation appeared to be burning from its wiring harness. The tank's crew kept it plugging along through the unorthodox, yet seemingly effective, technique of dumping five-gallon cans of water directly into the engine compartment. A-18 finally got an opportunity to cool off when we penetrated an old B-52 bomb strike area and the drivers slowed down to thread a path through the closely spaced craters.

"Writer Two-Nine, this is Racer Two- Nine, I've saved one smoke. We'll pop it when we've got you in sight." For the first moment since the early morning, George's voice echoed a tentative note of hope. The sounds of Team A's splintering trees and racing engines must have penetrated the remaining distance to his position — and to the North Vietnamese lines as well.

"This is Writer Two-Nine, roger, out." No reason to disguise our intentions now.

"Flange Two-Nine, this is Writer Two- Nine. I'm putting out smoke on my point. Can you give me a spot relative to Racer?" The exact angle of our approach was critical as we had to arrive at Charlie Company's southeast flank, the vicinity of lightest reported contact. But, even if our navigation had created no tactical problems, the NVA commander might attempt to generate one for us by inserting a few squads between the American units during the approach. A spontaneous firefight could result in the lead tanks wiping out the exposed Charlie Company as well as the NVA.

"This is Flange Two-Nine, roger, wait. I'll come around and take a look." Lt. Col. Conrad's tone against the background of whirling helicopter rotors expressed no satisfaction, as was entirely appropriate, with Team A's timely arrival.

"This is Flange Two-Nine, identify green. Make a half turn to your left, Writer, and come around to a heading of three-one-zero. You've got about 200 meters to go. I'll put a little air on in the next few minutes."

"Thanks, Two-Nine. Out." Now, for the three platoons. "One-Six, Two-Six, Three-Six, this is Six. Elevate all weapons until we find the grunts. Nothing heavier than an M-16. Do not fire directly forward under any circumstances. That's where the grunts are. Acknowledge!" If a trap had been prepared it would be sprung now, when we might be entering a minefield surrounding the enemy base. One of our most fundamental strengths, maneuver, was restricted and our flanks exposed as the drivers cautiously picked a path through the craters marking another chewed-up B-52 strike area.

The officers stowed their maps and compasses and everyone cinched their flak jackets tighter. Crews crouched behind steel gunshields, fingering the trigger guards of their puny-feeling rifles. The infantry lay as flat as their bulky equipment allowed on the exposed rear decks of the ACAVs, eager to jump overboard and bury themselves in the inviting bomb craters at the first shot.

Tension transformed into noticeable anxiety. Eyes refused to remain fixed for more than a moment. Anyone with even the most trivial task immersed himself in it. Hands not clutching a weapon were busy at nothing. Soft drinks appeared from the intestines of the tracks and were poured lukewarm down tightened throats. Quickly emptied cans bounced over the side, marking, as always, our progress across the face of South Vietnam.

Yet incomprehensively, there was no fire from the brush rimming the far side of the bombed-out area. Had the air strikes masked our arrival? Had the NVA radio operator who was assigned to monitor our traffic been injured or misunderstood our intention? Was the ambush in the wrong place or had the NVA commander simply made a mistake? Randomness, again.

Suddenly a spluttering smoke grenade arced out of a clump of brush ahead. "Racer Two-Nine, this is Writer, identify yellow."

"Racer Two-Nine, affirmative, affirmative!" George was elated.

Reentering the sheltering vegetation on the far side of the forgotten air strike, the lead moved only a few meters before Three-Six came up on the horn. "Ah, Six, looks like we've got some of our guys out front here. They're beat up all right."

The men of Charlie Company huddled apathetically behind scarred trees and in depressions scooped out under the brush. Few stood as the troop crashed through their position, forcing our drivers to move carefully to avoid running over survivors. The dead were a group of partly covered forms in the midst of a larger pool of wounded grunts.

Breaking from the reconnaissance formation, the medic track pulled up to the shore of the casualty collection area. After jockeying around to point their frontal armor toward the enemy, the medics dropped the rear ramp into the stained brush. Spec. Four Felthager and his two assistants went to work, using the medical supplies in their ACAV to supplement the meager resources of Charlie Company. Urgent wounds had to be handled immediately because there would be more from Team A soon.

Jim and I unhooked ourselves from our communications gear and jumped the six feet to the ground as George dragged himself over to A-66. While the troop was waved past the infantry command post in three columns, George briefed us from behind his lopsided face.

"Very strong, at least a battalion here. Lots of RPGs. Very well-controlled. Sure glad to see you guys," he said between bloated lips. His bandoleers and harness hung down empty of ammunition and grenades. "The main part of the complex is just north of my position here. But it's in a semicircle shape, and we walked right into the hollow part this morning. Never had a chance. Head-on and flank fire is bad, especially from the west. Lightest where you came in. Only about half the company is still effective. Whatever you do," he squinted at the lines of armor and infantry moving through as his walking wounded straggled in, "don't waste too much time on the dinks. My guys need help bad."

At this late hour, saddled with the Charlie Company injured, we could follow only one course of action: an assault directly into the center of the enemy bunker complex. There was no daylight remaining for a careful probe around the exterior of the enemy configuration for the weak element. No time to execute an attack on more than one axis and, without our sister units from the 1st Squadron, no opportunity to envelop the NVA battalion and eradicate it entirely. Just a brutal, unoriginal shot straight ahead, which the enemy commander would expect. And we probably were outnumbered two to one.

If the North Vietnamese were subdued quickly, I intended to release one of the platoons to bust a landing zone nearby and evacuate the wounded. Were this to be accomplished, Lt. Col. Conrad probably would use the same LZ to insert a couple of infantry companies with instructions to try to surround the enemy position, thereby leading to an all-night action. Speed was essential.

1630 Hours, 26 March 1970

Behind the hundreds of tons of metal, ammunition, fuel, and flesh that was the troop assault line, the spent men of Charlie Company slumped down to secure the casualty collection point. Alpha Company gladly dismounted to assume its customary position behind the tracks. The grunts and the tightly spaced vehicles faced north toward the Cambodian border a few kilometers ahead. The well-led first platoon occupied the dangerous left flank facing the greatest concentration of enemy activity. The less experienced third platoon leader held the center of the line with A-66 in close proximity to his right. The second platoon extended eastward through the least threatening terrain all the way to the bomb strike zone. A-18, now unquenchably smoking, was abandoned in the rear of the first platoon, a crippling loss.

Blue max gunships ineffectually expended their loads on east to west sweeps just forward of the troop line as we prepared for the battle about to be joined. The principal value of the tactical air was to distract the NVA and to keep their heads down within the bunkers. Only rarely did the helicopter ordinance destroy the carefully constructed underground fortifications. Occasionally, when rockets detonated in the trees, they caused friendly casualties.

Up and down the line sounded the sharp clatter of men jacking back their caliber .50s and rearranging ammunition cans. Here and there, a final soft drink passed around and the container, as usual, wound up overboard. The grunts dropped their excess equipment into the weeds, scattered out while adjusting their bulging ammunition bandoleers and, pockets stuffed with grenades, waited silently.

All was still.

"Commence Fire!"

Twenty-five caliber .50 machine guns, 40 M-60s and five main tank guns blasted into action. The vegetation began to disintegrate and a few nearby bunkers became visible. The more skilled gunners began to work their rounds from two or three feet in front of the forward slope of their tracks out to almost horizontal deflection and then back in close. From bitter experience, they knew the fatal damage that could be done by an enemy rifleman lying in a concealed hole only a few feet away. The sharp rattle of the automatic weapons felt like ice picks on our eardrums and the concussions from the tanks' main guns a few feet away threatened to tear the smoky skin from our faces.

After bolstering our courage through the full demonstration of the troop's firepower, we began our advance. Twenty-five tracks in a long single line pressed forward into the unknown, firing at will into a jungle that yielded its secrets so grudgingly. After the first ten meters, the volume of fire picked up again. Excessively. The gunners were expending too high a share of their basic load in the early stages of the fight. A disastrous shortage of ammunition inevitably would ensue!

"Cease fire! Cease fire, let's see what's going on," I radioed urgently.

"Acknowledge!"

The hallmark of a disciplined unit is its fire control, and we usually had been able to stop shooting within a few moments of the command. Today, however, nervousness must have been especially widespread as the rate of fire slackened only slightly.

After perhaps five seconds, without warning, a long burst of AK-47 fire walked up the tank turret of A-27 and glanced off its gunshield.

The line re-erupted into a wall of flame and smoke. It was now obvious that the troop's rate of fire reduction had been paced by a corresponding increase in incoming. Staff Sergeant Pasquel "Gus" Gutierrez, the track commander of A-27, knew that crouching down for protection from the enemy fire would increase the likelihood that more would follow. Instead, he grabbed the TC's override and violently traversed his turret to the left. As soon as he judged the gun tube to be more or less correctly oriented, he let loose with the main gun and cleared a considerable swath of jungle. While his loader slammed another round into the breech and 27's gunner fired an M-16 from the left hatch, Gus lobbed grenades out front. Swinging around to the right, he blew away more brush, clearing a bunker roof near A-66.

"One-Six, Two-Six, Three-Six, casualty reports, over!" Short delay.

The radio hummed as the first platoon leader shoved the transmission switch on his CVC helmet forward. "I've got two hurt on one-two. They're on their way over to the medics. The grunts're carrying 'em." McNew was already taking a beating on the left. Another static punctuated delay.

"This is Two-Six, only one man lightly hurt." Gutierrez had performed. Long delay.

"Three-Six. Seems to be two hurt for sure and, I believe, one KIA."

On and on, a meter at a time, the platoon leaders urged their men forward, always struggling to remain as nearly on line as possible so as to afford all vehicles an unrestricted field of fire. Rolling over logs and around craters and trees, we advanced another five, ten, twenty meters. But, recognizing the increasing momentum of the attack, the NVA fought back with courage and determination. The RPGs began to hit with telling force on vehicles and in the trees.

In order to aim, however, the enemy soldiers had to expose at least their heads and shoulders, and we exacted our price. Nonetheless, by 1800, with about an hour of full daylight remaining, the situation had become grim. We had made too little forward progress through the thick jungle to consider establishing a night defensive position and clearing an LZ. The Charlie Company casualties were still suffering, and the medics reported that we had incurred many new ones. The race to darkness continued with little time remaining to break the numerous, entrenched enemy or to begin the journey home.

"Six, this is One-Six. I'm taking heavy fire from the left! What do you want me to do?" McNew was excited, a rare event.

"This is Six. Orient your outside ACAV to the left. Keep stringing them out as we move up. Let me know when you're down to your last track. Over."

"Wilco. That won't be very long! Out." Willie's report meant that we were flanked on the left and, although the echelon formation he was assuming should protect him in the short run, the distance that the troop could advance was now mathematically fixed. The hornet's nest had begun to close about our wrist as our fist thrust towards its center.

"Writer, this is Racer Two-Nine. By the way, we've had dinks behind us for some time. Don't stop, we can hold." The NVA commander had apparently launched a counter stroke aimed at the casualty collection point, our weakest link. Even if George could hold them back — and he must or we would have to break off our attack—the trap was closed and we were surrounded.

Jim Armer picked his way through the tangled undergrowth to A-66 on line. As he clumsily stumbled forward, encumbered by his bulging ammunition pouches and assorted grenades, canteens, pistol and first aid kit, he didn't exactly resemble John Wayne on the silver screen. Severed by a stray rifle round, a branch dropped from the trees overhead and settled gracefully near him as he clambered onto the rear of our track.

"The RPGs are playing hell with us! I've got eight hurt now," he shouted directly into my ear under the CVC helmet. "I'm moving up tighter behind the tracks." His face had miniature channels on each side of his nose where the sweat had worked away at the grime on the way to his chin. Like everyone else, his eyes were pink from the choking smoke and the exhausts.

"OK. How's it look?" I shouted back at him as he stood on one of the fender projections extending from the rear of the ACAV.

"No sweat" — the all purpose response. What an incongruity, I thought, as I admired his aplomb. "Most of their stuff is high now. We're hurting 'em bad." Jim lowered himself carefully to the ground and waddled back toward his men to reposition them and to direct their fire.

Meter by meter, the advance continued. Some of the weapons in the vehicles were silent now, their gunners dragged away through the brush and debris to the toiling medics. Occasionally, one of the infantrymen crawled up through the clutter of the battlefield to an ACAV and manned an idle machine gun, an heroic act for an untrained grunt.

Fifty meters now, and as the all-too-few minutes until darkness melted away, the enemy fire showed no sign of slackening. The NVA were proving to be just as efficient as we in recycling patched-up but still functional soldiers to replace the newly wounded on the line. Or else, unlike us, the enemy commander controlled tactically unlimited reserves that he could throw into the fire-storm.

Our gunners on A-66 seemed to take their first large-scale firefight in stride, especially Topper, who bent over his M-60 and fired skillfully into the more suspicious of the surrounding brush. Not yet 20 years old, he was, by now, almost certainly a killer of men. We had consumed most of the upper layer of the two levels of ammunition carefully arranged on the floor of A-66, and our path was littered with empty olive ammo cans and brass cartridge cases. One M-60 had been replaced, and Dennis had expended a pint of lubricating oil, pouring it directly on the almost glowing caliber .50 barrel. His adam's apple worked up and down furiously as he screamed for another can of .50 to be passed up. Gunners, even mature track commanders like Dennis, and especially those approaching their rotation date, rarely felt secure unless the thumb-activated trigger was depressed.

Inevitably, some leaders were more forceful than others. On this courageous day, whenever there was a momentary lag in the advance, Sergeant First Class Robert Foreman thrust his Sheridan tank forward. Each time his platoon loyally followed. Again and again, Sgt. First Class Foreman, our most senior African-American NCO, led the way when it seemed that further progress was blocked. Each effort required that his crew expose the thinner side armor of their tank to head-on fire. And then defend their exposed position until the lighter tracks, including A-66 on his immediate right, could pick routes forward to cover his flanks.

Regardless of the exertions of Foreman and others, however, it was becoming obvious that there were just too many North Vietnamese and not enough of us. I reached for the radio frequency control box lying loose just behind the caliber .50 cupola and switched over to the battalion command net to discuss a situation which was now almost hopeless and growing costly beyond reason. Just as my mouth opened, a sense-destroying explosion enveloped me, and I was hurled unconscious to the ammo and weapon strewn floor of the ACAV.

Utter blackness, deep and comforting. Sometime later, shades of grey and hazy images but no sound beyond the ever present ringing of my ears. How long I lay there I don't know, but at last and very grudgingly, I began to function at some threshold level of awareness.

My first incoherent thought was that Sgt. First Class Foreman, just to our left, had traversed his turret too far and blown us away. Nonsense. Then my eyes began to focus and I saw a pile of expended cartridge cases where my nose ended on the ACAV's floor. With a bit more reluctant concentration, Topper's fatigue sleeve came into range where it peeled away from his crimson arm. Straining to rotate my eyes, I slowly brought into focus the right gunner, peering out from his lacerated face.

I apprehensively flexed each limb of my body in sequence, much like switching on lights room by room. All of me turned on except for my left forearm. This seemed more than reasonable since my hand was a mess. My neck throbbed like a bass drum when I attempted to turn it, and blood dripped on my flak jacket from somewhere. Dennis was nowhere to be seen.

Struggling to stand, Topper began to yell, not particularly noisily but with conviction. He hoisted himself out of the fighting compartment onto the rear deck, rolled over and fell into the brush with a thud. Holding his dangling arm to his side, he ran in a limping but resolute manner toward the medics.

The right gunner rallied, grasped his M-60 and began to fire furiously, although it was unlikely that he could see much from behind his sliced up face. After a few rounds, he shot away one of the radio aerials, shrugged and followed Topper to the rear. Dennis was still among the missing. The invincible A-66 was, like me, a helpless spectator.

Smoke curling out of the turret and a scarred gunshield on Sgt. First Class Foreman's Sheridan explained our helpless condition. An RPG had landed squarely in the center of his machine gun's shield, punching a hole through it and exploding his upper body. A very brave man, operating in a racially ambivalent time and place, had repeatedly risked his life on our behalf and, finally, had lost.

The rocket that had disintegrated Foreman and immobilized A-66 also had knocked out the ACAV on his far side and had sprayed shrapnel among the grunts nearby. With three tracks and the adjacent infantry silent, the center of the line was in grave jeopardy. Soon the alert enemy would pour fire through the gaping hole created by the unfortunate rocket. The incoming would fall not only upon our vehicles, but upon the unprotected infantry, the injured Charlie Company and the casualty collection point directly behind us.

These images drifted listlessly through my mind to merge with some immensely distant recollection of duty and personal obligation to the men. There was no seasoned second-in-command among the cavalry platoon leaders who would be able to handle three company-sized units in a desperate battle. The two infantry captains on the field knew little about armor, and the senior officers circling overhead could do nothing for us on the ground.

Senselessly ignoring the still functional M-60s, I stood up to full height near the left gunshield, groggily drew my dependable .45 and aimed the ineffectual pistol at the area from which the RPG had come. I squeezed off one round into the green fog, and then another and another. The shots filled the dead space, their effect unknown. Yet, for the moment, no more rockets shattered the pistol punctuated silence. The magazine emptied. I stood, awaiting the inevitable.

Jim Armer, comprehending our desperate situation, unexpectedly ran from his position in the underbrush to Sergeant Foreman's tank. He struggled onto its rear deck and leaned over the turret, grasped the bloody caliber .50 machine gun handles and began hosing down the jungle. Jim had fired only a few rounds when Dennis' head bobbed up unsteadily within his cupola. He blinked his bulging eyes, pointed to his neck and asked wordlessly in the reviving din what was wrong. With blood leaking from the back of his neck he didn't look too fit, but my dreamy smile reassured him and he leaned into the .50. Now two machine guns clattered.

Jim soon ran out of ammunition in the tray or jammed his weapon. Knowing how to solve neither problem, he fired several magazines from his rifle and then jumped down from the tank. He probably moved some of his grunts up to replace the newly wounded and reestablish a base of friendly fire in the center of the line. By this time Dennis and I, mostly by instinct, had the guns in our track going and the ACAV on the other side of Foreman's Sheridan got back in the fight. A-66's bandaged gunners returned a little later and relieved us of our frantic, three armed exertions. Gutierrez cleared the area in contention with his main gun.

It seemed almost as though the attack on Sgt. First Class Foreman had been the tactical climax. An unaccustomed silence began to spread, along with the deepening shadows, across the battlefield. Our ammunition supply approached a level that could not long sustain the troop, and replenishment remained impossible. Our advance was now effectively contained by enemy flanking forces on the left, and we still had no way to evacuate casualties.

The only rational course of action was to attempt to disengage and fight our way back to last night's defensive position. Of course, we had been surrounded at last report, so the success of a withdrawal was problematic. My comprehension of our perilous situation slowly floated toward full consciousness as I found myself on the radio requesting permission to withdraw and, apparently, helping to direct the air strikes.

Field mechanics and crews swarmed over those tracks that had taken hits, attempting to restart them. Others were towed off line so that repairs could take place away from the continuing sporadic fire. Exercising

good field judgment, the mechanics cannibalized essential parts from two vehicles that obviously were finished. One of these was A-34, a shattered wreck wedged, immobile, between two trees.

I instructed Bob Henderson, the third platoon leader, to strip the hulk of its armament, ammunition, and valuable parts. He dismounted to supervise his men swarming around the permanently lodged track as they wrenched equipment free from mountings, dragged it the few feet to a waiting ACAV and heaved it aboard. The carcass would be left for the aircraft to destroy after our departure, a mission at which they might be more successful than they had been in their attempts to demolish enemy bunkers.

As we began the slow disengagement, incoming fire slackened further, and I was able to disconnect from the life sustaining radios and climb down carefully from the faithful A-66. After prudently cleaning myself up enough to be presentable, I picked a path over to Bob and his toiling men. My route crossed a forest junkyard through which a herd of bulldozers seemed to have run amok. Shattered trees, scarred ground, crushed bunkers and trenches, discarded ammunition cans and assorted junk lay every- where. In the midst of the disorder, the inexperienced lieutenant did a speedy job on A-34, standing next to the collapsed rear ramp and pointing out items he wanted pried loose. Standing still, however, was an error. Just as I scuttled up to him in that crablike posture we quickly learned, Bob's face assumed a perplexed expression and he sank to the ground.

Kneeling at his side while the men continued to slash at the carcass of A-34, I rolled up the jungle fatigue trousers through which he was bleeding. Several lacerations, none spewing blood, meant that he had picked up only some shrapnel. No problem, if the rate of leakage didn't increase before his blood clotted.

"I'm OK, sir. We should be done in about five." Insisting on rising under his own power, although unsteadily, Bob hobbled to the far side of A-34.

The more experienced of his men had been working there all along.

1930 Hours, 26 March 1970

During a sunset invisible through the towering trees, we finally started all vehicles except for the abandoned A-34 and A-18, which was rigged for towing. The bruised line of armor backed across the battlefield, which had been so costly to gain, frontal slopes and weaponry always oriented in the direction of the now silent enemy. Not surprisingly, there were few NVA casualties visible on the field as we inched away. The enemy commander had executed an orderly and effective withdrawal within a well-prepared defensive position that was far larger than any I had previously experienced.

"Flange Two-Nine, this is Writer Two-Nine," I reported. "I'm ready to move out the advance element now. Can we get any light for the trip?" Overhead aircraft or artillery flare illumination would be necessary within minutes unless we fancied the suicidal technique of turning on our headlights for the return journey, assuming any headlights had survived the firefight.

"This is Flange Two-Nine. Go ahead and move out. Have your point and rear elements throw smoke so that I can put some air on your flanks and rear.

"Writer Two-Nine, wilco, out."

"Two-Six, this is Six. Listen up. Move your tracks out on the route we came in on. If you see anything at all suspicious, shoot it up big time. Be careful. They're out there. When you get through and after you've moved about 300 meters, all the way back past that bombed out area, toss some smoke and contact me. Also, I've been hit. I'm OK" — just like Bob Henderson — "but if you don't hear me on the horn for awhile, you're in charge."

"This is Two-Six. I'll get through. On the way." Mike Healey, with the least bloodied platoon, could best deal with the ambush likely to await us down the trail. Driving straight into it, he might be able to smash his way through and clear the path for the rest of us. There was scant possibility of busting a new trail through the jungle after dark.

The casualties were distributed among the remaining tracks as quickly as their pain allowed. Insufficient time remained for the medics to segregate the dead from the wounded, and both were crowded haphazardly on the vehicles nearest the aid station. Alpha and Charlie Companies' soldiers swarmed aboard, rendering the cavalry vehicles' weapons inoperable and covering the ammunition stacked on the ACAV's floors.

"Writer, this is Racer. We're all loaded up."

"Six, this is One-Six. I'm ready to go."

"Six, this is Three-Six. Me too."

From the rear deck of A-66, Jim grabbed my flak jacket and nodded. He was ready to pull out also.

"One-Six, this is Six. I'm afraid you're last. Make a lot of racket when the rest of us move and throw some smoke out for the choppers. Give us a couple of minutes and then come out as fast as you can. Good luck."

"This is One-Six. No sweat."

The tracks began their ponderous exit from the field. We were completely at the mercy of the NVA if the second platoon could not break out. Had the expected mines been planted and trees felled across our only exit route? Was the killing zone covered with automatic weapons and grenadiers? The minutes passed as the burdened troop pursued the second platoon. No firing echoed down the trail after Mike's initial bursts when his tracks first pulled out.

"Writer, this is Flange Two-Nine. I've got your rear in sight, also the point. But where're you? Get out some smoke so we can cover you, huh?" A note of irritation intruded into the battalion commander's voice.

"This is Writer. Wilco." I switched over to the intercom. "Hey, Dennis did you get that? How about throwing a few?" Without turning, probably because his neck wouldn't pivot, Dennis unhooked two of our last smoke grenades from a strap securing them to the side of his cupola armor. He dropped the two fizzing olive soup cans over the side. With a gentle pop lost in the roar of the engines, the artillery forward observer's track behind us was wreathed in yellow tendrils of smoke. Acknowledging our signal, Conrad made reassuring sounds over the radio.

"Six, this is Two-Six. You won't believe this! It's clear here. Repeat, clear all the way out." Mike's voice expressed joy first and then relief. If he'd fully understood the risk his platoon had just run, the sequence might have been reversed.

"Roger..." Was it possible that the enemy commander hadn't thought to impede our withdrawal? Were his forces insufficient to defend the bunker complex and hold us in the trap simultaneously? Was he hurt too badly to pursue? Or had he begun to move out toward Cambodia while we were preparing to return southward? Randomness too complex to contemplate just now...

But the first platoon was in the barrel again! Willie McNew reported that a recoilless rifle had opened up on him. One round slammed into the deserted turret of A-18 under tow and McNew dropped the line to return fire with his main gun.

"Six, this is One-Six. You've got a choice. Old 18's back there and it's going to cost plenty to go back and get it. It's stripped and there ain't nothing left on it. Can we leave it?"

The canny McNew was probably lying about completely stripping A-18. There had not been time. But he was unquestionably correct about the probable cost of retrieving the hulk. Required decision: Did the 1st Squadron's tradition of salvaging every vehicle justify risking the first platoon? And how would we react if the first platoon and its cargo of infantry and casualties were surrounded while trying to retrieve A-18? Decisions were still very difficult to make. I hesitated.

"All right, One-Six. Dump it." No need to instruct the first platoon to hurry. The sounds of the racing engine in the background while Willie was on the air told me that they hadn't paused after their brief firefight. It occurred to me that our rear element may have encountered the anticipated ambush in a formative stage after we had slipped through the noose.

Overhead, Lt. Col. Conrad and his staff, with some help from me, directed the air cover on our flanks and attempted to destroy the two vehicles left on the field. Down among the trees it was growing difficult to see and the drivers soon would have to halt if aerial illumination were not forthcoming. But the first and third platoons did use what little sunlight was left to close on the lead element.

"Flange Two-Nine, this is Writer. Have we got any light yet?"

"Not yet, Writer. How many minutes can you move without illumination?"

"This is Writer. Not long. Let's see if our mortars can shoot some for us. We'll keep you advised." It would never do to shoot down the battalion commander with an errant illumination round.

"Roger, out."

With four kilometers of jungle to traverse we were dead in the water unless, and only unless, the remnant of the troop's shattered mortar section back at the night defensive position came through. Undoubtedly, they had at least a few parachute flare rounds remaining in the one undamaged mortar track salvaged from the flames the night before by the desperate driver. Whether the mortar crew could compute, arm and fire a mission after last night's debacle I didn't know.

"Writer Control, this is Six, did you monitor?" Seege was sure to be on all frequencies back at the night defensive position, and I was too tired to repeat all those words again. I assumed the night defensive position was still there because we hadn't heard about it or from it all afternoon.

"Roger," Seege answered at once on the troop frequency. "He's right here."

The raspy voice of Sergeant Smolich, the mortar section chief, came up. "Where are you, Six?"

"We're a little less than a quarter of the way home and hurting. Can you shoot some light?" It was now impossible to read a map so as to provide our current location by checkpoint. Besides, the map case was buried somewhere in the bowels of A-66.

"Yeah we can, Six. Sure."

"OK, do it ASAP. Post the air data from there." I flipped to the higher command frequency.

"Flange Two-Nine, this is Writer. Better get some altitude. They'll call in the air data, but your guess is as good as anyone's where they'll shoot."

"I'll take care of things up here, Writer." Godlike confidence.

The swaying interior of A-66 was a dark jumble of bodies, most of them quiet, but a few making noises that no one wished to notice. The upper deck of the track was covered with infantrymen, as crowded as a lifeboat at sea and just as defenseless. Only our constant companions in the jungle, discomfort and pain, kept me alert and on the radio. Morphine, so temptingly available from the medics, was never an option.

"This is Two-Six. We can't see a thing out front, Six. Do you want me to hold up?" Further seconds, then in very slow motion the back of Dennis' steel cupola hatch seemed somehow lighter. Within moments it was possible to distinguish the individual casualties lying below my legs in the shadows of the fighting compartment. The men littering the upper deck of A-66 stared overhead, their opened mouths expressing amazement at this unexpected miracle.

"This is Six. Drop 200 and fire for effect. Keep one up as long as it lasts. Drop 100 every three minutes or so. And stay on top of Flange Control for that light ship. Outstanding."

"Thanks. We've got about an hour of stuff, Six. Out." Nothing further was required between us.

But the welcome illumination also revealed the desperation of our condition. Dennis and the worn out gunners slumped over their gunshields. The grunts looked worse. Only the less thoroughly beaten down Marty was in motion as he manhandled A-66 down the dim alleyway through the jungle. One thrown vehicular track on A-66 or any other vehicle on the narrow trail and the whole operation would grind to a halt.

If there exists a merciful providence for the helpless, then we must have qualified, for we passed through the jungle unmolested. With little warning, the troop broke into the relative safety of the clearing surrounding the night defensive position. Jim and I stared at each other aboard A-66. He shook his head. I couldn't understand how we had done it either. For a few moments we sat together quietly, then Alpha Company began to move into the wood line to secure our position. Jim lowered himself wordlessly to the ground and, linked by the umbilical cord of the communications handset leading to his radioman, was swallowed up in the dusty gloom.

The ACAVs discharged their grisly cargoes as each vehicle exited from the last of the forest. So long as the supply of stretchers lasted, the injured were placed upon them. After that, medics pressed ponchos into service.

The dead were segregated to one side. More than an hour of dusty relays would be necessary before the medevacs were finished.

In the faint light provided by the aerial illumination, the haggard crews returned their vehicles to the well-worn defensive perimeter and set about cleaning their filthy tracks, replenishing basic loads and breaking down weapons. Another testimonial to self-imposed discipline and good sense. There may even have been something to eat.

In its turn, A-66 dropped its rear ramp near the choppers as the medical personnel rushed over to haul away our casualties. The troop executive officer, 1st Lt. Paul Baerman, appeared to have the evacuation well in hand, so I removed my CVC helmet and, without thinking, shoved myself over the side of the track. The mortar section chief caught me before my legs completely collapsed and set me back upon my feet. Guided only by habit, I began to walk unsteadily through the maze of struggling medics in the direction of the M577. About halfway there, Conrad emerged from the shadows. As we approached each other, he held out his arms and wrapped them around me.

Editor: In this confused action, Alpha Troop undertakes a relief and evacuation operation after a period of sustained operations that left the unit under strength and fatigued, conditions intensified by the mortar platform accident the night before the operation began. The article clearly illustrates the confusion of jungle operations, particularly against an enemy adept at using terrain to achieve surprise and maximize the impact of first contact. Moreover, the North Vietnamese forces engaged proved willing and able to engage the armored column. The troop commander's narrative illustrates the command responsibilities that must be continuously addressed, regardless of the personal situation facing the individual, in this case being wounded and partly shell shocked. Jungle conditions also posed additional complexities for the armored commander, particularly in off-road movement. The Sheridan was used to create new paths through the jungle terrain—a proven technique for avoiding mines—but prolonged use in this manner tended to strain the vehicle's transmission, requiring periodic rests to let the engine cool. Night movement posed another hazard to vehicular operations, necessitating the reliance upon aerial illumination. In this example, illumination rounds are provided via mortar, but it was also common for helicopters flying overhead to drop flares along the intended march route. Despite the difficult conditions facing the troop in this engagement, the combination of mobility and firepower provided the necessary means to overcome North Vietnamese resistance and successfully complete the mission, though not without loss.

One Tank Battalion's Experience in Vietnam

Editor: The following excerpt is taken from Lt. Col. (ret.) Jim Walker's article "Vietnam: Tanker's War?" published in the May-June 1997 issue of *Armor* magazine, pp. 24-30. It provides an overview of the varied mission set performed by 1/69 Armor in Southeast Asia. It also provides an indication of the versatility of armor units employed in counterinsurgency operations in the Asia-Pacific theater. The author served with the unit in the Vietnam War.

Millions of Americans today were born after the end of the Vietnam conflict. Their limited understanding—shaped by the popular media, movie, and book cultures — has painted Vietnam as a war fought in swampy jungles by foot soldiers. Most are surprised to hear veterans talk about their service on tanks in that war, but U.S. Army tanks first went into Southeast Asia nearly 31 years ago with the 1st Battalion, 69th Armor. More disturbing is that many current serving members of the Army are ignorant of the contributions tanks made in Vietnam. This institutional memory lapse may have been a factor in the tragedy at Mogadishu, where foreign armor had to answer a call for help to rescue our pinned-down Rangers. We must ensure that U.S. armor soldiers aren't forgotten again in the planning and execution of similar 'meals on wheels' or other such diverse missions in the 21st century.

Almost immediately upon landing his first tank in 1966, the CO of the 1st Battalion, 69th Armor, Lt. Col. (Maj. Gen., Retired) R.J. Fairfield, Jr., found widespread misunderstanding of the role of armor. Assigned to support the 2d Brigade, 25th Infantry Division, operating near Cu Chi, the 69th Armor commander found himself at loggerheads with the brigade commander over employment of his tanks. Despite nearly a half century of bitter experience from two world wars and numerous other conflicts, traditional Infantry-educated/ indoctrinated commanders had yet to grasp the principles of mass, maneuver, and objective as they applied to Armor employment. This was the situation facing Lt. Col. Fairfield as his immediate superior sought to parcel his tanks piecemeal to infantry units without defined mission or measurable objectives.

When summarizing his arguments to the division commander, Maj. Gen. Fred Weyand, Fairfield stood his ground and stated simply. "Sir, the only time I will ever deploy one of my tanks will be to ordnance." (1)

Following a well-supported rationale for maintaining his unit's integrity and employing his mass, firepower, and maneuver capabilities, Lt. Col. Fairfield won the day and the approval to retain operational control over his tanks. The successful rout of an enemy force by his A Company, only an hour and a half after landing in country, significantly reinforced the battalion commander's arguments. This proved critical in the ensuing weeks as the application of the battalion's massed firepower and shock action broke the back of an enemy offensive against the brigade in the Ho Bo woods.

This would also prove to be the seminal argument for virtually all succeeding 1/69 Armor commanders in the application of their unit's assets. The consideration of unit integrity and Vietnam lessons learned would similarly guide planners for the development and application of doctrine for Desert Storm and hopefully, will also hold true for 21st century application of armored forces.

Equipment: Blessing and Nightmare

Immediately prior to its Vietnam deployment, 1/69 Armor had traded in its gas-guzzling M48A2 tanks for the somewhat upgraded M48A3 vehicles. The A3s were a distinct improvement over the A2C version, with the addition of an economical and much safer V12 diesel power plant that gave the A3 increased horsepower, over 310 miles range on the roads, and some 230 miles range cross-country. Most important to the crews was that the A3's diesel fuel tanks did not explode violently when penetrated by enemy fire, a long-standing problem with gasoline-powered U.S. vehicles. Similarly, the elliptical hull of the M48 Patton provided outstanding protection from mine explosions, artillery, and small arms fire. With few exceptions, Vietnam tank crews would survive even large mine incidents thanks to the robust M48. Additional upgrades included the new AN-VRC 12-series radios and a Xenon searchlight (2 or 3 per platoon issued in 1967).

The A3s 90mm cannon, and its broad range of available ammunition types, was the major reason the M48s were sent to Vietnam, rather than the later M60 series. The 90mm came with a variety of ammunition choices that proved critical in Vietnam combat. Tankers could draw on the devastating canister round for use

in thick jungle and wooded areas, high explosive plastic (HEP) for taking out bunkers and structures of all types; HE and HE Delay for use against personnel and fortifications; white phosphorus (WP) for marking targets and for use against personnel; and HEAT for use against other tanks and fortifications. The normal basic load for 1966-68 tankers might include equal numbers of canister, HE, and a WP-HEP mix. Later loads would include HEAT, due to the introduction of armored vehicles by NVA forces in the tri-border areas of operation.

Field Expedients: The Tanker's Lot

Field expedient replacements for weapons or equipment were difficult, but generally, they might be found as close as a sister unit. Vietnam terrain often restricted the cross country travel of our tanks to narrow ravines or treacherous, switchback roads with steep hills between open stretches of road. As ambush was the main enemy tactic, early triggering or detection of ambushes became a primary goal. To reduce the mystery of what lay around the bend or over the hill the battalion CO, Lt. Col. Scott Riggs, and later Lt. Col. (Maj. Gen., Retired) Stan Sheridan, made it SOP to carry an M79 grenade launcher on each tank.

As XO of A Company, I was able to enhance this capability by extending the range and lethality of our indirect fire through the addition of 60mm mortars, scrounged from 173rd Airborne supply types, to each of our platoons. Expedient weaponry augmentation was the rule. These added capabilities saved lives and cost the enemy dearly. (2)

There were many unforeseen needs which arose in Vietnam, especially with units operating in the dense highlands' jungles. Enemy contact in these close confines was generally 50 meters or less. Survival required violent, overpowering fire and maneuver to meeting engagements and ambush. Many of our tanks were festooned with claymore anti-personnel mines attached to the hull or on the blades of dozer tanks. Basic loads were augmented with additional quantities of ammunition for the coax, .50s, and individual weapons, along with M72 LAWs, huge quantities of hand grenades, C4 plastic explosives, and flares. A typical A Company tank might carry over 20,000 rounds of 7.62mm ammo for the coax, 1,000 rounds for the .50, and another 5,000 rounds of .45 cal. ball for the M3 submachine guns and pistols. This did not include any additional ammunition for other 'personal' weapons. Interestingly, the major percentage of enemy killed by 69th Armor units resulted from coax, .50 cal., and small arms fire.

Jungle operations also required numerous 'on the spot' modifications to the tanks. The fenders, front and rear, for instance, would invariably become bent or torn as the result of tree branches rolling up under them, often resulting in a thrown track or actual stoppage of the tank. Fenders were summarily detached from new arrivals and otherwise cut away as required. As a defensive tactic, track blocks were hung from turret hand rails; turrets were sandbagged like high riding bunkers against RPGs; airport runway PSP strips were hung over the running gear as protective skirts; and rolls of chain link fence were carried for use as protective screens. I daresay that operations in areas such as Bosnia might require similar considerations. The challenge is exploring these needs, based on terrain peculiarities and enemy weaponry/capabilities, before the tanks are deployed, if possible.

Parts, Parts… Never Enough Parts!

The most critical long-term problem encountered at all levels by 1/69 Armor tankers (and all Vietnam Armor/Cav commands) was the scarcity of replacement parts, from roadwheel arms to machine gun backplates and electrical firing solenoids. The basic Army tank inventory was in transition during the mid-1960s, from the M48-series of tanks to the newer M60s, and accordingly, parts inventories were also 'in transition.' From the outset, battalion and company maintenance PLL resources were stretched to the limits. Despite urgent requests from the battalion commander through the division commander to MACV/USARV, replacement parts were slow in coming throughout the Vietnam deployment. Parts supplies were always somewhere between this unit in Europe and that unit back in CONUS.

Company XOs and motor sergeants became masters of midnight requisitioning and bartering. All too often, parts would be in country, in a port depot somewhere, but their actual whereabouts or release authority were not to be found. Because of the disparate nature of 1/69 Armor's missions and the wide dispersion of its organic assets, personnel were forced to extremes of resourcefulness and expediency.

Two critical problems encountered with the M48A3 tank were with its secondary weaponry, the M73 7.62mm coaxial machine gun and the mounting of the M2HB, .50 cal. machine gun in the M1 cupola. The M73 simply didn't work well. The solenoid needed constant replacement; the barrels burned out too quickly; and it was mechanically unreliable. All parts were in short supply. The superb M2 Browning, mounted as it was on its side in the cupola, was virtually useless. Vietnam combat necessitated quick, easy access to the weapon and the capability for fast ammunition resupply, neither of which was possible with this configuration. Most crews and units subsequently mounted one, or even two, M2s externally on pedestals, welded to the turret in front of the TC and loader's hatches. The M73 problems were never fully solved except for carrying an average of three spare barrels per tank and firing the thing manually.

Despite these shortcomings and difficulties, and thanks to the resourcefulness and creativity of our tankers, the M48A3 proved well suited to its role as a protector, forced entry tool, jungle buster, and absolute terror to the enemy.

From the Mountains to the Sea

The typical mind's eye view of Vietnam is of trackless, swampy jungle and an endless patchwork of rice paddies. Indeed, both visions hold true to varying degrees... it's not your expansive 'European tank country,' to say the least. But could tanks operate in that stuff?

They did... and with devastating effect. From its initial assignment in III Corps, 1/69 Armor ran its tanks from the coastal plains on the South China Sea to the mountains bordering Cambodia and Laos and from Cu Chi to Quang Ngai province in the north. To the enemy's chagrin, tanks too often appeared in the most totally unexpected locations.

Missions Impossible…?

I dare say that none of us, trained and prudent Armor Officers/NCOs that we may have been, would have conceived utilizing a tank platoon to climb a heavily jungled mountain, provide artillery support, cut roads where none existed, search for submarines, or provide ambulance service (all of this, of course, on top of finding, fixing, and fighting the bad guys). These were but a few of the actual mission requirements given to 1/69 Armor. Versatility, diversity, endurance, and expediency became the tankers' creed. With the battalion's move to the II Corps Area in the Central Highlands, mission demands increased and changed daily, sometimes even hourly.

The 4th Infantry Division, the battalion's new parent (as of 8/67), was responsible for the largest divisional AO in Vietnam, and the 69th Armor prowled all of it and more. Despite loud and protracted arguments against piecemealing, the unit was fragmented almost immediately, with A Company joining the 1st Cavalry Division (Airmobile) in operations on the coastal plain around Bong Son with one platoon assigned to each of the Cav's three brigades.

B Company, already in the II Corps AO, fought one of the war's first major engagements where tanks decisively turned the tide of battle. Detailed to support a company of the 1st Korean Cavalry Regiment at a small LZ (27 Victor) in western Pleiku Province, the 1st Platoon, B Company, beat back and effectively destroyed a reinforced NVA battalion during a night-long attack on the position in August, 1966. This would become the norm for most engagements of 69th Armor tanks... encircled, outnumbered, but not outfought. The 1st Platoon, B Company was awarded the Presidential Unit Citation for this action.

Command of 1/69 Armor had passed from Lt. Col. Fairfield to Lt. Col. Clyde O. Clark and then to Lt. Col. Paul S. Williams, Jr. It was during the latter's tour that some of the more 'unusual' missions occurred.

Brig. Gen. Jack Mountcastle, Chief of Military History and former platoon leader with B Company, 1/69, Armor recalls two mission of note. (3) Artillery assets of the 4th Division were hard pressed at all times. In April, 1967, B Company was ordered to augment these resources by providing indirect fire support with the tank guns, as had the unit's predecessors in WWII and Korea. For several weeks, they fired missions westward along the Cambodian border with good effect according to aerial target assessments. Here's where the availability of a variety of HE ammunition and fuze types carried the day.

Reconnaissance in force was another favorite mission of 69th Armor tankers. This usually meant that a platoon-size unit, sometimes accompanied by infantry, would smash its way into some heavily jungled grid

square and look for a fight. More often than not, they found one. Then-1st Lt. Mountcastle was tasked on a similar mission along the border, searching for signs of NVA activity, in particular a regimental-size unit reported in the area. A short time into the mission, Lt. Col. Williams received an unusual radio SITREP from his recon element and Lt. Mountcastle... "Sir, we spotted NVA... and they are on elephants...!!" Responding with some incredulity, Lt. Col. Williams asked for more details and, as a good commander should, reported the find to the division G2. Needless to say, eyebrows were raised at this quarter as well and incontrovertible proof was requested. How do you prove the existence of an elephant, short of snatching one? Finally, after continued requests and snickers from the intelligence types, a bag of incontrovertible 'proof' was duly deposited on the doubting G2's desk.

A Company tankers, commanded by Capt. Don Williams, found themselves in similar unique situations during their support of the 1st Cav in 1967. LZ English, the division's forward headquarters at Bong Son, gained public attention in April, when Viet Cong sappers fired up the unit's ammunition distribution facility, setting off massive explosions from the ordnance, including aerial rockets, artillery rounds, and aerial bombs up to 500 lbs. The dump was a blazing, exploding hell for nearly a week with 69th Armor tankers heroically driving their tanks into the inferno and rescuing dozens of trapped troops.

Binh Dinh Province was VC territory... an enclave characterized by rugged coastal mountains, virtual seas of rice paddies and villages heavily fortified, first by the Viet Minh in the 1950s, then by the VC in the '60s. Some of the most vicious fighting of the war took place here, where tanks regularly proved decisive in defeating numerically superior, well dug-in enemy forces.

Company A tanks were committed to action almost daily in reaction to Air Cav contacts in heavily fortified villages. Here, another serious problem was encountered in operations with infantry elements. With very few exceptions, ground commanders from platoon to battalion level had little if any knowledge or experience in operating cheek to jowl with tanks. All too often, our tanks first had to proceed into withering small arms, RPG, and recoilless rifle fire as armored ambulances, to extract dead and wounded, before launching our own attack. Working with the brigade commander's authority (Col. Fred Karhos), we reduced this problem by establishing a rotational training program with Cav companies as they returned to their forward base camp. Similarly, as the tank platoon leader, I was included as a staff advisor to all brigade operational planning which might include tanks or require their response to enemy action. A helicopter flew daily low level reconnaissance of access routes to the coastal villages. These steps proved extremely effective in reducing both tank and infantry casualties and significantly increasing the efficacy and impact of future ops against prepared fortifications. The grunts had a superb forced entry tool, and we had operational knowledge and the flank and rear security necessary for us to effectively clear these VC strongholds.

Another major concern of the tankers was mines... some as large as 500 lbs.; these were aerial bombs rigged as mines. We had the misfortune of running over one of these in mid-67 during a village sweep operation. The crew of A32, (TC, Staff Sgt. Roger Urban) though severely injured, survived this awesome blast as did many other men who encountered enemy mines, thanks to the protective qualities of the M48A3. (4)

While the primary mission of Company A was as a heavy reaction/assault force, there were other very 'unusual' missions performed by the tankers, not the least of which included a submarine watch... yes, that's correct... a watch for submarine/boat activity in the Dam Trao Lake area on the South China Sea coast.

Several reports came into the division G2 shop indicating that the VC were moving men and supplies to area VC forces via seagoing vessels, particularly submarines of unknown origin. While we knew of the boat traffic, the submarine factor generated surprise and not a few smiles. We didn't spot any submarines, but did sink a junk loaded with ammo, rifle stocks, and medical supplies which washed up on the beach.

A similar offbeat mission found us attempting to dig an unknown number of VC out of a series of caves formed in coral outcroppings along the coast. We fired every type of available ammunition directly into the cave openings for nearly a week, yet continued to receive heavy return fire. An 8-inch SP howitzer was similarly employed with little discernible effect. The solution came with the pumping of raw napalm from 55-gallon drums, via hand pumps, directly into natural vents in the coral above the caves. A WP round ended the standoff with an earth shaking blast and accompanying fire. Ammunition hidden in the caves cooked off for more than a day and upon inspection, nearly 30 VC/NVA dead were found inside.

For its seven month attachment to the 1st Cav and bitter fighting throughout Binh Dinh Province, A Company, 1/69 Armor was awarded the Valorous Unit Citation.

Dak To, Tet '68, Keeping the Road Open and Ben Het

The primary mission of 1/69 Armor, from late 1967 through its departure in June 1970, was keeping open the critical overland routes of communication into the Central Highlands. These AOs included QL19, from Qui Nhon on the South China Sea to Duc Co and the Cambodian border; QL14, from Ban Me Thout in the south, to Dak To in the north and even parts of QL1 between Phu Cat and Duc Pho on the coastal plain. Over 55 convoys per day traveled the treacherous Highway 19, east and west, supplying the 1st Cav and later, 173rd Airborne in An Khe; the 4th ID in Pleiku, and CIDG/Special Forces camps in western Pleiku Province. At least one of these would be attacked in some manner daily. Similar numbers of vehicles followed the equally nasty Hwy 14S, following its reopening by 1/69 Armor in late 1967. The massive NVA incursion into Kontum province in November and the ensuing battles around Dak To pressed even heavier responsibilities onto the thinly stretched resources of the battalion. Most enemy contacts during this period were either ambushes or meeting engagements, and always on their immediate terms. Despite being outnumbered and at times, short in men and equipment, the 69th Armor tankers had extremely high operational ratios, never lost a fight and, in many instances, reduced enemy force strength to a point of their being incapable of further action.

One such action occurred just before Tet in January, 1968, as the 1st Platoon of B Company was escorting a convoy of ammunition resupply vehicles north to Dak To. Several miles south of the town, the convoy was attacked by a battalion-size force of NVA. Most of Lt. Bob Wright's tanks were temporarily put out of action by intense RPG fire, wounding many of the tankers. Despite the battering, the crews fought valiantly until a relief column arrived. During the action, Spec. 5 Dwight H. Johnson, driver on Lt. Wright's tank, became legend, killing over two dozen of the enemy in close and hand-to-hand combat and saving his fellow crewmen, as well as several others of the platoon. Specialist Johnson was awarded the Congressional Medal of Honor for his heroism. (5)

The 1968 Tet Offensive found the battalion heavily engaged in the cities and along the roads of the Central Highlands. A Company and other battalion elements helped defend the city of Pleiku, Pleiku Air Force Base, the Camp Holloway SF complex, and Highway 19 against heavy VC and NVA attacks. B and C companies were engaged in heavy combat in the cities of Dak To and Kontum. While nearly a dozen tankers were lost, and dozens suffered wounds, the Viet Cong infrastructure and hardcore units in the Highlands were virtually destroyed, along with hundreds of NVA killed during the protracted two-week fight.

Here again, 69th Armor tankers found themselves improvising tactics and the application of their firepower to fit the situation. Little had been taught in the schools on the employment of tanks in built-up areas. Because of a shortage of infantry, Engineer troops and MPs were pressed into service with the tanks to reduce enemy strongholds in schoolhouses, factories, homes, and even the ARVN military compound in the center of the city of Pleiku. Problems of ammunition shortage, evacuation of wounded, refueling, command and control, and even identification of friendly forces plagued the unit commanders. The VC had forced civilians to dig trenches literally across blacktopped roads in the center of the city and had dug themselves into hasty bunkers along the roadsides. The lack of accompanying ground support cost us two tank commanders killed and several other crewmen wounded when the enemy suddenly popped up behind or to the exposed flank of a vehicle to take it under RPG fire.

The 69th Armor tanks reacted to road ambushes almost daily, especially along Highway 19's infamous 'ambush alley,' a five-mile stretch of road immediately east of Mang Jiang pass. The armor was initially positioned to protect key bridge sites and provide route security for the heavy convoy traffic. The bridge site/checkpoints were typically manned by two or three tanks and perhaps a squad of infantry. Each would normally cover an additional bridge site due to lack of vehicles and troops. These strong points would alternate opening and closing their road segments each day, usually accompanied by Engineer mine sweepers or MPs. Company A initially occupied the strong points in December, 1967, relieving elements of the 1st Cavalry Division. Most required total rebuilding to incorporate revetments for the tanks and bunkers for the troops. This effort alone could occupy a separate volume.

Battalion forward headquarters ultimately displaced to Camp Radcliff in An Khe from a location on Hwy 14S below Pleiku. A Company occupied a run-down fire support base between the pass and An Khe called LZ Schueller, home of a towed battery of 105mm howitzers and an airborne infantry company from the 173rd

Airborne. Ultimately, an additional FSB called LZ Action was established at the base of Mang Jiang Pass, in response to the constant enemy contact. While the enemy action, for the most part, consisted of limited ambushes, mortar attacks, and mining, several major attacks occurred in the post-Tet period.

By far the largest incident cost the NVA an entire battalion of fresh troops on 10 April 1968 when the 'B' battalion of the 95th NVA Regiment attempted an ambush of the first convoy of the day. Prematurely initiated by a command-detonated mine, the event turned bad for the enemy immediately. Twelve A Company tanks and nine ACAVs from the battalion scout platoon were in movement to their assigned strongpoint positions. C Company was moving back to Pleiku from An Khe, and B Company was enroute to Bong Son from Pleiku. In essence, the entire battalion was available for any major contingency.

The A Company tanks and the ACAVs reached the point of contact and simply charged on line against the enemy units hastily dug into roadside berms and trenches. The fight continued for half the day, ending with a massive mortar attack on LZ Schueller. C Company secured the north side of the road while A Company engaged the enemy force. As it turned out, no additional force was required. Nearly 300 of the enemy were killed and scores of individual and crew-served weapons captured. The tankers incurred but a few wounded. A captured NVA officer, though in total shock, related to G2 personnel that his unit had only infiltrated into Vietnam from Cambodia two weeks prior and its mission was to destroy a major convoy and attack LZ Schueller. They were told that only U.S. MP and Engineer units patrolled the road. The sheer terror of the charging armor had had true shock action effect on the green NVA troops. Many of their weapons, especially the machine guns, were found to be unfired, with grease still in the barrels.

Tank vs. Tank

Most veterans of the 1/69 Armor missions in the tri-border area of Vietnam can relate their own experiences and responses to the vehicular sounds emanating from the bad guys' side of the border. At night, we heard engines revving and tracks squeaking. We all knew the sound of heavy armored vehicles and trucks, and they were tantalizingly near... but untouchable... until the night of 3-4 March 1969. Battalion units had reacted regularly to reports of enemy vehicular movement near border CIDG camps and U.S. fire support bases, from Khe Sanh to the Parrot's Beak. Nothing had ever come of it, save for a few random shots in the dark. But as a precaution, 69th Armor units were issued HEAT ammunition, beginning in 1968, because of the potential threat. The Special Forces team at Ben Het, a small CIDG camp west of Dak To, had reported heavy movement of enemy troops and equipment in their area throughout the month of February. While several enemy vehicles had been sighted and identified by CIDG/SF recon elements, none had come closer than a few kilometers to the border. Then in late February, NVA tanks were seen approaching the border by both CIDG and air reconnaissance. B Company's 2d platoon was ordered to Ben Het to provide security in case of an attack. A skirmish the first week of March had resulted in the medical evacuation of the platoon leader, Lt. Jerry Sullenberger. With all of his officers deployed with other company elements, Capt. John Stovall, B Company commander, decided to stand in for the injured lieutenant himself.

The camp had been receiving regular, though light, mortar and sniper fire from enemy troops across the border for over a week. A heavy fog had settled into the area around the camp the night of 3 March, moving Capt. Stovall to keep his troop on 50% alert. Shortly after midnight, a trip flare was ignited in the outer perimeter, exposing a Soviet PT76B light amphibious tank. The NVA immediately opened fire on the camp, one of their shots wounding Capt. Stovall and killing two tankers. The M48s responded with their 90mm guns, destroying two PT76s and two BTR 50 personnel carriers. Several other enemy vehicles were damaged, but managed to limp back across the border. Though considered to be a minor skirmish in the greater scheme of things, this was to be the only tank-to-tank battle between North Vietnamese and U.S. tanks of the war. (6)

Back to Bong Son…More of the Road

Lt. Col. Stan Sheridan was able to get the bulk of the 1st Battalion back together for several battalion operations with the 173rd Airborne Brigade in late 1968. Major engagements with NVA/VC troops were again fought in the fortified villages of the Bong Son plain, while QL19 continued to provide action for the tankers. The complexion of the war had begun to change with 'Vietnamization' accelerating, along with the gradual drawdown of the U.S. troop commitment. The battalion continued its combat role until standing down in June of 1970 with the 4th Infantry Division.

Editor: This overview of 1/69 Armor's experiences in Vietnam provides a sensing of how the qualities of mobility, shock, and firepower associated with armor units can be applied in multiple environments. In this case, the unit operated in urban, jungle, rice paddy, hill, and open terrain. Its mission set included combat operations, route security, convoy escort, reconnaissance in force, supporting artillery, area security, and a host of smaller actions. The austere operational environment forced a number of ad hoc measures to ensure operational readiness remained high and necessitated command focus upon supply and maintenance. Crews also quickly discovered shortcomings in the M48 and developed field expedients to mitigate. Similar circumstances have and will likely continue to confront American armored units deployed in support of an expeditionary Army. Likewise, armor commanders will have to ensure that their superiors understand how best to employ tanks in varied environments. In the case of 1/69 Armor it suffered from the common misperception that tanks had only a limited role to play in Vietnam. Overcoming this perspective proved critical to enabling the unit's capabilities to be employed effectively.

Notes

1) Maj. Gen. (USA, Ret.) R.J. Fairfield, Jr. Honorary Colonel of the 69th Armored Regiment; First Commanding Officer of the 1st Battalion, 69th Armor in Vietnam, 1966; dear friend and advisor; Daddy of the regiment.

2) Maj. Gen. (USA, Ret.) Stan R. Sheridan. Commander, 1st Battalion, 69th Armor, Vietnam, 1968-69; Chief Advisor, 69th Armor Association; friend and counsel; the regiment's charger.

3) Brig. Gen. John W. Mountcastle. U.S. Army; Chief of Military History, U.S. Army Center of Military History; former platoon leader, B Company, 1/69 Armor, Vietnam, 1966-67; no truer gentleman, fellow platoon leader, and great Virginian.

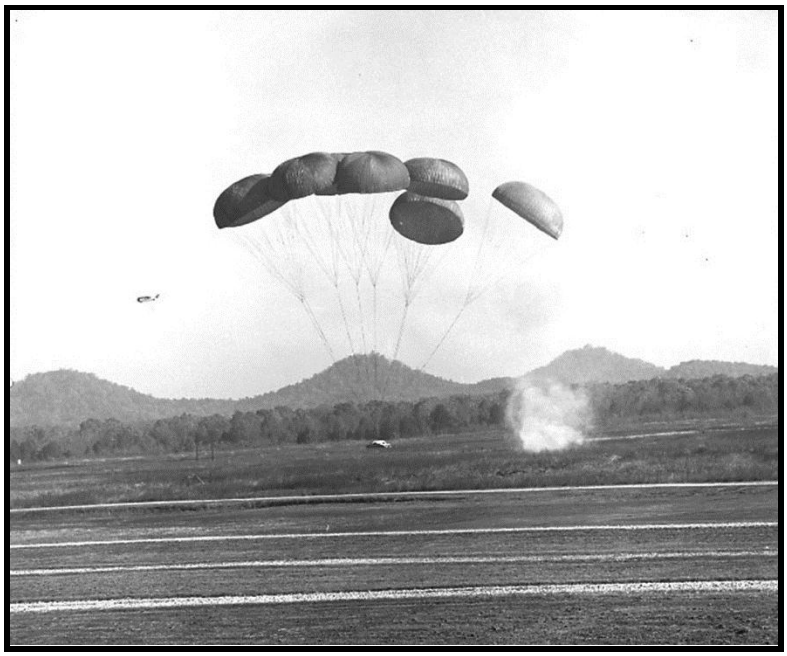
4) Sgt. First Class Roger Urban. U.S. Army, Ret.; former tank commander, A32, A Company, 1/69 Armor, Vietnam, 1967. Our "Mine Magnet." Needed more Rogers.

5) Mr. Dale Ritch, historian, author, Detroit, Mich.; Mr. Tim Pratt writer/historian, NASA; National Medal of Honor Museum, Chattanooga.

6) Maj. (Ret.) John Stovall. Former commander, B Company, 1/69 Armor, Ben Het, Vietnam, 1969; good friend; a true place in history.

Panama

Editor: This chapter outlines the role and use of armor to support airborne and ground operations. In Operation JUST CAUSE, Sheridans of 3-73 Armor were both air-dropped and air transported into the theater of operations. Their experiences once on the ground underscore the variety of support that armor can provide to dismounted operations.



Sheridan delivered to the ground via low velocity air drop (above), shown being prepared for operations once on the ground (below). (US Army Armor School.)



Armor in Panama

Editor: Entitled "Sheridans in Panama," this article, written by Capt. Kevin J. Hammond and Capt. Frank Sherman, appeared in the March-April 1990 issue of *Armor* magazine. Both authors served in Panama with 3-73 Armor, which made the first combat drop of M551 Sheridan tanks. The article highlights the critical support enabled by armored platforms able to deploy with airborne forces.

14 November to 4 December

Just after 3-73 Armor's fall gunnery period, the battalion received a task to deploy four Sheridans, a command and control element, and a support element to Panama. There they would be attached to the 193d Separate Infantry Brigade, specifically 4-6 Infantry (Mech). The alert went to C/3-73 Armor on 14 November 1989. On 15 November, the platoon (+) loaded onto one C5A Galaxy. The troops arrived in Panama during the early morning hours of the 16th. The presence of Sheridans and the small armor support team in Panama was classified. The tanks moved from Howard AFB to their "motor pool" under cover of darkness and canvas. The Sheridans remained under cover during daylight with access limited to the crews and the command group of 4-6 Infantry. Crews conducted PT and individual training six days a week. They performed maintenance seven days a week. Once each week, they took vehicles out of their concealed locations and drove them around the motor pool, normally between 2200 and 0200. Crews checked and rechecked all vehicles, weapons, equipment and ammunition to ensure that the unit would be ready for any alert. Before the sun came up, the Sheridans were back under cover and guard.

For the next few weeks, Capt. Frank Sherman and Lieut. Andrew Kozar developed a battle plan for employment of the team. Team Armor, 4-6 INF (Mech) was to consist of four Sheridans and a platoon of Marines equipped with LAV-25s. They conducted reconnaissance of the area of operation and gathered intelligence. They also coordinated with Lt. Brian Colebaugh, the Marine LAV platoon leader, routes and plans for link-up, frequencies and call signs. Detailed preparations continued.

4 to 16 December

On 8 December, Capt. Kevin Hammond took command of Team Armor from Capt. Sherman, who returned to Ft. Bragg to prepare the remainder of his company for mission responsibilities. In this capacity, C Company was designated as the "armor ready company" in support of the 504th Parachute Infantry Regiment (PIR). Fort Bragg personnel rigged four Sheridans for low-velocity air delivery (LVAD or heavy drop). The remaining vehicles and all crews in C Company were on standby for no-notice rapid deployment and follow-on missions.

In Panama, Capt. Hammond finalized a battle book for the vehicle commanders. Due to the nature of the operation and its many "be-prepared missions," leaders conducted tactical exercises without troops and refined their battle plans. The officers, in particular, needed to be completely familiar with the plan because the concept of the operation, routes, objectives, and be-prepared missions were classified above tank commander level. All crews were briefed in a generic manner and taken on day and night "tours" to gain familiarity with the area of operation. A three-man engineer team was also task organized with Team Armor during this time.

16 to 19 December

On 16 December 1989, members of the Panama Defense Force killed a U.S. Marine lieutenant and assaulted and abused another officer and his wife. These events initiated a unit recall and increased readiness posture for Task Force 4-6. Soldiers removed the Sheridans from cover to mount .50 caliber machine guns, load Shillelagh missiles, and install antennas. The Sheridans then went back under cover. Task Force 4-6 conducted a show of force by moving across the Canal to predetermined assembly areas. The mechanized infantry companies remained on the east side of the Canal. This left Team Armor as the only combat force in 4-6 Infantry on the west side of the Canal. On Monday, 18 December, team commanders of task force 4-6 learned that they were in the execution phase of their contingency operation.

Meanwhile at Ft. Bragg, units of the 82d Airborne Division's ready brigade (DRB) went on alert at 0900 to conduct an emergency deployment readiness exercise. The exercise included all three infantry battalions,

with CS and CSS elements in the task organization. The unit activated readiness SOPs, moved vehicles, equipment, supplies, and ammunition to the heavy drop rigging site, and prepared for heavy drop by crews and parachute riggers. All troopers from the DRB task force moved to the personnel holding area for orders, issue of individual troop items and ammunition, manifests, rehearsals, and prejump training.

At 2000, Lt. Col. James Reed, commander of Task Force 4-6, issued his OPORD. H-hour was set for 0100 on 20 December. When Capt. Hammond returned to the Sheridans, he found that the LAV platoon had linked up. Capt. Hammond briefed the entire team and then gave his OPORD to the leaders. He issued wartime CEOIs [communications-electronics operation instructions] and classified overlays. Rules of engagement were very precise. The task force commander had to approve Sheridan main gun fire because Team Armor would be firing over, and in close proximity to friendly forces. Crews were to avoid fratricide at all cost and keep damage to nonmilitary areas to a minimum.

20 December

At about 0030, the companies of Task Force 4-6 reported ready at the start point. Team Armor requested and received permission to move to and cross the swing bridge, which happened without incident. There had been radio reports of enemy fire in the vicinity of Albrook Airfield, which we had to pass, but we encountered none. Team Armor moved to and occupied Bull 1 and Bull 2, its two positions on Ancon Hill. The Team's three engineers immediately began placing demolition charges to clear fields of fire for the vehicles in Bull 1. Vehicles in Bull 2 had adequate fields of fire. However, visibility at both positions was obscured by smoke and flames from the burning buildings in the vicinity of La Commandancia. Occasionally a crew could identify a particular target, but because the crews could not be 100 percent sure that rounds fired would not cause friendly casualties, no fire commands were given. Additionally, since the effort to isolate the headquarters complex was well in hand, Team Armor was advised not to open fire.

0135

The massive airdrop of heavy equipment began as the C-141Bs released hundreds of tons of equipment and supplies onto the drop zone. C/3-73 Armor established a historical precedent by being the first U.S. unit to heavy drop light armor into combat. The Sheridans landed somewhat east of their intended points of impact in a swampy area overgrown with elephant grass. Immediately after the heavy drop, 82d Airborne Division troopers began their personnel drop. The concept of the airborne operation was for 2,200 paratroopers, with supplies, to be on the ground in one pass. However, a severe ice storm in North Carolina delayed takeoff of some aircraft from Pope AFB. As a result, Sheridan crewmen arrived in the first two of three waves of aircraft.

Three separate drops took place on Torrijos DZ. The plan called for the eight Sheridans to be task organized, in pairs, to each of the three infantry battalions. The remaining two Sheridans, a platoon of infantry, and an engineer sapper squad were to establish a blocking position at the Highway 1 entrance to the Tocumen-Torrijos Airport under the control of Capt. Sherman.

0215

Back at Ancon Hill, one Sheridan and two LAV-25s, with other elements of Task Force 4-6, came under the operational control of the S3, 4-6 INF (M). We saw the package again a week later as part of the cordon around the airfield. Shortly after this, Lt. Kozar's Sheridan and a LAV-25 were placed OPCON to D/4-6 INF (M). They were to reinforce a mechanized infantry platoon that had sustained a number of casualties. Lt. Kozar and the LAV-25 moved to the southeast corner of the Commandancia complex where they destroyed a wall and overwatched a possible PDF escape/reinforcing route. They fired two 152-mm rounds at this location. Both of these linkups were made in darkness and under enemy fire.

0700

As daylight broke, the smoke and fire west of La Commandancia cleared enough to allow observation of all buildings in the headquarters complex. The remaining vehicles in Team Armor moved to Bull 2 because it offered adequate fields of fire without blowing down trees. Engineers removed the demolition charges on the trees in Bull 1. At about 0700, Staff Sgt. Kevin Hamilton and his gunner on C31, SGT Gregory Krumme, sighted a PDF soldier with an RPG-7 in the west end of La Commandancia. Lt. Col. Reed ordered C31 to engage, and the crew fired four 152-mm HEAT rounds into that end of the building. The crew did not fire machine guns because of the possibility of ricochets hitting friendly forces.

At Tocumen drop zone, two of Capt. Sherman's Sheridans were ready for action and received the mission to escort a convoy to Panama Viejo. Snipers ambushed the convoy, under the control of 2-504 PIR, at a roadblock three kilometers west of Tocumen airfield. The roadblock consisted of cars and propane tanks piled across the road. Two more tanks were dispatched to assist the convoy. U.S. troops returned fire with small arms as the Sheridans fired HEAT and .50 caliber. Two Sheridans provided covering fire as the convoy withdrew to find a more secure route. Crews towed a Sheridan disabled by engine problems back to the Tocumen airhead, where it was repaired the next day.

0955

Following assembly on the drop zone, two Sheridans under the leadership of Lt. Randy Jennings received the mission to escort a convoy of HMMWVs to Ft. Cimmaron (home of Panama's Battalion 2000, Ranger, and Airborne Schools). During the road march, the convoy received sniper and small arms fire. The main body of Task Force 4-325 conducted an air assault operation to positions south of Ft. Cimarron. That night, elements of TF 4-325 held their positions while an Air Force AC-130 fired at designated targets in the complex.

1400

Two Sheridans under the control of Lt. John Bunn were ordered to escort a convoy to Panama Viejo and link up with 2-504 Infantry. During movement, PDF soldiers in a POV fired on C21. The Sheridan crew engaged the POV with .50 caliber fire. Back in the area of La Commandancia, clearing of the headquarters complex was about to begin. Team Armor would provide preparatory fires on La Commandancia from 1445 to 1455, followed by brief fires from Army Aviation elements. A reinforced Ranger company and C/1-508 INF (ABN) would then clear buildings, while Bravo and Delta Companies, 4-6 INF (Mech) maintained their isolation positions around the complex. At about 1400, Team Armor's engineers received permission to clear fields of fire for three firing positions in Bull 1. Team Armor occupied Bull 1 at 1430.

The Sheridans engaged La Commandancia at 1445 and fired ten rounds of 152-mm HEAT with devastating results. The HEAT rounds penetrated the 10-inch reinforced concrete walls and caused extensive damage to the interior structure of the building. The commander's intent, to expend a few well placed main gun rounds rather than to risk the lives of infantrymen to clear the buildings, was accomplished. When Army Aviation assets were delayed, Team Armor's remaining LAV-25 provided suppressive fires with 25-mm HE-T. The USMC crew fired more than 100 rounds into the windows of La Commandancia. By the time aviation assets finally arrived, their preparatory fires were quickly checked due to the proximity of friendly ground forces. The two infantry companies promptly moved in and cleared the Commandancia complex. By nightfall, the area was "secure." That night, Team Armor moved into Quarry Heights and assisted in providing security to USSOUTHCOM HQ and the adjacent family housing area. For the next four days, Team Armor remained in this vicinity. Sheridans and LAV- 25s were at the gates of Quarry Heights and at locations around the Commandancia in a counter-sniper role. Just after dark on the 21st, the LAVs returned to their parent unit.

21 December, 0300

C11 received the mission to escort a resupply convoy from Tocumen airfield to Cerro Tinajitas. 1-504 PIR had conducted an air assault to Cerro Tinajitas, home of the 2d PDF infantry company, the day before. Enroute, the column received sniper and mortar fire. After arriving at Tinajitas, Staff Sgt. John Troxell, TC for C11, received the mission to pick up 18 soldiers from the 1-504 Infantry who were pinned down by sniper fire at the LZ. When the Sheridan arrived, sniping stopped, and all soldiers mounted the Sheridan and returned to Tinajitas.

0800

C20 and C21, the two M551A1s that had moved to Panama Viejo the day before, escorted a gun HMMWV and troop transport vehicles to the Marriott Hotel and participated in the extraction of U.S. civilian personnel. Although they received small arms and sniper fire as they approached the hotel, this soon stopped.

2200

Staff Sgt. Troxell was again pressed into convoy escort duty. As his Sheridan led the convoy of hard shell and logistics HMMWVs from Tinajitas back to Tocumen airfield, it was ambushed at two different points. Staff Sgt. Troxell returned fire with his main gun and M2. Other vehicles in the column also returned fire. C11

received fire but took no casualties. Both ambushes were eliminated or suppressed, and the convoy continued to Tocumen. Convoys moved at high speed (approximately 30-40 mph) and at an extremely close interval. This provided security and prevented non-military vehicles from entering the column. Sheridans led the column. If there was a second Sheridan available, it was usually the third vehicle in column (behind a gun HMMWV).

On 21 December, 4-325 AIR conducted its attack on Ft. Cimarron. Near the Vatican Embassy, where Panamanian strongman Manuel Noriega sought refuge, C 23 takes up a blocking position. The two supporting Sheridans fired approximately 30 152-mm HEAT rounds in support of the attack. PSYOPS teams, attached to 4-325, announced on loudspeakers terms of surrender to occupants of the buildings. In accordance with "measured response" criteria, PDF refusal was met by Sheridans firing one or two rounds into each structure to neutralize enemy positions.

Dismounted infantry then cleared the building of any remaining resistance. A squad of infantry remained with the tanks to furnish local security. Infantry forces operated two or three buildings ahead of the Sheridans to prevent ambushes and close range attacks.

22 December, 0900

C10 and C12 moved to 4-325's new sector and assisted in clearing Panama City.

23 December

0800

C12 and C20 provided convoy escort to 4-325 AIR. As the column approached the 2-504 PIR sector, both the stationary and moving forces came under small arms and sniper fire. In the ensuing firefight, the Sheridans received small arms and heavy machine gun fire.

In addition, a rocket-propelled grenade was fired at a Sheridan. The round missed. Sheridans took several hits from small arms. This passage of lines reinforced the need to plan all passage of lines operations in detail. Both the stationary and the moving force must understand duties, responsibilities, and control measures.

24 December

C10, 22, 23, and 34 moved to secure the area around the Vatican Embassy, C11 and C12 moved to Cerro Tinajitas and provided support to 1-504 Infantry. C20 moved to the Cuban Embassy to assist in securing that area. During this time, C11 and 12 in the vicinity of Tinajitas took 120-mm mortar fire.

It became routine for Sheridans to button up any time Army helicopters approached, because their arrival normally drew enemy mortar fire. These vehicles and crews remained in position until 1 Jan 90.

25 December

Team Armor was detached from 4-6 INF (M) and task organized with 1-9 INF (L), 7th LID (with the exception of Lt. Kozar's vehicle, C30). C30 was to provide direct fire support to Task Force 4-6's attack of the causeway south of Fort Amador. Team Armor refueled and conducted an uneventful link-up with 1-9 INF. Although a threat to U.S. forces still existed, sniping and contact in Panama City were now sporadic, and rules of engagement for Team Armor were tightened (fire only if hostile intent and imminent danger were present).

The mission of Team Armor was to conduct show-of-force operations; let the PDF, dignity battalions, looters, and Panamanian civilians know that Sheridans were there to establish order. That night and early the next morning, the team conducted night mounted patrols along Luis F. Clement Avenue. The order of march during the patrols was Sheridan, C2 HMMWV, Sheridan.

The Sheridans moved back and forth down the street with searchlights providing white light to control crowds and illuminate possible enemy positions. The patrols coordinated with friendly units along the route. They observed no fire, nor were looters or civilian mobs seen violating curfew. Before the arrival of the Sheridans, troops had dealt with mobs and sniper fire in the area.

December 26

As A/1-9 INF began clearing buildings in the vicinity of Luis F. Clement Avenue, the Sheridans were again in a show-of-force role. Crews placed them in position to support the infantry by direct fire and where anyone in the area could see them. 1-9 INF provided a dismounted squad for local, security of the Sheridans. The crews of Team Armor had a tense but uneventful day. That night, they conducted three more mounted patrols, again employing searchlights.

C30's mission to support the clearing of the causeway never came to pass. Near sunset, Capt. Hammond told Lt. Kozar to link back up with Team Armor the next morning.

27 December

Capt. Hammond learned that the Sheridans in Team Armor were to link up with 504th PIR, 82d Airborne Division. Once C30 returned to Team Armor's location, the team (consisting of three Sheridans and two HMMWVs), moved across Panama City to Panama Viejo. After a week of combat, Capt. Sherman finally saw the Sheridans and crews that had been predeployed on 16 November. Team Armor was reconfigured.

Capt. Sherman used the CSS HMMWV for command and control. One Sheridan, C33, would remain at Panama Viejo, and Capt. Hammond would take two tanks to Cerro Tinajitas lo augment 1-504 PIR. Later that night, Lt. Kozar and his wingman were placed OPCON to 1-75th Rangers 15 kilometers northwest of Tocumen airfield.

27 thru 31 December

During this period, the disposition of forces remained the same. Sheridans conducted show of force operations and augmented infantry and military police road blocks and checkpoints. There was very little action. However, the crews and leadership remained tense and alert because the vehicles had to sit in exposed positions to conduct the show of force mission. To sit in stationary exposed positions was necessary, but contrary to training, and crews felt somewhat "naked." During New Year's Eve, all nonessential movement was stopped and checkpoints were pulled in. This prevented soldiers from firing at civilians (who were celebrating by firing weapons and fireworks).

1 January 1990

C/3-73 Armor, minus 1st platoon, moved to Tocumen and began preparations for redeployment. 1/C/3-73 remained at the Vatican Embassy.

2 January

The unit prepared for customs inspection and redeployment.

3 January

Preparations continued, and at 1700, customs inspected the crews and vehicles. Late that night, crews loaded two C5Bs and the majority of C/3-73 Armor for redeployment to Ft. Bragg, N.C. That night, General Noriega surrendered to American authorities.

The 1st platoon and Capt. Sherman remained at the Vatican embassy until 6 January, when they moved to Tocumen airfield and prepared for redeployment.

On 9 January, the remainder of C/3-73 Armor returned from Panama, its mission accomplished with only one crewman slightly wounded by fire.

Observations

Command, Control, and Communications

External phones on tanks are invaluable in MOUT operations. They permitted infantry leaders to communicate with the crew and direct fires and movement.

To receive and disseminate orders and information on the move is a must for armor leaders. Information must flow up and down, left and right, and to the front and rear.

Explain "why" whenever you can, but troops must realize that there is not always time for an explanation.

Set and follow priorities of work and effort.

Focus on the mission, maintain an offensive spirit, don't lose momentum, and don't give the enemy time to react.

Encourage troops to become semi-proficient in other languages. There is a lot of real-time information available to those who can converse with the local populace.

Use appropriate operational terms and graphics. A common language is very important when operating with different units, branches of service, or in unfamiliar terrain.

Have a workable plan for prisoners, detainees, and refugees. Without one, command, control, and communications can be severely hampered.

Have a plan for working through "hot mikes." They exist in combat, too.

Make good use of maps. Don't cut them to fit your current situation. You may not be in the same area tomorrow.

Talk with attachments that are not accustomed to working with you (e.g., Marines). Make sure you understand each other. Your terms, jargon, and slang may not convey your intent to soldiers who are not familiar with your unit.

Learn the capabilities and limitations of supporting and supported units and equipment as well as any special requirements that they might have (e.g. LAV-25s need 25-mm ammunition).

Make sure everyone is using the appropriate CEOI (and that they are using it the same way). There is nothing like finding out that the unit you are linking up with "froze" the sign/counter-sign three days ago and you are using the current ones.

MOUT

Sheridans were absolutely critical to fighting in built-up areas by providing direct fire support to infantry, as well as surgical fires capable of penetrating reinforced concrete buildings.

Strip maps, with individually numbered buildings (all buildings in the area), are a must for operations in built-up areas. Maps do not provide enough detail and may not adequately represent the area.

In built-up areas, the M2 .50 caliber machine gun on a flexible mount is superior to the weapons station found on M60- or M1-series tanks. Yes, the TC is exposed, but it is easier for him to acquire targets and bring the .50 caliber to bear on those targets.

The M3A1 submachine gun is useless as a weapon for the loader. The loader needs a pintle-mounted machine gun (or an M16 at a minimum).

Large numbers of refugees will likely be encountered. Be ready for them.

Crews frequently used day sights during night operations because city lights, fires, and background illumination washed out the AN/PVS-7As and M44 night sights. They used night sights and night vision devices when the lack of other illumination permitted.

Low-Intensity Conflict (LIC)

Soldiers must know the rules of engagement.

Soldiers must have enough discipline to apply rules of engagement in the absence of supervision.

Be prepared to task organize within platoons. It is not unusual to operate in pairs or as single tanks.

Junior officers and NCOs must know and understand the capabilities and limitations of their troops and vehicles. It is not unusual for a tank commander to be the armor expert and advisor for an infantry battalion.

Be assertive; let the infantry know what you have and what you can do for them. Do not forget to let them know your logistical requirements.

Dismounted security is extremely important. Let the supported infantry know that you need 360-degree dismounted security.

Be familiar with "show of force" operations. Armor can do a lot without firing a round. This goes hand-in-hand with executing rules of engagement.

Combat Service Support (CSS)

Have someone dedicated to CSS. It is nearly a full-time job for key leaders to sustain an armor force that has been task organized across several sectors.

Effective medical support and evacuation are key in maintaining morale. The combat lifesaver program is invaluable. Every tank should have a school-trained combat lifesaver and medical kit, because of the likelihood of piecemealing Sheridans throughout the sector. Although no serious injuries occurred, medics and lifesavers provided assistance to the combined arms team and civilians. After medics jumped in to the Tocumen airhead, they had to ride on the back decks of Sheridans. These soldiers displayed tremendous courage under fire and provided on-the-spot care for wounded soldiers.

Airborne

A homing device is needed to find equipment that cannot be seen.

Everyone must know the assembly and evacuation plans.

Sheridans retained their boresight and zero after heavy drop.

Other

To prevent fratricide, don't "acquire" POVs or enemy weapons unless they are essential to the mission. Impounded civilian vehicles and troops with strange weapons make target identification difficult for troops with itchy trigger fingers.

Pre-position Sheridans and the APCs of 4-6 Infantry added sand bags to the exterior of vehicles for additional protection.

Train troops on what they can expect to see in combat. Actual combat is a lot different than it is depicted in the movies. Soldiers fight the way they train.

Use PT to build stamina; flak jackets and ammunition-laden web gear are heavy. Rapid deployment troops must also have the stamina to go from winter to summer conditions in a matter of hours.

Stocks, pistol grips, and bipods should be available for dismounting the M240 coax machine gun. The loader of one Sheridan fired a dismounted M240 using asbestos mittens (to prevent burns).

All engagements occurred between 100 and 460 meters.

The 152-mm HEAT-T rounds penetrated reinforced concrete walls from six to ten inches thick. This round created up to eight-foot holes in walls and caused extensive damage to the interior structure of buildings.

Sheridans did not encounter any V300 armored cars although the Sheridans were equipped with Shillelagh missiles, HEAT-T, and .50 caliber APl-T for this eventuality.

Once derigged, heavy drop Sheridans had little problem moving off of the swampy drop zone. In addition, they recovered several HMMWVs and other equipment that was stuck on the DZ. Once clear of the drop zone, there was very little cross-country movement. Vehicles in Team Armor traveled 100-150 miles, while those with the 82d Airborne moved 280-350 miles.

All bridges in the area were rated at 30 tons, with the exception of the Bridge of the Americas, which was rated at 50 tons.

M551A1s were used to drive over or eliminate enemy roadblocks that were constructed of cars, trucks, buses, concertina wire, and rubble.

Wheeled vehicles experienced flat tires from glass, jagged metal, wire, downed poles, and bullets.

Sheridans completed 100 percent of assigned missions. However, the vehicle is old and has several shortcomings. Even though the Sheridans performed well in this operation, there is an urgent need to develop and field a replacement for the Sheridan.

Establish and maintain a positive mental attitude. ENDEX may be a long time coming.

Summary

While this article focuses on the employment of armor in Operation JUST CAUSE, armor supported infantry in a combined arms effort. The outstanding efforts and achievements of other units have been omitted simply because time and space do not permit a full account of their actions. Without the gallant efforts of the individual infantrymen, combat engineers, and other soldiers working as a team, Sheridan crews would not have successfully accomplished their missions and would certainly have suffered casualties.

Units must continue to train as combined arms teams. This operation has also reinforced the importance of combined arms training at the tank crew, section, and platoon level. Operation JUST CAUSE was a success because of the highly trained soldiers at small-unit level.

Editor: This summary and assessment of armor in Panama underscores the versatility of armored organizations. In this instance, the elements of 3-73 AR that participated in Operation JUST CAUSE were an organic part of the 82d Airborne Division. The battalion trained with and air assaulted with its paratroop partners. Air-dropped Sheridans provided the same degree of support wherever needed as those platforms air deployed to Howard Air Force Base. The mission set given to the Sheridans proved diverse—a direct reflection of the tactical situation on the ground and one to be expected in similar circumstances in the future. This variety must be trained. The Sheridans provided a degree of firepower immediately available to ground commanders and largely immune to the vagaries of weather that on at least one occasion interfered with air operations. The observations provided by the authors provide useful tips that continue to resonate at the time of this publication. Central to the successful use of the Sheridans was their routine involvement in training activities of the 82d Airborne Division. This engagement ensured a familiarity between tankers and paratroopers that minimized friction, misuse, and misunderstanding in an actual combat setting.

Gulf War

Editor: This chapter addresses the operations conducted by armored brigades, task forces, and smaller units during Operations DESERT SHIELD/STORM in 1990-1991. It provides perspectives from the platoon leader to the brigade commander in a campaign that witnessed the largest mass deployment of American armor since World War II.



Delivery of an M1A1 tank during Operation Desert Shield
(Defense Visual Information Center)



Abrams tank platoon in defensive posture.
(Defense Visual Information Center)

A Platoon Leader's Experience

Editor: This article chronicles the actions of a platoon in 1-34 Armor from its deployment overseas through its preparation and into combat. It is a platoon leader's firsthand account. The article first appeared in the November-December 1999 issue of *Armor* magazine under the title of "Cecil's Ride: A Tank Platoon Leader in Desert Storm."

After an extended delay caused by a maintenance problem, we were finally ready to continue our journey. The pilot pulled the 747 to the end of the runway and stopped. Over the intercom, he said there was something he wanted us to hear.

He switched the radio on over the intercom and the main body of the 1st Battalion, 34th Armor, sat on the runway at New York's Kennedy Airport and listened as the ball dropped in Times Square. Never before, and never again, will the New Year carry such a vivid memory as that night. The men who would control the combat power of an M1A1 tank battalion sat in total silence. Thoughts of family, friends, home, and happier times mixed with fear, doubt, and anxiety about what lay ahead. As the cheers of the New Year's crowd swelled on the intercom, the engines' whine increased and the plane moved slowly forward. The 1st Battalion, 34th Armor was going to war.

After the long, long flight to Saudi Arabia, we stepped off the plane, greeted by a cool breeze and a darkened airfield. I don't know what I expected, but the emptiness just seemed to engulf us as we formed up. It was probably less than a quarter of a mile, but the walk to the point where we would meet the buses seemed much longer. When we reached the bus pick-up point, we were given bottled water and told to start drinking. When we finally boarded the buses to the warehouse that would be our home for the next two weeks, most of us were sorry we had consumed so much water. We arrived at the warehouses at around 0230, and by the time we had our bags separated, it was 0330. We couldn't get an area until around 0600, so we simply dropped our bags and lay down on the cement to get some sleep.

Rumors were the order of the day for the next week. We didn't know when we would move, where we would move, or if we would use our M1 tanks or draw M1A1s. Finally on the 10th, we learned that we would turn in our M1s and draw M1A1s sent from stocks in Europe. For the next three days, Charlie Company turned in M1 tanks, and drew and prepared M1A1 tanks for combat. The tanks we drew were not new, and our last tank was late getting on a truck due to a maintenance problem, but in spite of the problems and the rush, Charlie Company had its tanks loaded and moved north on the 14th.

I had never experienced anything similar to our deployment into the desert. The company was loaded on two buses which followed the trucks carrying our tanks. Prior to leaving the port, the company commander had called all the platoon leaders together and updated us on the situation. Intelligence was predicting the Iraqis would attack on the night of the 14th. This was based on the January 15th deadline imposed by President Bush. So, as we rolled off to face the enemy, we were riding on buses and only the platoon leaders had any ammunition. Needless to say, this is not the picture a tanker normally imagines when he thinks of going to war.

When we climbed off the buses on the morning of the 15th, we found ourselves on the flattest piece of earth I have ever seen. Most of our tanks and the M998s with the commander, first sergeant, and support personnel had arrived ahead of us. When I went to find my tank, I was in for some bad news. The driver offloading the tank was not used to driving in sand, and he turned too sharply, throwing a track. As we worked to get this problem corrected, the truck carrying my wing tank pulled in. Unbelievably, this truck had side-swiped another which was also carrying a tank. Only the front left side of each tank made contact, but this tore the number one and number two skirts off, crushed six track blocks, and dented the bustle rack and sponson box. After replacing the bad track blocks, the tank was able to move under its own power and operate normally.

We finally got all our personnel and equipment together, and word came down for us to pull through a logistics site to get fuel and ammunition. As we were moving through the logistics site, the 1st Sgt. came and found me. He told me that, due to the classified nature of the armor in the skirts of the M1A1 tank, we would have to retrace our route and try to find my wing tank's missing skirts. Four or five hours later, after searching

up and down the main supply route, we received word that the skirts had been picked up by another unit. By the time we made it back to the company, it was dark, and we had no reference to guide on. Somehow, we found the company and I returned to my platoon. As a new platoon leader with only three months in the company, my first day in the desert had not exactly been a rousing success.

January 16th was a better day. We organized our tanks, secured our gear, and prepared our weapons for combat. We also drew a mine plow per platoon and one of the tanks in 1st platoon was fitted with a mine roller kit.

Nothing exciting happened until I was awakened at 0330 on the morning of the 17th. We were told to go to REDCON One and stand by. At 0400, we began to see flashes to the north as Operation Desert Shield turned into Operation Desert Storm. I remember having my gunner and driver pop their heads out of the tank and look north. As we sat and watched the explosions flash across the sky, I told my crew they were watching the start of a war.

The next six weeks were filled with fear, anxiety, and extreme boredom as we waited to see if a ground war would be necessary. The days turned to weeks, and then we learned that if a ground war came, our parent unit, the 1st Infantry Division (Big Red One) would be the breach force for VII Corps. In preparation for a ground war, we moved to a firing range and tested all our weapon systems. After ensuring that all our systems were functioning properly, we started a series of rehearsals. Beginning at the platoon level, the rehearsals grew in size and scope. The final rehearsal was the movement of VII Corps to its attack position.

We also conducted leaders' recons into the neutral zone that separated Iraq and Saudi Arabia. These recons gave us a good feel for what we would see when we moved into the attack. I can't imagine a force ever being better equipped or better prepared than we were.

When I talk to people who weren't there, I hear how Desert Storm was such an easy war. Sometimes I even feel that way when I look back at how things turned out, but sitting in the desert waiting, I sure didn't feel that way. As we prepared for our mission, we were told that as the breach force, the Big Red One could expect 10% killed in action (KIA) and 30% wounded in action (WIA). As a tank platoon leader, that equals four or five soldiers and at least one tank lost. When you look at numbers and turn them into names and faces of men that you are responsible for, easy is not the word that comes to mind.

On the morning of 24 February, I climbed out of my sleeping bag and secured my gear, knowing that in a few hours we would begin our attack north. I went from tank to tank in the platoon to ensure each crew and vehicle was ready to go. As I checked my tanks, I found a stenciled picture of Cecil, the cigarsmoking rabbit, on the front slope of each turret. I soon learned that Cecil was the combined work of all the junior enlisted members of the platoon. Prior to our arrival in Saudi, 2nd platoon had been looked upon as a bunch of troublemakers. Cecil was a sign that this group, ranging in age from 19 to 46, had finally pulled together. I was proud to carry Cecil's image on my tank as we moved off to face the Iraqis.

With every weapon checked, every bustle rack secure, and every crewmember in his place, we waited for the order to move. Finally the company radio net came to life, "short count follows 5, 4, 3, 2, 1," as the number one rang out, 14 radios were switched off and the sound of 14 M1A1 tank engines filled the desert air. A minute later, the company commander was back on the radio and we began our move. We were the right side of the company wedge formation, and waited for 3rd platoon to move so we could form up on their flank. When the time came for us to move, I keyed the intercom and told the driver to move out. Instead of hearing the engine gain power and feeling the tank move, I heard the driver yelling, "Sir, it won't move!" There we sat as the rest of the company moved around us. I was frantic; I called for the maintenance team and the entire crew began to troubleshoot the problem. Five minutes later, we were screaming across the desert as fast as we could go, to regain our place in formation. My driver, who was tall and slender, had accidentally bumped the throttle cable when he climbed into his seat, jarring it loose. This simple and unforeseen problem was in some ways a sign of things to come.

I can't begin to describe the feeling that ran through me as we moved north. We passed units of all types, and everyone must have been out to watch us pass. Each unit we passed greeted us with waves, cheers, and shouts of encouragement. Knowing that we had the support of our families, the American public, and the rest of our comrades in arms was a great feeling.

When we moved past the field artillery, I knew we were getting close. Shortly after passing the artillery, we stopped. We were waiting on orders to continue or to wait until the following morning. While we waited, contact reports began to come across the radio. The first report was that enemy attack helicopters were spotted moving in our direction. This report was followed by a report that the unit to our right was under chemical attack. These reports all proved to be false, but they did help to keep us alert while we waited. Finally, orders came down to continue the attack.

The battalion shifted forward and left, to get lined up on the lanes that would be cut by Task Force 5-16 Infantry and Task Force 2-34 Armor. 1-34 Armor, as a tank-pure battalion, would move through these lanes, destroy enemy second-echelon forces, block any enemy counterattack, and open the way for follow-on divisions to pass through. Once in position, we watched as truckloads of Iraqi prisoners of war moved past us to the rear. More concerned with what was going on to my front, I didn't really notice the battery of eight-inch guns that set up a couple hundred meters behind me. This quickly changed when the first volley of the prep fire exploded over our heads. I nearly had to change my pants. Watching and listening to the size and violence of the prep fire, I closed my eyes and thanked God that we were not the ones on the receiving end.

Even before the last rounds impacted, the lead elements moved forward. I have to admit that after watching the prep fire, having 60 tons of steel wrapped around me gave me a real safe feeling. On the other hand, I began to think of the men who would have to dismount and clear the battle-hardened Iraqis from their trenches. To everyone's surprise, word that the trenches were clear and the lanes were open came quickly from the breach task forces. We moved forward and as we neared the breach lanes, I was glad that we were not facing serious resistance. Dust and smoke made visibility a real problem that was compounded by the large number of vehicles in such a small area. Several vehicles nearly collided as we moved through the lanes with everyone trying to maintain position in line.

The training and rehearsals paid off as the battalion quickly moved into a diamond formation after exiting the lanes. Buoyed by the limited resistance during the breach, we moved forward with careful confidence. Leading the task force, the scout platoon and Charlie Company were first to make contact with the enemy. Hot spots began to appear in our sights at ranges in excess of 3,000 meters. Unable to positively identify what was out there, we continued to move. We stayed under very tight fire control, and no one was given permission to engage until we identified the hot spots as towed guns and wheeled support vehicles. The guns and some of the support vehicles were destroyed with main gun rounds as we continued to move forward. These guns were anti-aircraft guns, and were part of an enemy trench and bunker system. We rolled right over the top of the bunker system using machine guns to suppress suspected enemy positions as we moved.

We didn't see any Iraqi soldiers around the equipment or in the first set of bunkers as we passed. It wasn't until we crested a small ridge at the rear of the bunker complex that we began to pick up movement in the distance. Approximately 2,000 meters to our front was a second bunker complex. Through our thermal sights we could now see soldiers moving in these distant trenches. The turret distribution valve went out on my tank at the same time that we first identified what appeared to be the main bunker in the complex ahead. No longer able to traverse my turret quickly, I told my driver to pick up a tight weave. This made it possible for us to scan our sector and enabled me to control the platoon. My three tanks had also identified the large bunker to our front, and after clearing fires, I told my gunner to hit it with a HEAT round.

The impact of the HEAT round and the Iraqi reaction were simultaneous. Before the dust had even cleared, a sea of white flags went up throughout the enemy position. The battle area that just seconds before was filled with machine-gun fire and the crash of tank main guns grew deathly quiet. We pulled into an overwatch position as the scouts, assisted by the engineers, rounded up the enemy prisoners of war. We soon learned that we had captured an Iraqi infantry brigade, including the commander and staff. Information that the Iraqis had no idea who was to their front filtered back to us on our tanks. They expected to see an Arab force comprised primarily of infantry. The sight of 58 M1A1 tanks was devastating, and they lost all their will to fight as soon as that tank main gun round impacted their bunker.

Day quickly turned to night as the last enemy prisoners were gathered up and the command bunker cleared. With the day's objectives secured and the battalion arrayed to defeat an enemy counterattack if it came, we stopped for the night. As soon as we got word to stop for the night, soldiers began to clear the area around their tanks. Knowing that tankers are not really trained or equipped to clear bunkers, and with all the unexploded artillery bomblets in the area, the battalion commander ordered everyone back on their tanks. We had come too far to get someone hurt or killed needlessly.

The adrenaline that pumped through our veins during the day began to slowly leave our systems. Soldiers began to wind down, and as soon as we established security, we rotated guards so soldiers could get some rest. I was still too wound-up to rest, so I teamed with my loader to take the first watch, allowing my gunner and driver to get some sleep. Near the end of our watch, Alpha Company, to our right, reported three Iraqi dismounts moving across their front. They were told to continue to observe but not to engage unless necessary. A short time later, my three tank reported that the dismounts had moved into his sector. Tired of manually traversing my turret, I decided to use my tank to watch the Iraqis. This left my three good tanks free to scan our sector.

Time passed slowly as I continued to track the Iraqis moving from right to left across our sector. Watching them, I noticed that one of them was carrying something over his shoulder, but I could not make out what it was. I became concerned as they moved between our scouts and us. Each time they came near a Bradley, they would stop, drop to their knees and face the Bradley. I could see well enough to know that they never pointed any type of weapon at the scouts, but I wasn't sure of what they were up to. After a minute or so, they would get back up and continue on their way. Once they crossed in front of my tank, the battalion commander, who was about 100 meters to my left rear, decided they had gone far enough. He ordered the scouts to button up, then had his gunner fire a burst of coax a safe distance in front of the Iraqis. The Iraqis dropped to the ground and didn't move. Several minutes later they got back to their feet and continued to move. This time the battalion commander told his gunner to fire a little bit closer. Once again the Iraqis dropped and didn't move for what seemed like a very long time.

I was surprised when I again heard the rattle of machine-gun fire. I called on the radio to ask the executive officer what was going on. Apparently the battalion commander's gunner had seen the Iraqis start to crawl toward the scout vehicles and awakened the commander. The commander, concerned for the safety of scouts, told his gunner to fire a burst at the Iraqis. I stayed awake all night keeping an eye on the three forms on the ground eight hundred meters to my front. Two of the men laid perfectly still, but the third one reached his hands out like he was in pain. Soon he quit moving, and as I watched through my thermal sight, his image turned from green to gray as the heat of life drained from his body.

At the first light of morning, two of the Iraqis got up and with hands raised, began to walk towards our position. They came up between my tank and my wingman. While we covered them from my tank, my wingman checked them for weapons. They said that their friend had been wounded and needed a medic. Not wanting to send a medic out alone, my commander told me to move out and secure the area. When we neared the Iraqi, I knew he was dead before we had even stopped moving. We were told to search him for documents, identification, and any personal property that his family might want returned. We were then told to bury the remains and mark the site for future recovery. This presented a situation that I don't know if anyone is ever really prepared for. This was the first time I had ever handled a dead body. The smell and the gore caused by a single 7.62mm round surprised me. No movie or picture can come close to real life. When we finished, we turned the soldier's belongings in to the battalion commander, and I was glad when we moved out of the area.

I honestly don't know how far we moved, or where we ended up. We were off the maps that we had, and the entire company was relying on the company executive officer, who had a Global Positioning System (GPS) and one large-scale map. When we stopped, we pulled into a blocking position and received word that follow-on divisions were passing forward. The Big Red One had successfully completed its mission, and would now become the corps reserve. We completed resupply and maintenance checks, and once again moved out, only this time we were following VII Corps. Even as the reserve, we maintained our battalion diamond formation and never let our guard down as we moved across the desert.

On the afternoon of the 26th, we began to receive reports that the 2nd Armored Cavalry Regiment was in contact with an armored division of the Republican Guard. Unknown to any of us, someone at an extremely high level decided to move the Big Red One forward to destroy the Tawalkana Division of the Republican Guard in a night attack. Unaware of what was going on, we were relieved and happy when we stopped to refuel just before dark. After hours of riding through wind-blown sand and dust, any rest was welcome. Not until later, when we were once again on the move, did the company commander come up on the radio and tell the platoon leaders to go green. Riding through the night with the wind in my face and the sand in my eyes, I learned of what was to come.

I don't remember being afraid when we went through the breach on the first day of the war. I was excited, nervous and anxious, but I don't remember any real fear. That changed as I listened to what the company

commander had to say. Not only were we going to conduct a forward passage of lines with a unit in contact, but we would be doing it from the march and at night. When we exited the passage lanes, we would face a Republican Guard Division equipped with T72M1 tanks, dug in and waiting.

Fanning the flames of doubt and fear was a briefing the company had received prior to deployment. The briefers told us all about the T72M1, and that it was a great tank, almost as good as the M1. We were going to conduct one of the most dangerous maneuvers possible against a well-equipped and prepared enemy, and I couldn't even brief my platoon properly. The shortage of secure communications equipment made it impossible for everyone to have a secure system in their tank. So over a non-secure radio net, I became very creative in letting my platoon know what was happening.

Unbelievably, the passage of lines went smoothly. We simply used battle drills to move through the lanes and re-deploy on the far side. The fact that it went smoothly didn't make it any less exciting. We flowed through the lanes as artillery fired overhead, and the horizon was dotted with burning Iraqi combat vehicles. Soldiers who just moments before were dead tired and dragging, came to life as the adrenaline of combat once again began to flow. We used the burning vehicles to guide on, and as I passed a burning Iraqi tank, we were told that we no longer had friendly forces to the front.

The 2nd Armored Cavalry Regiment (ACR) had destroyed everything in range of their weapons, allowing us to fully deploy before we made contact. We began to pick up vehicle movement to our front as we moved in front of the 2nd ACR. The scout platoon, approximately 1000 meters to my front, was using 25mm and machine guns to recon by fire. They were firing at bunkers and unidentified hot spots. Suddenly, a SABOT round went right through the Bradley to my left front. We weren't sure who fired at the scouts, but we did know that it came from the direction of friendly forces. The scout platoon leader, not knowing where the round came from, moved his vehicle to support his damaged track. His vehicle was also engaged as it moved into position. The battalion commander quickly moved Bravo Company forward to secure the area so the medics could treat the injured. The gunner on the platoon leader's Bradley was killed, and the platoon leader was injured. Miraculously, no one on the first vehicle hit was seriously injured.

Only the soldiers involved in evacuating the wounded knew the extent of the damage, but everyone in the battalion knew we had suffered our first casualties. The battalion commander moved the remaining four scout tracks back, and Charlie Company moved out to lead the attack. With no one to our front, we began to engage targets at ranges of 3000-3500 meters. We were not going to take the chance of getting too close and giving the enemy a chance to fight back. Riding up in an open hatch, I used AN-PVS-7B night vision goggles to keep track of our place in formation. I only dropped into the turret to look through the sight to identify long-range targets. After destroying several vehicles, to include at least one tank and some armored personnel carriers, we began to see numerous trucks and trailers. I told my guys not to fire unless they identified a combat vehicle or an enemy fighting position.

We identified a large logistics site, and were soon moving through a corps-level supply area. Along with all the trucks and trailers were a large number of enemy dismounts. We also skirted a large fenced-in area that turned out to be a major ammunition holding area. Most of the dismounts we came across didn't want any part of a fight, so they simply dropped their weapons and we sent them to the rear. My platoon sergeant's wingman reported eleven dismounts 3000 meters to his front. I told him to keep an eye on them but continue to move. A few minutes later, he reported that the dismounts had taken up a position in a bomb crater. I told him to watch them, and if they did anything stupid, we would deal with them when we were within machine gun range.

The company's direction of travel put the Iraqi position directly in front of my tank. We kept them under continuous observation, and they didn't move or take any hostile action as we approached. When we were close enough and they got a good look at our tanks, they began to stand and drop their weapons. I pulled my tank up beside their position and yelled for them to leave their weapons and move west. Most of them started to move, but just at that moment my loader and I noticed two guys with machine guns trying to sneak around a berm. Knowing that we couldn't traverse fast enough, I screamed at my driver to back up, right track! The engine roared, the dust flew and a squad of drop-jawed Iraqis found themselves looking down the barrel of a 120mm smoothbore cannon. Mouths were open, hands flew up and a couple of them began to pray. I nearly came out of my turret yelling at them to drop their weapons. I can't begin to list or even remember the stream of profanity that came out of my mouth. All I remember, is that I really didn't want to kill these guys just because of a couple of idiots. After a few seconds of yelling, I suddenly stopped and calmly asked if any of

them understood English. One guy who was white with fear, slowly raised his hand. I said OK, and began screaming again. I told them that if they didn't all want to die, the guys with the machine guns better drop their weapons.

Paralyzed by fear and the sight of a crazy American yelling at them from the top of a tank, it took the Iraqis a few seconds to react. Finally, one of the Iraqis near the last guy with a weapon reached over and knocked it out of his hands. Knowing that I was falling further and further behind the company, I was out of the turret and on my way down the front slope before the machine gun hit the ground. Without stopping to think, I found myself on the ground in the middle of a Republican Guard infantry squad. I realized as I collected weapons and sent the Iraqis marching west to be picked up by follow on forces, that I was armed only with a 9mm pistol. In reality, I wasn't armed at all since my pistol was still holstered, and I didn't even have a round in the chamber. Fortunately, I didn't need a weapon, and my loader dismounted to assist in destroying the captured Iraqi weapons.

We smashed the Iraqi weapons between the track and the sprocket of the tank, ensuring that they could not be used in the future. I scanned the area after remounting the tank, and saw M1A1 tanks about 500 meters away. I told my driver to kick it so we could catch up quickly. When we were close enough to identify the tanks, I realized that they belonged to Delta Company. Delta was at the rear of the task force diamond, meaning we would have to pass through the center of the task force formation to catch the company. I quickly called the company executive officer to have him notify the rest of the task force that our tank would be moving through the center of the diamond. I was worried that someone would see a lone tank out of formation and mistake us for the enemy. When I received word that it was clear, we moved as fast as possible to join the company.

We attacked through the night, stopping just before sun-up. I can't say exactly when the passage of lines started, or exactly when we stopped, but I do know that the night of 26-27 February was the longest of my life. Morning held little change from days past. Fuel and ammunition came forward, allowing us to resupply and we did some very basic maintenance on our tanks. Later, with no sleep and only an MRE, we once again moved out in pursuit of the retreating Iraqi army. We moved all day and into the night. We passed through the worst tank country I have ever seen. The S3 called it "The Valley of the Boogers," some type of strip mine in the desert. As we started through it, we went to platoons in column, then companies in column, then the entire task force was in a single column. We moved along a single trail, all aware that a relatively small force with light anti-tank weapons could have stalled our move indefinitely. We didn't meet any resistance, but we did see a number of dismounted Iraqis as we continued to move. The night grew extremely dark. Due to the hazardous terrain and soldier fatigue, we were forced to stop. The commander ordered the task force to halt, establish local security, and get a few hours rest so we could move again at first light. I stopped my tank and had my platoon jockey around to provide all-around security. The road was so narrow that by the time we were in place, I could jump from tank to tank.

I knew how tired everyone was, so I told my tank commanders to get their soldiers as much sleep as possible. We went to 50% security, with two soldiers up in each turret. We heard reports of Iraqi dismounts in the holes and ravines around our position, but no one in the platoon saw any. Approximately 100 meters to our front, where the rest of the company had stopped, we heard machine- gun fire as tank crews tried to frighten Iraqis out of the area. After making my rounds, checking on soldiers and ensuring security was in place, I rolled out my bag for some much-needed sleep.

I had my bag rolled out on the blowout panels and was just getting ready to pull my boots off when the tank commander of my three tank jumped across to mine. He informed me that his gunner had spilled boiling coffee on himself. I grabbed my helmet, mask and weapon, and went to check on the injured soldier. After being briefed by the combat lifesaver, I called to get a medic to evaluate the burn. The medic vehicle was up with the rest of the company and, due to the narrow road, couldn't get to us. Because of dismounts in the area, we didn't want the medic to cross the 100 meters to our position on foot. I told the commander to have the forward platoons hold their fire, so I could come get the medic. I started up the road to get the medic, and the injured soldier's tank commander joined me because he didn't want me to go alone. As it turned out, the burn wasn't serious, and the soldier was able to continue to perform his duties. After returning the medic to his vehicle, I climbed back on my tank.

Before going to sleep, I thanked God that we had come so far without serious injury in the platoon. I also thanked Him for the way Second Platoon had come together and I drifted off to sleep. A short time later, I was

awakened by the explosion of two mortar rounds near our tanks, but exhausted by the past three days, I asked if anyone was injured, rolled over, and went back to sleep.

We moved out at 0600, amid rumors of a pending cease-fire. Charlie Company moved out ahead of the task force, taking the shortest possible route to block the route of Iraqi forces retreating north. The company executive officer (XO), who was leading the company, used a GPS to navigate our way out of the "Valley of the Boogers." Topping a small rise in the road, the XO reported an enemy tank to his front. A SABOT round at 500 meters set the enemy tank ablaze, and we continued to move. A few minutes later, as my platoon passed the burning tank, the XO reported more enemy vehicles to his front. These vehicles were facing in the opposite direction, and appeared to be unmanned. The commander told the XO to continue to move and not engage the enemy vehicles. We would use thermite grenades to destroy the vehicles and save our main gun rounds. I asked the commander to allow my platoon, the trail platoon, to destroy the vehicles. The road was so narrow that I was worried about my tanks passing so close to burning vehicles as their ammunition exploded.

We destroyed three tanks, one ZSU 23-4, and some APCs prior to battalion telling us to leave the rest of the vehicles for follow-on forces. We picked up the pace of our move as word came down that a cease-fire would go into effect at 0800. We moved through the fog and haze, bypassing several enemy vehicles and dismounted soldiers to establish a blocking position facing south just prior to 0800. Sitting in the desert under a sky darkened by the smoke of oil well fires, we all slumped a little and felt the fatigue wash over us as 0800 passed, and the war came to an end.

Exact dates, times, and places on a map hold little importance in my memories of Desert Storm. The things that stand out are the people and the emotion that can never be fully explained by those who fought, or fully understood by those who didn't. I remember the immense pride that swelled within me when my loader pressed PLAY on his Walkman and I heard Lee Greenwood's "God Bless the USA" as we moved forward into the breach. I remember the loneliness and pain I felt writing letters home to my wife, kids, and family, knowing that we would soon be fighting. The fear of the unknown…was I ready? Was there anything more I could do to prepare myself or my platoon? This was the self-doubt that soldiers at all levels must feel prior to combat. Aside from my love for my wife and family, I have never experienced such strong emotions. I learned more about myself as a soldier, an officer, and a man in the hundred hours of Desert Storm than in the rest of my 35 years.

Editor: The platoon leader's experiences recounted here provide a sense of the simple chaos associated with combat operations—and the related unexpected mishaps that must be addressed. In this case the platoon leader suffered one tank damaged and one tank with a thrown track before getting close to the line of departure. Damage to his vehicle's turret traverse simply added another concern to a junior officer focused on leading his unit into its first combat against an enemy depicted at the time as dangerous and well armed. The platoon's dealings with Iraqi prisoners illustrates another challenge for tank units—what to do with enemy personnel who have surrendered, particularly since the means and personnel to secure them are not available. The platoon's participation in the forward passage of lines at night in the presence of enemy forces, however, underscores the high level of training and readiness of American armor during this conflict and the value of rehearsals, battle drills, and continuous training.

Armor Battalion Command and Considerations

Editor: This excerpt was taken from a manuscript entitled "History of the 4th Battalion, 37th Armored Regiment in Operation DESERT SHIELD/STORM," Vol. II, pp. 401-458. The manuscript was written by the battalion commander during the Gulf War, Lt. Col. David W. Marlin, while a student at the U.S. Army War College. The pages below chronicle the unit's operations and key command decisions following the initial breach of Iraqi defenses along the Iraqi-Saudi Arabian border. The narrative begins in the afternoon of February 25, 1991.

Change of Orders

We had no orders to go beyond the breach site. At approximately 1600 hours, just prior to dark, Col. Moreno called me to the brigade TOC and issued new graphics and an OPORD. I had to copy the one set of graphics available onto my map There was no time to waste. The mission was to reverse direction, go back through the VII Corps' MSR, go north about one hundred kilometers, and attack the Republican Guard Army units.

The trickiest part of the mission was to pull off PL New Jersey in the middle of the night, get organized, and be prepared to move at 0500 hours from PL Colorado. It was already starting to rain, and the sky was going to be pitch black again.

I raced back to the TOC and told the commanders, over the radio, to meet me there. At the TOC, I used a butcher pad to illustrate my concept and issue my order. I informed them to swap out the 700 series ammunition for the 900 series. The Republican Guard units had T72 tanks. We began moving at 0300 hours in order to be ready at 0500 hours. There was no time to waste. This would be the third consecutive no-sleep night for most of us.

I was also afraid of getting tangled up with TF 3-37 at night. I coordinated with Lt. Col. Gross to separate our line-up times by thirty minutes to avoid confusion, and he agreed.

Statement by Capt. Bond, the Battalion Assistant S3, describing the receiving of the operation order to move north 25 February 1991:

> At 0800 hours, 25 February 1991, the battalion moved out from PL Colorado en route to PL New Jersey. At 1225 hours we were set on PL New Jersey. Around 1600 hours, Lt. Col. Marlin was called to brigade to get an order for the following day's attack. We had already received an overlay for the attack and Capt. Feeser, Capt. Williams, and I made fifteen copies of a 1/250,000 scale graphic to issue to the battalion. We had one TOC extension up and it rained sporadically.
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> Around 1930 hours, Lt. Col. Marlin came to the TOC with a new overlay he had drawn on his map during the meeting at the brigade TOC. The eastern half of the overlay had shifted dramatically. We sent Capt. Feeser to the brigade TAC to get a copy of the overlay (an accurate paper copy). In the meantime, Capt. Role and I erased half of each of our graphics and began copying Lt. Col. Marlin's map. The graphics looked terrible and were not very accurate. Around 2100 hours, Lt. Col. Marlin issued his OPORD to the orders group. We passed out the graphics and he used a butcher pad to show how we would attack. Lt. Col. Marlin finished his OPORD with the final, "Attack! Attack! Attack!"
>
> The attack included moving the battalion out of its defensive posture ten kilometers to a staging area. This move was executed at 0500 hours, 26 February, on a dark, foggy morning, but surprisingly went very smoothly.
>
> Meanwhile, Capt. Feeser had gone to the brigade TAC to get a paper copy of the graphic. They did not have one, and he had to go another fifteen kilometers to the brigade TOC. He did not arrive at the battalion TOC until 0200 hours, 26 February. It was instantly apparent the graphics we issued were less than perfect, but there was no time to issue a new graphic before moving. When we stopped at

the staging area around 0700 hours on 26 February, the Company Commanders were called to the TOC and the graphics were updated.

Statement by Capt. Wock, D Co Commander, describing the exchange of ammunition on the night of 25 February 1991:

On 25 February 1991, at 1930 hours, the battalion notified us to download our M774 sabots and upload M900 sabot rounds at the FARP some one to two kilometers to D Co's rear. This was not good news: about twenty rounds per tank had to be swapped out. It was a pitch black night and it was raining hard. I called my lieutenants and 1st Sgt. together to explain the change of mission with the ammunition. They were a little wet, albeit also a captive audience. Nonetheless, anytime you tell any true tanker to download his ammunition, you will not be well received.

The first problem was moving a portion of the company to the FARP while the rest maintained a defensive perimeter. As dark as the night was, I had visions of my tanks searching fruitlessly in the dark trying to find the FARP, so I had the XO, Lt. Leonard, lead four to six tanks at a time to the FARP as he had a Magellan GPS device allowing good navigation capabilities in the dark.

Just about 2130 hours, I headed to the TOC to receive the OPORD for the next day. At the TOC, Lt. Col. Marlin articulated his plan on a couple of sheets of butcher paper for attacking the Republican Guard.

I returned to my company and the ammunition exchange was about half-way complete. I held my company level OPORD a little after midnight in a torrential downpour. I stood in the rain and allowed my lieutenants to copy the graphics in my HMMWV.

Around 0330 hours, 26 February 1991, the ammunition exchange was complete and Lt. Leonard returned from the FARP. I quickly briefed him on the plan and gave him a set of graphics. It was now 0415 hours. As stand-to was planned for 0500 hours, it made no sense to try to get some sleep.

G-DAY + 2 DAYS: 26 FEBRUARY 1991

Preparing to Move North

We started repositioning the battalion from PL New Jersey to PL Colorado about 0300 hours. In my estimation, considering the night move with the weather, it would take us two hours to get organized. At the same time, we had to be careful we were not leaving our rear exposed to the enemy. The companies withdrew from PL New Jersey one at a time, turned and faced west, and pulled into the staging area. It was a trickier operation than it seemed on the map. The brigade OPORD had us crisscrossing with TF 3-37 in order for us to be on their south flank when we started our move. I was very uncomfortable about the whole operation. We could never have achieved this move without the GPS. I kept the Command Group with the TOC for the rest of the night. Like my soldiers, I tried to get about one hour of sleep. We had now gone three consecutive days with little or no sleep. We had been wearing our protective overgarments for three days. Most of us looked blackish from the charcoal on our faces and hands.

At 0300 hours, the fog started to build and there was a light drizzle of rain. I was actually thankful it was cool because of our chemical suits and flak jackets. The rain also helped to keep the tank engines from overheating, kept the dust down, and prevented air filtration problems.

As the reports starting coming in on the companies' status, I could hear vehicles moving throughout the area. TF 3-37 would be moving simultaneously. Most of the commanders reported REDCON 1 and were moving. I mounted my tank, but the tank would not start. I grabbed my map, GPS, protective mask, LBE, and Kelvar and jumped into my HMMWV. I put Capt. Paluso in the back of the vehicle, and pulled it up to the line of vehicles getting ready to move with the TOC. I needed to stay on the radio. I tried to walk back to the tank once to see if I could help in getting it started. It was only one hundred and fifty meters away, but I could not find it. It was just too dark.

Statement from Capt. Torrence, C Co Commander, describing his company's attack to the north 26 February 1991:

> We woke up at 0400 hours on 26 February with an SP at 0500. At SP time, C66 would not start, C31 had thrown track, and C21 was lost. It was extremely dark and it took us almost fifteen additional minutes to sort things out. Finally, we moved off with C34 leading and I rode in C14 (my designated jump tank). C31, C66, and the 1st Sgt. were left in place and joined up at the staging area. We moved in a column with 3rd, 2nd, and 1st PIts. Using the Magellan GPS, we linked up at the staging area in time to see A65 burning.
>
> At 1108 hours, we moved from the staging area in a line formation and concluded an uneventful seventy kilometer march through dust storms, fog, and stop and go traffic. We refueled our rear tanks only during a hurried operation. We then moved forward to what was supposed to be our objective. It ended up being a staging area from which to continue the attack. At this time, we still had all fourteen tanks operational. C13 and C65 had lost their Thermal Integrated Sight (TIS) and were going to move to the center of the wedge for the continuation of the attack.

We moved out to the link-up points to form up with TF 3-37 and the rest of the brigade. Command Sgt. Maj. Stockton went to check out my tank. This guy was a hero. We moved about two to three MPH in the dark. I did not want to lose anyone. Daylight broke gradually. We halted and the entire unit was ready to start the move west and then north. We were delayed. Col. Moreno told us to stand by. The information I had on our friendly and enemy situation was slim. Everything was inaudible from the line of scrimmage from this point forward. There was no clear-cut enemy situation.

Changing Attachments

The sun came up, but I still could not see anything. There was too much fog. We had about fifty meters of visibility. I was instructed to release Capt. Steffan, with A Co, 9th Engr Bn, to TF 2-16. About 0900 hours, a very fatigued Capt. Clarence D. Turner, Commander of B Co, 1st Engr Bn showed up. The change effectively gave us an Engineer Company with all track vehicles with Aces, and put the Wheel Engineer Company with TF 2-16, to stay at the breach site and execute mop-up operations.

I also received instructions to switch the ADA PIts. Maj. Cook personally delivered our old ADA Plt to TF 2-16. The ADA Plt from TF 2-16 was lost and had not linked up with us. We learned a long time ago the necessity of having positive adult supervision when swapping units back and forth on the move.

My tank and crew linked back up with me. Command Sgt. Maj. Stockton pulled out my tank's fuel nozzle and cleaned it off. With an M1A1, I would not have had to worry about this. He also did something we are not supposed to do at our level of maintenance. This type of effort was becoming our way of life in the area of maintenance and parts.

Capt. Beals called me at 0900 hours and reported he had a tank on fire. I could not see it. I went to the TOC and gave a few instructions on the move and then set out on foot in the direction of A Co. I found Capt. Beals and Lt. McBroom with his entire crew standing by Capt. Beals' HMMWV. They were watching A65 burn. The turret was turned to the side to place the ammunition away from the back deck. I saw no fire, only smoke. After talking with them briefly, I was dissatisfied with their haste at abandoning the tank. I climbed onto the tank and made an inspection of the extent of the fire. The fire was down in the bottom of the engine compartment. I gave orders to get portable fire extinguishers and a daisy chain of men to start unloading the ammunition. I was upset because the crew was more than willing to just stand on the sidelines and watch a three million dollar tank cook. After about thirty minutes of frantic movement, the tank fire was out and the tank was still repairable. I went back to other business.

Sniper Fire

An M88 from TF 3-37 stopped by my position. He was fired at by an AK-47 to our rear. I sent a platoon from D Co back to eliminate him. They did not find the enemy soldier, but they did discover another bunker complex with the mortar we suspected was firing at us all night. They destroyed the mortar, a motorcycle, and some weapons. They reported the grid to TF 2-16 for them to mop-up later. Lt. Col. Hawkins came by and

thanked us. He seemed to think the sniper was shooting at him and he was convinced we saved his life. He could be right.

Statement by Lt. Leonard, D Co Executive Officer, describing the search for an enemy sniper 26 February 1991:

> We were up all morning trans-loading 900 series ammunition in a light rain starting to fall the night before with about one or two hours of sleep per man, we prepared for the 0500 hours SP. At 0415 hours, all the vehicles hung green chemlites from their tow pintles below the grills. By 0430 hours, the company collapsed onto the CP. At 0445 hours, we set off to hit the SP. I did not understand why we were headed west to attack the Republican Guards. I thought they were northeast of us. Later, we turned north, and finally wheeled back east into the rising sun.
>
> During the hours of darkness, one of the C Co platoons mistakenly went the wrong way. Approximately 0510 hours, the C Co Commander began to frantically fill the battalion command net with calls for his lost platoon. We informed him we had not taken them with us as he believed. They did stumble across us later, and at the first available opportunity, we returned the platoon to them.
>
> Then the 1st Engr Bn panicked. They thought they had a fanatical sniper shooting at them. We thought they were over-reacting, but dispatched 1st Plt with D65 (and myself) to check it out. We put the grid for the suspected sniper into the Magellan GPS and followed it. We arrived on top of a hill with an old enemy position. There were burned out trucks and AOA weapons littered around the crest. There were bunkers built into sides also. The four of us (D65, D11, D12, D14) drove back and forth a couple of times. D11 thought he saw dismounts and got ready to shoot at them. They turned out to be British soldiers. Later, D12 found a motorcycle and he shot it up just for good measure. An intact mortar was located by D14. I decided not to shoot it because the Engineer Bn was only five hundred meters beyond it and in the line of fire. We found entirely too many bunkers for a tank battalion to clear. We suggested to battalion the need for some infantry to dismount and clear the location.
>
> After two hours of searching, we convinced Lt. Col. Marlin to let us return to the company. We then participated in the battalion movement eastward.

Press the Attack

We received the order to move at 1100 hours. I had the battalion in a box formation. C and B Cos were in the lead, abreast, platoons in column. A and D Cos trailed and the Command Group was centered behind C and D Cos. The Scout Plt was staying about one to two kilometers to our front and abreast of the TF 3-37 Scout Plt. Over the next one hundred kilometers, we were on the outside of a large turning movement going west and then northeast. We would guide on TF 3-37, as they had the inside track. I talked constantly with Lt. Col. Gross over the brigade command net. This was a real team effort.

As we took off, we approached the VII Corps MSR and thousands of CSS vehicles moving north. We approached them perpendicular to their movement. We passed through them at the blink of an eye and maintained formation. It was a truly beautiful maneuver. I was really proud of the soldiers. Then we did it again and again. Several times during the move, we hit large unit formations. We passed them without a second thought and regained our formation. It was a powerful statement as to our maneuverability. We caught up with the entire VII Corps combat units and were back into the fight. Nothing could stop us. We were not allowed to make a single maintenance stop for the first seventy-five kilometers.

Statement by Lt. Ward, the Scout PIt Leader, describing his platoon leading the battalion to the northeast on 26 February 1991:

> On the morning of 26 February, the platoon got up at 0400 hours after a couple of hours of sleep. We were prepared for movement and departed out of our position at 0430 hours. We moved out of the battalion area and to our link-up point with the TF 3-37 Scout Plt. We arrived at the staging area at 0530 hours, and at 0600 hours the TF 3-37 Scout Plt showed up. We were not able to exchange very much information since the waypoints and graphics for the operation changed after our movement out of the battalion area.

After the battalion closed on the staging area, I moved to the TOC track and received the new graphic changes and grid locations. I moved back to the platoon and provided the Track Commanders with the changes.

At approximately 1100 hours, we moved out and linked up with the TF 3-37 Scout Plt. We received orders to move on line with their Scout Plt and I soon found myself doing the "Bradley Blitz." Their Scout Plt believed in doing things without caution and moving as fast as possible between two points. We quickly moved across PL New Jersey, PL Omaha, and PL St. Louis. About 1445 hours, we were set on PL Cheb. We set up a hasty screen and immediately received word to move to the TOC's location.

After arriving near the TOC, I got about an hour to do some quick maintenance. Soon after, Lt. Col. Marlin walked up and handed me a piece of paper and said to move to this grid and set up a battalion AA. I said, "Roger, out," and the platoon immediately began moving. I worked up some quick grid locations for company boundaries on the way and used a chemical light system for marking the boundaries. Upon arriving, I put out a quick plan for guiding the battalion in, and moved out to mark the boundaries.

I soon found the Magellan GPS was unable to locate satellites after 1800 hours. I reverted to the compass and odometer. As we finished putting out the last of the chemlites, I heard the battalion had reached our area. Lt. Col. Marlin came across the net and told us to simply prepare for refuel and continuation operations. I knew then that either our military was routing their's, or we were into a heavy fight to finish.

We waited for several hours for the fuel trucks and suffered through Lt. Col. Marlin's grief on the net when he asked for fuel. Finally, the fuel arrived and we were quickly refueled and back out in front of the battalion.

Refuel

When we reached our first objective, we halted for fuel. Col. Moreno was pressing us to move faster. His sense of urgency caused me to believe a partial refuel was sufficient. I thought we were going only another twenty-five kilometers to the next objective on my map and he wanted us there before dark. I kicked the Scout Plt out with no refuel as an advance party to the next objective. The time was 1600 hours.

We moved the next twenty-five kilometers in the dark. The fuelers began trans-loading the remaining fuel into one or two tankers, and the empty ones went to a refuel point and returned. The trans-loading of fuel took longer than anyone expected. As we were moved to the next objective, I broke away from the battalion and reported to Col. Moreno. At the brigade TOC, Col. Moreno said we would continue to push forward in three hours. I hurried back to the battalion.

Time was wasting. The HEMMTs were still trans-loading fuel at the last stop. Our tanks had only a little fuel, not enough to continue. I was desperate over the next three hours. I was constantly questioning Maj. Garrity, Command Sgt. Maj. Stockton, and Capt. Hall for answers and results on the fuel trucks. Eventually, Command Sgt. Maj. Stockton led the remaining fuel HEMMTs to us by odometer and compass. We were using radios and flares to bring him to us. Time was critical. Lt. Thompson departed with the empty HEMMTs to refuel them. We wasted two of our three hours just getting the fuel. Col. Moreno was ready to move. I told him I needed more time.

Col. Moreno then chose to refuel his own Command Group vehicles off our HEMMTs and went to the one company taking the longest to refuel—B Co. He delayed us another twenty minutes without realizing it. I was having a rough time. Few people realize how long it takes to fuel up fifty-nine tanks through four gas caps. Fuel transfer pumps and lack of replacement pumps continued to haunt us.

Statement by Capt. Torrence, the C Co Commander, describing his company's actions on the night 26 February 1991:

At 2100 hours on 26 February 1991, we continued the attack at the left front flank. The company moved out with fourteen tanks. C65 and C13 were moving center of the company wedge because they had no night fighting capability. During the move, we encountered the combat trains of a forward unit and were split from the base company. As we came around their trains, we were forward of the

formation. We headed south to link-up again. In doing so, we over-shot our main body and split the formation.

We had our XO with B Co after we separated. With the help of the GPS, we finally linked up when the formation stopped just behind the FLOT. It was approximately 0030 hours on the 27th of February.

When we moved again, we passed the FLOT, held by some cavalry units, by two hundred meters. We hurriedly backed up behind them and paused for about a half hour. During this time, we were moved back to our rear because we could not find the battalion fuelers.

When we started moving again, B Co separated from us by shifting to the south. In order to regain contact, I moved forward to the right and destroyed a BMP. When everyone saw the explosion, they had a reference point to guide on. We quickly consolidated. We held the line throughout the night and received fuel around 0600 hours.

Statement by Lt. Corbo, the B Co XO, describing his company's actions 26 February 1991:

It was the third day of the ground war against Iraq. The company spent most of the early morning hours refueling and uploading with the new M900 series sabot rounds. These were supposedly the "silver bullets" to defeat the T72 tank. Approximately 0330 hours, we had an orders brief in the 1st Sgt.'s HMMWV for the upcoming mission. We were to be on the brigade left for the continued attack. About 0400 hours, we collapsed our perimeter and prepared to move. The moonless night made the use of night vision equipment all but useless. The company attached orange-lensed flashlights to the tanks to help aid in command and control.

The company uncoiled from its position in standard order: 2nd Plt, 1st Plt, 3rd Plt, and the HQ tanks dispersed between the platoons. We made the battalion SP of 0600 hours and moved to our staging area. We "herringboned" [a stationary formation dispersing the vehicles] in position at approximately 0615 hours and waited for further orders.

Around 0730 hours, we received a change to the graphics. Another meeting was called to get all the information to the platoons.

The battalion made its SP at 1108 hours, using a box formation. B Co was on the right, tying into TF 3-37. The move was uneventful except for the sandstorm, making visibility difficult with our right flank unit.

As we were rolling through a hilly area, I noticed the crew of B-31 bailed out of their tank. I also noticed smoke coming from under the back deck access plates. I ordered my driver to advance to B-31. I grabbed my fire extinguisher and jumped to the ground. I had Sgt. Reid re-mount the tank and traverse the turret until the ammunition was away from the fire. I pulled off the access plates and put out the fire. I ordered the Platoon Leader to jump tanks, and reported the location of the down vehicle.

I raced forward to re-join the company formation. After about a half-hour, my tank [B65] went down with a fuel problem; and three hundred meters away, B22 blew an engine. My gunner flagged down a fuel HEMMT and topped off our fuel tanks. The driver reset the circuit breakers and we were able to move again. I co-located with B22 and made radio contact with our company. Lt. MacMullen was dispatched to my location to guide me back into position.

At approximately 1720 hours, I rejoined B Co as they finished refueling. We were able to do a quick refuel, regain the formation, and continue with the attack.

Because we were being pressed to continue our movement, the company was unable to completely top off. We continued to march until about 1800 hours. We stopped to wait for our fuel assets to catch up with us. We finished refueling completely at about 2045 hours and prepared to continue the mission.

Fighting the Republican Guard

Lt. Thompson became lost. He had thirteen fuel HEMMTs with him critical for our survival. He incorrectly induced the wrong map sheet number in his GPS and eventually went eighty kilometers off course, cross-country. I was stressed out over fuel. It would be my most humbling experience of the war. After twenty years of training, I could not fuel my battalion. I was constantly pressuring Maj. Garrity, Capt. Hall, Capt. Clidas, Command Sgt. Maj. Stockton, and anyone else within earshot. I was angry, disappointed, and humbled by one miscalculation. Furthermore, we did not realize the full degree of the error and was not aware the situation would last over forty-eight hours.

Statement by Capt. Beals, the A Co Commander, describing his company's actions on the attack to the northeast 26 February 1991:

> Aces [A Co] were set on PL New Jersey. Our mission was to move to a staging area back toward PL Colorado. We moved out at 0500 hours in a dark and foggy morning. Getting out of the defensive position took about twenty minutes. It was too dark to locate the position using the night vision goggles. We made our move in a company column formation and pulled into the staging area around 0600 hours.
>
> A65 caught on fire as it passed the Command Group. The call of "fire" went over the company net. I pulled out of column and could see a six foot flame shooting out from under A65. The crew began their abandon tank drill and the #1 fire extinguisher shot failed completely. The #2 shot did not put out the fire. From the amount of flames shooting out of A65 and the failure of the main fire extinguisher and the crew portables, I told the crew to stand away from the fire. It took seventy-five percent of my company's fire extinguishers to finally put out the fire. The fire fighters were led by Lt. Col. Marlin, with the help of Spec. Steisel pulling out the V packs. Once we got the V packs out, the fire was brought under control. I remember my MOPP suit was covered with thick black soot after we finished with the fire.
>
> We thought A65 would be easily fixed, but it turned out to be a complete write-off. We cross leveled crews. The XO took A24 and we converted it to secure radio nets. Sgt. First Class Fernandez jumped to his wingman's tank. Staff Sgt. David K. Squire and the remainder of A24's crew stayed with A65. We would not see them again until we got back to Rear Assembly Area (RAA) Huebner.
>
> Around 1100 hours, we supported as the corps reserve. We moved in a box formation with Certain [C co] in front of us and Death Dealer. [D Co] to our right. We expected an all-day attack.
>
> PL Achen was a planned stop for maintenance. The mission changed and we were told to refuel immediately and be ready to move in twenty minutes—an impossibility. As soon as we finished refueling, we began to move again in the same formation for twenty five kilometers. This time we stopped again to refuel. Command Sgt. Maj. Stockton brought the fuelers in around 1830 hours using flares and strobe lights. At 2000 hours, the fuelers arrived and we topped off again and executed a little maintenance.
>
> We lost our company trains during our second move. The maintenance truck broke down and my Black 8 [Maintenance Sergeant] stopped to assist them. 1st Sgt. Hurley was returning the fuelers. Bandaid's [Medical Plt] M113 APC was broken and was not coming up again soon. 1st Sgt. Hurley linked up with Ace 8 [SSG Glover] and Ace Bandaid [Sgt. Leonard Hendrix]. I told 1st Sgt. Hurley to pick up Black 8 [Staff Sgt. Glover] and follow on to link-up with the company. Sgt. Hendrix called me and said, "You mean you are going to leave me here all alone with no guns!" I told him I would try to recover them. If not, then he would be safe until the BMO cleared the route. 1st Sgt. Hurley recovered him to a friendly unit. By the time we moved to link-up, we were more than one hundred kilometers from him and the maintenance team. In our second refuel, we set in a company line, platoons in column and topped off. Hoping for some sleep, I heard Lt. Col. Marlin come over the radio net to say we were going to launch again as soon as we topped off.
>
> On the night of 26 February, we started out for a long night movement. The 1st Sgt. went back to recover part of the trains. I would not see him again for twenty-four hours. The company began moving Certain [C Co] with Death Dealer [D Co] to our right. The company formation was platoons in

column for better command and control. The ADA Vulcans were behind me in the middle of the formation. It was a long movement, lasting until 0300 hours on 27 February 1991.

En route, we lost contact with Certain [C Co] when another unit's combat trains passed in front of us. We were guiding our movement by using the thermal sights. We picked up what we thought was certain [C Co] and continued our move, only to find we were in the Dauntless [TF 3-37] formation. I located where we were by calling over the company net to get a number from one of the tanks nearest us. Blue 1 [3rd Plt] called and told me it was number 53 on the side of the tracks. I knew we had gone too far to the right. I gave the orders to execute a u-turn and then we shifted to the left. We passed our battalion trains and I fixed our position from them. We executed a right turn and linked back up with Death Dealer [D Co]. A little later, certain [C Co] passed through us and resumed the lead.

There was a terrific fight in front of us. I looked to the rear of a tank to our left front and we were only twelve hundred meters from the front line trace. I kept saying to my crew to be ready. When we moved from here, we would be out in front and have to clear the zone of the enemy. We sat there waiting, but the word to launch never came.

Later, the fuel status for the battalion hit black [no fuel]. We would never launch the attack. The command net was crackling with concern over fuel status. At 0530 hours, I still had no contact with 1st Sgt. Hurley. I called my Blue 4 [3rd Platoon Sgt.] and told him if 1st Sgt. Hurley did not show up in thirty minutes, or we did not contact him, then he was the new Black 7 [1SG]. We could not establish contact, and at 0600 hours, I pulled the Platoon Sergeant from 3rd Plt. I talked to Sgt. First Class Earl C. Gallow. I told him he was the new 1st Sgt. and gave him three missions: get fuel for everyone; rebuild a combat trains (at this point, the combat trains consisted of a HMMWV); and, once refueled, ensure the HEMMTs were handed off to the Sapper [engineer] elements. I gave him A6 [HMMWV] and we re-shuttled the crews in 3rd Plt. Sgt. Walter S. Williams took command of A34. Staff Sgt. Gaylon J. Lecuyer assumed the job of the platoon sergeant. We refueled and were set to launch the next attack on the morning of 27 February.

The next move through the dark was about fifty kilometers. Col. Moreno was ·visibly impressed. We handled ourselves in the dark as well as we did in the daylight. We were in a box formation, companies abreast, platoons in column. We came up on the rear of 1st Bde's combat vehicles. We even passed through their trains in the dark. D Co separated momentarily at one point, but regained the initiative after about thirty minutes. We were close enough to read the unit's bumper markings in front of us.

They were attacking. I pulled the Scout PIt from the front and dispatched them to our left flank for security. Explosions were everywhere. The 1st Bde was in the attack and we were part of it by our proximity. BOOM! Capt. Torrence shot and killed a BMP at four hundred meters. While there were no major tank battles, singular engagements were sporadically executed throughout the night. Several other engagements were shot, but we were extremely careful about shooting because of the units in front of us.

We finally stopped and provided overwatch at 0300 hours in the morning. Nobody slept, and our fuel situation was critical. We began working with TF 3-37 to take their remaining fuel and attempted to bring up our few remaining fuelers. My own tank was on empty. Soldiers and leaders were working hard to make it all happen, but it was a dark, scary, and a desperate situation.

Statement by Capt. Wock, the D Co Commander, describing his company's actions during the night attack 26 February 1991:

At approximately 2100 hours, the battalion began to pass through the field trains of some of 1st Bde's units. They were in columns and passing from left to right on an angle almost parallel to our axis of advance. D Co was following B Co, as it linked into TF 3-37 on our right. Two of these columns passed between B Co and D Co. We slowed down to let them pass. Rear echelon soldiers often get nervous when tanks cut up their columns and we did not want to cause an incident. Then we lost contact with B Co.

Once the trains passed, we sped up to reestablish contact. In the meantime, TF 3-37 moved to the left (north) and forced B Co to move left. When we accelerated, we ran into the rearmost TF 3-37 tanks. We were unaware who they were until a short halt later on. We closed enough to read their tactical

signs through night vision goggles. Listening to the battalion command net, I was able to determine what happened. We went into column and headed north.

After approximately two kilometers, we saw our battalion vehicles, and actually passed in front of them before looping around them and regaining our position behind B Co and to the left of TF 3-37. Shortly thereafter, the battalion continued east with D Co in the correct position.

Statement by Lt. Ward, the Scout Plt Leader, describing his platoon's actions during the night attack 26 February 1991:

After refueling the BFVs and moving back out in front of the battalion, I was given orders to move along a series of CPs and to link-Up with the rest of 1st Bde. We moved out immediately and linked up with the trail elements of 1st Bde. We continued movement for some time. At approximately 0300 hours, 27 February, we were given instructions to set at one grid location. We stayed in position for approximately thirty minutes and I began to notice their battalion's movement took them to the south and past us.

I called Lt. Col. Marlin to receive information and was told to move on the battalion's left flank to serve as a flank screen. As I called the platoon with the FRAGO mission, I received answers from everyone but HQ234. I realized, due to sheer exhaustion, the crew had fallen into a slumber. I moved back to their vehicle and got them back up on the net.

Staff Sgt. Firestone moved out in the lead again. After some time, we were linked back up with the battalion. Fireballs to our front lit the sky as 1st Bde moved through the area. We heard over the net a BFV was destroyed and the "pucker factor" rose another notch.

We finally worked our way onto the battalion's flank and moved about three more kilometers before the battalion stopped in place at approximately 0300 hours. We got some sleep and watched as the fireballs continued to light up the sky.

Statement by Lt. Powers, the Mortar Plt Leader, describing his platoon's actions during the night attack 26 February 1991:

After the last refuel around 2100·hours on the 26th, we moved behind Death Dealer [D Co] in platoon column. We were doing fine just being able to keep up with Death Dealer. Traveling at top speed in M106 Mortar Carriers, we were unable to keep up with the battalion. Fortunately, the battalion had broken contact with TF 3-37. The battalion went through a trail element of another division. Ace [A Co] and Death Dealer [D Co] went right and followed the convoy. I did not know this and continued on my course and fortunately found Battle [B Co]. I was able to link-up Death Dealer. We moved on until about 0300 hours. We waited until 0700 hours to move out again.

Statement by Capt. Bond, the Battalion Assistant S3, describing the attack 26 February 1991:

At 0800 hours, we copied the graphics issued the night before on PL New Jersey. At 1120 hours, the TOC moved out following the Mortar Plt. At 1630 hours, we stopped in the vicinity of PL Cheb and began refueling. Refueling was not complete when the battalion was forced to continue to PL Harz. The TOC was several kilometers from the Mortar Plt (the grid location we believed they were at). We moved in their direction and did not find them. I called the Mortar Plt to get their new grid location and moved out to link-Up. In the meantime, the battalion began moving Within minutes, Lt. Col. Marlin directed the companies to increase their speed to twenty MPH. The TOC was unable to keep up and arrived at PL Harz around 1815 hours, well behind the tank companies. We then waited for the fuel to arrive.

Statement by Capt. Clidas, HHC Co Commander, describing movement of the battalion field trains during the attack 26 February 1991:

The field trains began their move with the BSA [brigade support area] at approximately 1200 hours, 26 February. The brigade was attacking to the northeast, with the BSA following in support. The movement continued throughout the day.

At approximately 2000 hours, 26 February, the Support Plt Leader and I convoyed thirteen fuelers from the battalion's FARP, back to the BSA's new location. These fuelers would refuel, then move back to the combat trains. We arrived at the BSA at approximately 2100 hours, 26 February 1991.

After refueling the thirteen fuelers, the support Platoon Leader, Lt. Thompson, told me he had the grid location he was to return to. He received these grids from Capt. Hall. Lt. Thompson then departed from the BSA with his thirteen fuelers, en route to the combat trains. He never linked up with the combat trains. He had not been given grid zone designators by Capt. Hall; thus, the grids he had were incorrect.

Change of Mission

At 0630 hours, I reported to Col. Moreno at the brigade Command Group location with Lt. Col. Gross. We received instructions to attack at 0730 hours. The map graphics were brief and no real detail was provided on the enemy situation. I failed to report the missing HEMMTs. I still was not aware of the extent of the problem. It was 0715 hours as I re-mounted my tank. I gave orders over the radio as I moved back to the front lines and the battalion.

As I drove through the area, A Co was still refueling. I began moving with the battalion formation non-stop as I approached from the rear. The time was 0730 hours. Daylight was breaking. The fog was still with us. Commanders were plotting their maps and punching in their GPS devices as they were moving. There were destroyed vehicles and bodies everywhere.

Our new mission was to pass through 1st Bde, LD at 0900 hours and continue the attack on the Republican Guard units to our front.

G-DAY + 3 DAYS: 27 FEBRUARY 1991

Continuing the Attack

A Co stopped refueling on the spot and started moving as part of the formation. We clearly identified TF 3-37 on our right flank. I instructed the lead companies, C and B Cos, to guide on TF 3-37. They had the inside track and would make a large turning movement to the southeast. A and D Cos would trail and complete the box formation. We had to travel about fifteen to twenty kilometers to get to the LD being marked by the presence of the 1st Bde. We were to make a forward passage of lines with them.

As we progressed, we passed through burning vehicles, bunkers, and dead bodies. The burning vehicles caused secondary explosions and, because of this, we avoided getting too close to them.

I remember one dead Iraqi soldier on the ground. A bullet had caved in his head and it looked like a deflated balloon on the ground. I mention this only to amplify the psychological impact on our soldiers with regard to the ugly side of the war.

Wrong Direction

We moved forward at an ever-increasing pace. The battalion was on the outside of the turn. We had the sensation of playing "crack the whip" on an ice rink. The more TF 3-37 turned to the south, the faster we had to travel to keep up and maintain the formation. After six to eight kilometers, I sensed we were making too hard a right turn. I began to notice my GPS was confirming my worst fears. I jumped up and down in the turret to look at my GPS. I called Lt. Col. Gross on the brigade net and tactfully suggested he was heading too far south. He insisted they had a good fix. I began doubting my GPS. I re-indexed the data in an attempt to confirm my correct location. I called the company commanders for readings from their GPS devices. I could not confirm my location even with their help. We were moving so fast we were losing control of the formation. Eventually, I broke off from TF 3-37 and halted the battalion.

We almost made a complete circle through one Iraqi Army brigade position. As we moved, we continued to destroy vehicles, mostly with thermite grenades. We made note of the piles of ammunition and EPWs in the area waiting to be policed up.

I had all the commanders punch in their GPSs and give me their locations. I did the same. We had made two-thirds of a complete circle and had no visual contact with TF 3-37. They were on the inside of the track. I

envisioned they had made a complete circle and then reset their course for the LD. In addition to being disoriented, we wasted precious fuel.

Col. Moreno moved his Command Group to the LD and was asking where we were. He called Lt. Col. Gross to find out where he was. While he was busy speaking to Lt. Col. Gross, I set a new course for the battalion. I called Capt. Martin and asked if he had located a satellite. I passed him a grid location to the northeast to get us back on track. He took the lead with his company and the rest of the battalion fell into the formation.

Statement by Capt. Martin, B Co Commander, describing his company's actions in the attack 27 February 1991:

> At 0730 hours on 27 February, we had orders to LD and move out to pass through a forward element. Both C Co and B Co were to lead a battalion box formation and stay linked with TF 3-37 on our right flank. As we moved out, it was quite easy to maintain contact with TF 3-37 because we were traveling at a slow speed. TF 3-37 was to be the brigade guide for all movement.
>
> Initially, we passed through several enemy positions occupied by tanks and APCs in perfect condition. Battalion did not allow us to destroy them with our main guns as there were friendly units to our front.
>
> We simply continued to march, on line, trying to maintain contact with TF 3-37. Unfortunately, TF 3-37 kept turning right, in bold direction changes, eventually resulting in the formation turning one hundred eighty degrees and marching in the wrong direction.
>
> Next, Lt. Col. Marlin ordered my company to lead the battalion south to a passage point. Time was of the essence and we had to race our tanks to the passage. For the sake of time, I took the lead in the company, programmed the grid location into the GPS on the move, and set my speed at twenty-five MPH.
>
> Shortly thereafter, 3rd Plt ran into a bombed ammunition complex with unexploded ordnance all over the place. Two of 3rd Plt's tanks set off some of the ordnance—minor damage. Lt. Col. Marlin was right behind my tank asking me to speed up! I told him the ordnance was posing a small problem for us. No sniveling was the response.
>
> I kicked the speed up to thirty MPH, kept it there for twenty minutes or so, and looked to the rear. To my amazement, the majority of the battalion formation was still intact behind me.
>
> We finally hit the passage point and went on line once again trying to maintain contact with TF 3-37. It seemed like a never-ending battle to maintain contact because TF 3-37 would vary the direction of their formation every two kilometers or so. We pressed on and met our objective at about 1200 hours. En route, we shot several bunkers and tanks and captured a few EPWs who we discovered and sent to our rear.
>
> At our objective (actually a stop for fuel), we waited for the lost fuel HEMMTs and prepared for another move to Objective 1. We marched at 1400 hours and ran into some mining areas where we had to move forward in battalion column. Once we broke out of the rough terrain, we established a battalion formation.
>
> An order came over the net to continue to a laager site. En route, we encountered two Iraqis who decided they wanted to stay in their fighting positions. Our machine guns convinced them they should surrender. We took and destroyed their weapons (B34) and pressed on. For the next several hours, we drove toward the laager and waited for several changes of mission. We finally settled down on line as part of a battalion "horseshoe" and prepared for the mission of moving to Objective 1.

Statement by Capt. Torrence, C Co Commander, describing his attack 27 February 1991:

> On the morning of 27 February 1991, the company had two to three desperately needed hours of sleep. Around 0600 hours, we were told to SP at 0830 hours. It changed to 0730 hours. We departed with thirteen tanks in a company line formation with platoons in column. C22's starter went out and

we informed the ALOC, who said they would police it up. (They never did, and the crew sat in place for five days.)

As we hit the SP, we saw one, then two, then numerous enemy vehicles. We were not allowed to shoot or destroy them with main guns because the battalion was afraid of fratricide. I finally let the crew of C31 destroy a T72 tank because we were going to pass directly in its line of fire.

After five kilometers of eastward movement, we started to turn south. The XO made numerous calls on the battalion net to get the formation to turn back. Finally, after doing a one hundred eighty degree maneuver through a division-size defense, we cut away from TF 3-37 and began to move at high speed to the passage point.

During the "doughnut," C31 threw a track and the 1st Sgt., with the maintenance team, went out in search of additional track. While in place, C31 destroyed three T55s, seven BMPs, and several trucks.

The move to the passage point was uneventful except for the thirty MPH plus speed with the tanks moving through difficult terrain. Finally, we linked up at the passage point and moved to the front of the division's formation. We then moved into a battalion wedge formation of A, C, and B Cos. We moved another twenty or so kilometers to the east. We refueled after a one-hour stop. C65 and C12 had run out of fuel, and C34 had thrown a track. We got C12 and C65 topped off. C31, with 1st Sgt. Macasio, caught up by the time we moved again.

As we pulled out of the refuel site, we engaged three T55s in keyhole positions. We were chastised for engaging because of the proximity of TF 3-37 on the other side of the twenty foot berm.

After moving through an enormous mining site with thirty foot drop-off points and numerous berms and holes, we emerged onto flat ground. We saw twenty to thirty burning vehicles to the north and east. We moved to and through these vehicles, destroying another four or five T59 tanks and numerous trucks. During this engagement (at dusk), we received fire from a sniper team that quickly abandoned its hole after being engaged by machine gun fire. They bounced from tank to tank trying to surrender, but we could not stop, so we waved them back to the west.

At night we stopped in formation and waited for further instructions. Finally, around 0200 hours, we were ordered to move to an AA five kilometers to the southwest. One-half of the company moved to get fuel from the battalion fuel point. The fuelers were not at the reported site and the XO and 1st Sgt. wandered around trying to find some fuel. During their movements, 1st Sgt.'s APC hit a bomb crater and needed to be recovered. The XO ran out of fuel. (His fuel pumps were out and could not be replaced due to the total lack of any Class IX parts.) I led the rest of the company to the new AA and arrived around 0230 hours. The 1st Sgt. was successful in getting an additional two fuel HEMMTs and refueled the company around 0400-0500 hours.

Eventually, I heard from Col. Moreno. We were behind schedule and not anywhere in sight of the LD. Col. Moreno was upset. He wanted to know where I was. I hesitated because I was not sure. We learned later a major contributing factor was the lack of satellite availability between the hours of 0700 and 0900 hours. This caused us to receive incorrect readings on our GPSs and caused some of the confusion. It also highlighted our reliance on the GPS for navigation and command and control. The grid location I gave Capt. Martin to the northeast was a random grid. I had to get the formation back together and get us out of the area. The grid was too far to the northeast.

I changed our direction again and we headed for the LD. We were easily thirty minutes behind schedule. For this LD, we should have been thirty minutes early. I kept pushing the battalion to go faster. TF 3-37 finally reached the LD and Col. Moreno's comments were solely directed at us. We were traveling about thirty to thirty-five MPH. I can still remember tanks with plows almost flying through the air as they hit small berms and rough spots on the terrain.

We traveled into the Wadi Al Batin area. Only during the last ten kilometers was I assured we had good GPS readings and were back on track. We were going so fast we ran right into TF 3-37 waiting for us on the LD. Col. Moreno adjusted our LD with division and we just made it. The time was 0930 hours.

Statement by Lt. Ward, the Scout PIt Leader, describing his platoon's actions in the attack 27 February 1991:

> On the morning of 27 February, the crews awoke to a world of destruction. Destroyed Iraqi vehicles were everywhere. We did not have long to recover from the night before word came down for movement at 0700 hours.
>
> I received instructions to remain on my left flank screen mission. We moved out with A Co on our right and found ourselves moving through an area of mass destruction. Even more appalling was many of the Iraqi armored vehicles appeared untouched. We kept reporting the vehicles up but never received permission to fire due to 1st Bde being to our front.
>
> On the movement through, Staff Sgt. Hart spotted a vehicle with a dismounting soldier jumping out of the cab with an AK47. Seeing the troop with the weapon, Staff Sgt. Hart made the decision to kill the soldier before the unprotected rear trains passed.
>
> We continued movement on the brigade's circle exercise (or rather the "deception" plan), and finally passed through 1st Bde. After passing through, we were told no friendly units should be in our area and we were in a "free fire" zone. About ten kilometers from us, I spotted "enemy" vehicles to our north. I called them in and received confirmation there were no friendlies in the area. While preparing to engage, the platoon noticed the vehicles were, in fact, a friendly artillery unit. I was thankful we did not engage them.
>
> We continued the movement on the flank through the wadi and stopped to take weapons from approximately ten prisoners. We finally made it through the wadi and made a stop for fuel. After approximately one hour, the fuel arrived and the platoon was sent to the west of the battalion.
>
> We went approximately ten kilometers through a quarry area when sabot rounds started flying around us. We found out later C Co fired upon several tanks. Lt. Col. Marlin put an immediate stop to the firing and instructed us to hold in place until the battalion caught up with us. We continued to move on the battalion's left flank through the quarry. After the battalion caught up with us, we moved through many EPWs and destroyed vehicles and finally stopped for the evening.
>
> The platoon was instructed to set up an AA, refuel, and prepare to move to Objective 1. We executed these missions and got some people the first bit of rest they had received in four days.

Entering the Wadi Al Batin

We passed through the 1st Bde. Now everything to our front was the enemy. We slowed to five MPH and regained control of all of our formations, and I acquired the status of the rest of the vehicles in the battalion. Apparently, the semi-circle only affected the tank companies. We were moving so fast the TOC and combat trains could not keep up anyway. They had not fallen behind at all. We picked them up as we passed back through the second time around. Just as I re-emphasized the ROE for targets to our front, the 1st Bde TOC group, led by Command Sgt. Maj. Milling, passed perpendicular to our entire front in column, moving to the south.

The terrain changed from perfectly flat to rolling hills and large dunes. Visibility along the terrain ranged from five hundred meters to three thousand meters. However, the worst effect was on the formation because of the visibility laterally. I kept the Scout PIt on the left flank and we continued to move abreast of TF 3-37 through the broken terrain. A few suspected targets were engaged as we moved through the area. I kept the Command Group behind B Co so I could keep an eye on TF 3-37 at the same time.

Critical Fuel Situation

We traveled about sixty kilometers when we hit a very rough area of terrain. The area was heavily bunkered and resembled a quarry. Dirt and sand mounds were everywhere and it was extremely difficult to control the battalion's movement. Lt. Wiser's Tank Platoon destroyed several tanks in this area. I lost visual contact with three of the tank companies and moved too far forward. I doubled back to join them. The time was 1300 hours. We were almost out of fuel. As I came around a bend and linked up with A and C Cos, I saw most of the 1st Bde in addition to TF 3-37 to the south. The entire area was saturated with berms, dikes, and

rolling terrain. The area had been bombed and this contributed to the difficulty of maneuvering through the terrain. I reported my fuel situation to Col. Moreno. He managed to scrounge fuel from other units.

Statement by Capt. Clidas, the HHC Co Commander, describing his efforts and the efforts of other key leaders attempting to get fuel to the battalion on 27 February 1991:

> At approximately 0700 hours on 27 February, the BSA began to move forward again. As the SP approached, it became more obvious to us the thirteen fuelers from the Support Plt never linked up with the battalion. Up until 0600 hours, we assumed they were merely late, or at the wrong location. All attempts to raise Lt. Thompson on the administrative and logistics or command net were futile. As we began to road march forward, we searched both left and right of the route for any sign of the missing fuelers.
>
> We arrived at the new BSA site at approximately 1100 hours. This new site was approximately thirty miles behind the lead elements of the rapidly advancing brigade. By this point, the battalion field trains consisted of the Mess Section, the Headquarters Maintenance Section, the company supply sections, and the S1/S4 Sections.
>
> Upon arrival at the new location, we linked up with the Capt. Hall. He had brought back four empty fuelers. He confirmed Lt. Thompson was still missing and he would continue searching for him. I would get the four fuelers filled when 201st Fwd Spt Bn had the ability to do so. Then I would take the fuelers forward to link-up with the battalion, which was critically short of fuel. Capt. Hall then went forward.
>
> At approximately 1300 hours, the fuelers were topped off by 201st Fwd Spt Bn. Before my planned move with the now full fuelers, Maj. Brown, the 201st Fwd Spt Bn XO, told me to hold in place. He said Lt. Col. Schenk had decided to consolidate all of the brigade's fuel assets into one convoy. I tried to get these instructions changed through the senior officer present at the brigade ALOC, Capt. Roberts. Even though I had no approval from brigade, I attempted to move the fuelers to the battalion. I was stopped by Maj. Brown.
>
> The brigade convoy departed at approximately 1400 hours. I went with the convoy, hoping at some point to be able to regain control of our fuelers, or at least spot the lost thirteen fuelers. I brought Lt. Ortega with me. Assuming the worst had happened to Lt. Thompson and some (or all) of his convoy, I intended to put Lt. Ortega in charge of what remained of the battalion's fuel assets.
>
> The convoy took approximately four hours to catch up with trail elements of the brigade. En route, we continued to search for Lt. Thompson, but to no avail. We passed hundreds of bypassed Iraqi soldiers. Most were without weapons, however, some remained armed. Those who were armed made no hostile move toward the convoy as we directed them southwest. At one point, we passed a lone Iraqi soldier who was wandering aimlessly. There were no other soldiers in the area. As we passed him, he appeared weak and without any water or rations. He could barely walk. We felt sure if we left him, he would die. We took him prisoner, and he was eventually returned to 201st Fwd Spt Bn.
>
> We linked up with Lt. Col. Schenk at 1730 hours. We convinced him to release our four fuelers (TF 3-37 also required control of theirs). At this point, we also linked up with Capt. Hall. We went forward with him to top off vehicles from the four fuelers. We finally linked up with the battalion at approximately 1930 hours. We still had not regained contact with Lt. Thompson.
>
> The BSA jumped again at approximately 1500 hours. The field trains were now under the command of 1st Sgt. Thiede since Lt. Ortega and I were forward with the battalion TOC. We spent the night at the battalion CP.

Statement by Capt. Hall, the Battalion S4, describing his actions attempting to find fuel for the battalion 27 February 1991:

> About 0730 hours on 27 February, I left the battalion in search of fuel. I took the four empty HEMMTs from the ALOC and started on my forty to fifty mile march back through the desert to link-up with the BSA. As I worked my way back, I passed countless enemy vehicles and numerous EPWs wanting me

to take them. I did not have the time nor the capability. I ran into Command Sgt. Maj. Stockton. He was in the process of rounding up EPWs and I told him where some more were located.

Once I reached the BSA, I was informed there were no five thousand gallon tankers available. They would arrive around 1200 hours. Time being critical, I waited until 1300 hours and the five thousand gallon tankers had still not arrived. I left the HEMMTs and went forward in search of the battalion which was moving forward. I received a call from Capt. Clidas. He had four full HEMMTs at the brigade Logistics Release Point (LRP). I told him I would meet him there and take the fuel forward.

About 1500 hours, I linked up with CPT Clidas and started forward to the battalion when I got a call from A Co's 1st Sgt. He had seen T55 tanks and fifty enemy dismounts located along my route. I worked my way through the wadi, staying in the low ground out of sight, until I saw an artillery battalion headed north. I fell in with the artillery battalion for protection and the fifty enemy dismounts surrendered as we drove up to them. I linked up with the battalion just before dark and topped them off. Just another fun day.

We still had not found our missing thirteen fuel HEMMTs. I had all but given them up as lost. As Col. Moreno located fuel trucks from adjacent units, I dispatched a guide to link-up with the trucks and guide them to us. I sent Capt. Loche to the 1st Engr Bn to get trucks; and Lt. Powers to 4th Bn, 5th FA, for fuelers. They brought the trucks back to us. We ran a gas station refuel with each vehicle rationed to one hundred gallons. It was a hectic, pressured situation. We were able to meet our next start time of 1400 hours by the skin of our teeth. I was embarrassed over the fuel situation. We brought one fuel truck with us in the trains for an emergency refuel.

Statement by Lt. Powers, the Mortar Plt Leader, describing his attempts to assist in getting fuel for the battalion 27 February 1991:

On 27 February at approximately 1300 hours, Lt. Col. Marlin, Thunder Six, instructed me to take my platoon to Col. Moreno's location and fuel my platoon up. We had to LD at 1400 hours. I gathered my platoon on the move and linked up with a 4th Bn, 5th FA fueler. I received the mission at 1300 hours and was fueling by 1305 hours. The link-up point was two kilometers away. I fueled up my platoon and was instructed to escort the fueler with remaining fuel back to the battalion. It had about twenty-two hundred gallons left.

I left Col. Moreno, Dagger Six, and was on my way back when Thunder six told me to go back to Dagger six's location and pick up two more fuelers for the attack. I told my Platoon Sergeant, Sgt. First Class Hill, to line the platoon up at the fuel point and drop the 4th Bn, 5th FA fueler off. Then I got back in my HMMWV and went back to Col. Moreno's location to pick up two more fuelers and a five-ton truck from the 1st Engr Bn. I linked up with Lt. Col. Hawkins (1st Engr, Battalion Commander), picked up the fuelers, and headed back to the battalion. I arrived just in time to jump back in my mortar carrier and give the fuelers to Capt. Loche. This was one of the most intense hours of the attack.

Attacking to Objective 1

At 1400 hours, we continued the attack. We moved out in a column formation. It was the only way we could get out of the area. As we filed out, we tried to get back into a box formation. C Co opened up on about three T55 tanks to our south at close range (four hundred meters). TF 3-37 complained on the radio about fires cutting across their front. At first I thought it was from us but discovered it was from TF 2-34 to their south. The terrain forced us to the south and I had no visual contact with TF 3-37.

Col. Moreno became concerned as it became dark about 1530 hours. He instructed me to head north, if I could, and set us back on course. TF 3-37 would have to catch up. I set a new course sending us through a very rough piece of terrain. The hills rose as high as one hundred feet and we were channelized. I took the lead after we hit a dead end. I led the battalion out of the area and back on to flat terrain as darkness fell.

The Mortar PIt and combat trains had a difficult time keeping up with the battalion. The combination of darkness and terrain made trafficability slow. Lt. Powers' M113 APC dropped into a large crater attempting to keep up the pace. The crew was badly shaken up and a pair of night vision goggles was lost. A three-quarter ton trailer, with a generator, broke free of the towing vehicle and was a true combat loss. Numerous crew

members and wheeled vehicle personnel received rough rides and lost equipment keeping the pace of the attack. There was no doubt in any soldier's mind about having the Iraqis right where we wanted them. We were determined to keep up the pressure.

The battalion trains were at the end of the column. Staff Sgt. William J McCormick' Ill's tank had lost all turret power and was traveling with the battalion trains. During hours of darkness, the trains were engaged by a bypassed T55 tank concealed in the berm area. Staff Sgt. McCormick destroyed the tank with the help of 1st Sgt. Thiede. Without his help, the trains would have been at the mercy of the enemy tank.

Statement by Staff Sgt. Mccormick, A12 tank commander, describing his defense of the combat trains the night of 27 February 1991:

> On February 27, 1991, our tank, A12, departed our battalion's area and linked up with Lt. Thompson's combat trains for the road march to rejoin A Co. Around 1100 hours, we came upon a couple of destroyed BMPs. We were still in Iraq. I then ran into Sgt. First Class McCurnin and Sgt. Danny G. Richards, the NCOIC of EPWs and his driver. I asked Sgt. First Class McCurnin if this area was clear of the enemy and he told me about two Republican Guard soldiers and a lot of EPWs captured here this morning. So, I took it that the area was not clear and informed the crew.
>
> I talked to the crew members of two ADA Vulcan tracks from 3rd Bn, 2nd ADA, B32 and B33, and let them know where I would be located. I then proceeded to stay close, within two hundred meters, and was looking for targets. Included in our column was the battalion BSA convoy, D13 crew and D34, and two BFVs from 1st Sqdn, 4th Cav.
>
> Around 1900 hours, we were looking at a still serviceable enemy APC and moved toward it to investigate. Upon coming around the right of the APC, we spotted a large group of Iraqi soldiers running into their trenches. We then departed the area and linked back up with D13 and returned. We captured twenty-two EPWs, put them in a column, and marched them to a road intersection guarded by an M88 recovery vehicle from 201st Fwd Spt Bn. I talked to the company commander. He said we had to take care of them because he had no transportation. We then started searching the EPWs and a platoon of MPs pulled up. We turned over the EPWs and confiscated their equipment from them.
>
> Just prior to departing, we saw and then heard a Vulcan open fire from the direction of the convoy. I called them on the radio to get a Situation Report (SITREP) from them. They said they identified dismounts in the area and one of the BFVs identified a T72 tank.
>
> A12 and D13 raced up to the convoy and on the way I found out D13 had not bore-sighted before he departed in the morning. Both tanks battle carried sabot (M833). I instructed D13 to take the right side of the column and I would go to the left. About halfway to the column, the BFV reported he fired a TOW at a T72 and destroyed it.
>
> After passing the BSA part of the column, my gunner said he identified a moving T54/55 tank. I tried to get one of the BFVs to verify the target. He could not identify the target. I next went to the ADA Vulcans and asked if B33 could see the target. He could see it, but could not verify it. A minute or two later, my gunner, Sgt. Otis Harris, Jr., informed me the enemy tank fired and the turret was moving in the convoy's direction. I called B33 to cover my move away from the convoy and toward the tank. I called the BFV and told him to get the convoy moving. He said they could not move. The lead element's Magellan GPS was screwed up waiting for an update. We fired at a range of thirteen hundred thirty meters and the splash [small hit] was noted by my gunner, my driver through his VVS-2 [driver's night sight], and myself. We scanned the area for about a minute and determined the target was killed. No other targets were in sight during this period of time. We could only identify destroyed T54/55 tanks, BMPs, BRDMS, and a lot of trucks.

It took a while for everyone to file out of the quarry-type area. We regained the formation and moved toward Objective 1. We were all alone. TF 3-37 was not in sight. From the conversations on the radio, they were to our rear and southerly. There were about four burning armored vehicles to our front. The area was flat and open! I was relieved to be out of the bermed, quarry-type terrain before nightfall.

A column of British vehicles passed perpendicular to our front and caused confusion. We almost engaged, but held our fire until we properly identified them. They were in the wrong place at the wrong time and almost paid a serious price.

We started moving out in a box formation—C and B Cos went on line. About five kilometers later, a machine gun opened up on the lead tanks. About six of our tanks responded simultaneously with machine gun fire. The two Iraqi soldiers surrendered. We were tired, but the multiple machine gun fire response certainly quelled any thoughts of anyone not being on guard, alert and ready.

Col. Moreno called and told me to halt. We were to laager for the night and provide protection for two artillery battalions to our rear.

If there was a moon, it was blocked out by the oil fires' smog. I halted the battalion and drove my tank the three kilometers to the south to link-up with the two artillery battalions. I drove to their TOC site and spoke with the operations officer. I was the first one to arrive, so I diagrammed a perimeter for our battalion and TF 3-37. I informed them I would set up accordingly and they should pass on the information to TF 3-37 when they arrived. I called on the radio the center of mass grid locations and weapon orientation for each of our commanders. I still had fifty operational tanks at this point--operational in the sense they could fight, but not operational according to operator manual's standards.

Editor: The battalion commander's focus in the operations described lies upon sustaining his unit's combat power and a rapid pace of operations. Hence, great concern is manifest over the fuel situation, which becomes critical following the loss of most of the battalion's fuelers. Finding additional fuel supplies becomes the primary focus of the HHC commander and gains the attention of the brigade commander, who seeks to secure fuel from other units. The fuel situation, however, is not the only concern of the battalion commander, who is also trying to maneuver his unit, coordinate its movement with that of TF 3-37 Armor, and keep to timelines established by higher commands. All had to be accomplished amid limited situational awareness/ understanding in a largely featureless desert that placed a premium upon GPS navigation. However, when satellite feeds cannot be secured, the unit experienced difficulty determining its position, particularly when its leadership became convinced that an adjacent unit had a made a wrong turn. The unit sorted out its location and reached its objective, but the event is typical of the chaos that plagues combat operations—even by well-trained and disciplined organizations.

The battalion commander worked to maintain his combat power even as vehicles suffered mechanical failures, threw tracks, or suffered fires. Consequently, units and crews endeavored to perform those repair actions that they could even when so doing contravened existing maintenance policy. By the close of this narrative, the period of intense movement and combat rendered most of the battalion tanks non-mission capable by peacetime standards.

Significantly, in this narrative, the battalion commander's focus is not upon tactics and gunnery, which is addressed largely at the company and platoon levels. To be sure he establishes basic formations, timelines, and tactical guidance, but the commander had to lead and manage the battalion as a whole, and in the fast paced environment of Operation DESERT STORM, this necessitated attention to supply and sustainment concerns. Indeed, the criticality of the fuel situation was impressed down to the company commanders, making it of prime concern to them as well. Without fuel, the unit could not maneuver, could not destroy enemy forces, and could not accomplish the parent brigade's objectives. Hence, this passage constitutes a good example of the different perspective and broader range of concerns that a battalion commander must address in comparison with company command.

Armored Night Attack

Editor: Written by 2d Lt. Richard M. Bohannon and entitled "Dragon's Roar: 1-37 Armor in the Battle of 73 Easting," this article first appeared in *Armor* (May-June 1992), pp. 11-17. The author commanded an M1A1 tank platoon during 1-37 AR's night attack upon elements of the Iraqi Tawakalna Division on 26 February 1991.

Virtually all branches of the U.S. Army generated lessons learned as a result of Operation DESERT STORM, particularly Armor. The ideal tool for desert combat, Armor met with extreme success in Iraq and Kuwait. With the lessons we learned there, we have the potential to be even more successful, not just in the desert, but in any environment.

One battle, in particular, showed us - the 1st Battalion, 37th Armor Regiment - a score of strengths, as well as areas for improvement. On the night of February 26,1991, we fought against the 29th Brigade of the Iraqi Tawakalna Division in what we now call the Battle of 73 Easting (or the Battle of the Tawakalna). The Tawakalna, part of Saddam Hussein's Republican Guard, was established in a blocking position in an attempt to allow retreating Iraqi forces to their rear an escape to the north. It turned out to be a costly attempt for the Iraqis.

Much thought went into the organization of 1-37 Armor prior to that night battle. When we arrived in theater in December 1990, Battalion Commander Lt. Col. Edward L. Dyer made the decision to exchange some equipment with theater reserve in order to better equip our scouts and first sergeants for their missions. The scouts initially had three M113 APCS and three M901 ITVs. We turned in the ITVs and in return drew six HMMWVs from theater reserve. These six HMMWVs, plus the first sergeants' HMMWVs from B, C, and D companies, were given to the scouts and organized into three sections, each with three HMMWVs. Each vehicle had an M-60 machine gun mount and a crew of three scouts, one with an M16A2 rifle, one with an M203 grenade launcher, and one manning the M-60. Thus organized, the scouts had a lower profile and were better suited to provide intelligence to the commander and to avoid decisive engagement with the enemy. Each of the first sergeants in companies B, C, and D then received an M113 APC, providing them with armor protection on the battlefield.

It also became apparent that the M577 was an unsuitable vehicle for a TOC during offensive operations. TOC personnel found they could operate more efficiently out of a HMMWV with lapboards. They used the battalion commander's vehicle, which had a three-net capability. In early February 1991, 1-37 Armor reorganized into an armor heavy task force. We exchanged A/1-37 Armor for C/7-6 Infantry. Lt. Col. Dyer chose not to task organize further into company teams, because if we had to clear trench systems of large numbers of dismounted troops, he wanted our infantry concentrated under one command.

On the afternoon of February 26, TF 1-37 advanced east as the right flank task force in the 3rd Brigade wedge, and as flank task force for 1st Armored Division. TF 7-6, a balanced task force, led the brigade, and TF 3-35 covered the left flank. Our mission was to attack in order to destroy the Republican Guard Medinah Division at Objective Bonn. At about 1600, we received in-flight reports from the brigade's air scouts who spotted about fifty tanks and other vehicles in revetments along our axis of advance 35 kilometers west of Objective Bonn. We obtained six-digit grids that outlined their battle position and distributed this information down to tank commander level.

The discovery of such a large and previously undetected enemy force in our sector came somewhat as a surprise. Before the ground war began, our S2 kept us informed daily of all shifts of major units, BDA inflicted by the Air Force, and other pertinent information. His sources included Air Force reports that were usually less than 24 hours old, and aerial photographs that enabled him to template enemy positions down to individual vehicle fighting positions. Our superior intelligence gave us an enormous advantage on February 25 in our fight with the Iraqi 26th Infantry Division, and in 1st and 2nd Brigades' Battle for AI Basayyah. For both of those battles, all vehicle fighting positions, bunkers, buildings, and obstacles were templated and exact numbers of vehicles known.

Before Operation DESERT STORM, the Tawakalna had been templated about fifty kilometers northeast of their position on February 26. They had recently moved out of the northern position, making our previous information inaccurate.

The enemy's new templated position straddled the operational boundary between 3rd Brigade, 1AD, and 2nd Brigade, 3AD. USAF A-10 strikes pummeled the position, and 2nd Brigade, 3AD began to attack with artillery and illumination in its sector to the south. Third Brigade approached to within 10 kilometers of the position.

Visibility worsened, due to a sandstorm mixed with rain. Thermal sights effectively cut through the haze, but identifying vehicles by type beyond 1500 meters was virtually impossible.

1930 to 2000

Direct support artillery (3-1 FA) began to prep the enemy's position in 3rd Brigade's sector using 155-mm DPICM. The brigade changed to a line formation, bringing TF 1-37 up with TF 7-6. TF 3-35 remained in the rear as the brigade reserve. In addition, Task Forces 1-37 and 7-6 both brought their teams/companies on line. TF 1-37's scouts moved to the right flank to Screen and maintain coordination with 3rd AD. Enemy dismounted troops to the front opened fire with machine guns but were ineffective. TF 7-6 responded by engaging enemy vehicles at long range with Bradley-mounted TOWS.

Comments

Throughout the war, direct support artillery and close air support were effective weapons for the deep attack. In desert environments, we must be prepared to use these assets primarily at brigade level. Of course, we will continue to train artillery call-for-fire, at least down to the tank commander.

One cannot overemphasize the value of rehearsal. Days of battalion-level battle drills in the sandstorms of Saudi Arabia paid immense dividends in Iraq. Even before the ground war began, we were accustomed to operating at night and in bad weather, with few halts and no terrain features to guide on.

Combat leaders must be skilled navigators, but even the most expert navigator had little chance of knowing his location, calling accurate indirect fire, or reporting enemy locations and obstacles in the unchanging nothingness of southern Iraq. Therefore, we had to use GPS (Global Positioning System) and LORAN (Long-Range Navigation) devices. All together, TF 1-37 had 26 individual navigational devices. Three went to each tank company, six to the infantry company, four to the scouts, and one each to the mortar FDC, the TAC, TOC, LNO, S4, S3, and battalion commander. We had an adequate number of devices, considering the openness of terrain and the ease of guiding on someone who was navigating with a LORAN or GPS.

Such systems would even have value on European terrain, expediting and providing greater accuracy for maneuver, indirect fire, and reports. In Operation DESERT STORM, there was no need to distribute the devices down to tank platoon leader level, but in Europe, we should because of the increased probability that tank platoons will operate out of visual contact of someone with a LORAN or GPS. If such systems do become more widely available, leaders must remember that a GPS is not a substitute for traditional methods of navigation. We should continue to stress standard land navigation techniques.

2000 to 2030

TF 7-6 was set at the 68 North-South grid line, oriented toward the enemy position 2.5 kilometers to the southeast. TF 1-37 was on TF 7-6's right flank, orienting directly east on the same position. TF 1-37's combat trains were at the 63 grid line, five kilometers to the west, while company combat trains continued to tail the companies.

Meanwhile, the pace of the fight began to accelerate. D/1-37 observed enemy troops 900 meters to its front advancing in 3-5 second rushes, and destroyed them with coax. TF 7-6 and TF 1-37 reported additional troops and vehicles at 2000-4000 meters. They destroyed these targets with coax, TOW, 25mm, and tank main gun fire. Four unidentified vehicles fled to the east of the enemy's position and were not engaged, due to the extended range (4.0 to 4.8 kilometers). Meanwhile, 2nd Brigade, 3rd AD began a ground attack in the adjacent sector to the south.

Direct support artillery ceased fire on the objective, while MLRS rockets began hitting deep targets to the east. The Brigade called OH-58Ds forward to determine battle damage, and TF 7-6 fired illumination rounds to improve surveillance of the objective.

Comments

The Bradley has proved to be a capable weapon system. Not only was its TOW an effective tank killer, but its 25-mm gun was also capable of destroying or disabling most Iraqi tanks and PCs.

After the battle, we discovered that our artillery did not hit the intended target. In fact, the entire barrage struck an empty area of desert several hundred meters beyond the enemy positions. The difficulty of gauging distance in the desert, in addition to the poor visibility conditions, made artillery range adjustment difficult. Nevertheless, the artillery strike was effective psychologically. During the strike, the Iraqis believed they were under air attack, fled from their vehicles, and sought shelter in their underground bunkers. Most didn't realize they were under ground attack until it was too late. Many were killed by direct fire as they attempted to remount their tanks.

2030 to 2100

Third Brigade Commander Col. Daniel Zanini instructed TF 1-37 to sweep across the objective and halt 3 kilometers past the far side. TF 7-6 would lift fires and remain set in overwatch. 1-37's company trains and TOC would also remain set as the tanks advanced on line. The infantry company followed 1000 meters to the rear of the tanks in order to police up any troops the tanks missed. We advanced at a slow 5-10 kph rate. By 2100, at least eight enemy vehicles were burning.

Comments

Forty-five tanks assaulting on line can wreak havoc on the enemy, but are difficult to control during limited visibility and combat conditions. We had rehearsed this play, known to us as "Dragon's Roar," several times in Saudi Arabia, and we used it in our battle with the 26th Infantry Division on February 25. These experiences greatly simplified execution during the battle, as did continual cross-talk between companies and platoons.

Some commanders opted to use company command-directed nets, rather than platoon nets, and in some cases this expedited command and control. In other cases, it merely added to the confusion. When using a company command-directed net, if individual tanks encounter problems or observe something that other tanks do not, you have the potential to have 14 or more people on one net, and command and control is lost.

On the other hand, if an operation is simple enough that a lot of feedback is not expected, a command-directed net will allow the commander instant access to each crew, speeding information flow and response to his order. The commander must carefully assess his unit and the specific situation before he decides to use a command-directed net.

Another measure we took to facilitate command and control was to use filtered light. While in Saudi Arabia, we removed taillight covers on all vehicles, mounted colored flashlight filters on the inside, and remounted the cover. The lights served not only to identify a vehicle's location, but its unit as well (the color of one taillight identified the vehicle's brigade: the other, its battalion). More than one filter was used for each taillight, in order to make them almost invisible to the naked eye, but they appeared as bright as a beacon with night vision devices. One company took the idea a step further and stacked filters in their flashlights until the light was invisible to the naked eye but visible with PVS-7s. They could then use the flashlights for signaling.

2100 to 2130

The attack continued toward the east. To our front we faced dismounted troops in trenches and numerous armored vehicles in defilade, consisting predominantly of T-72s and BMP-1s. We fired at most of the vehicular targets at ranges of 2200-2800 meters, but engagements beyond 3000 meters were not uncommon. One M1A1 on the move hit a BMP with a HEAT round at 3250 meters. The longest shot with a confirmed kill was 3750 meters. The Iraqis returned fire, chiefly with small arms and machine guns, but also with T-72 main gun and/or dismounted antitank missile teams. Apaches joined in the fight off the flanks of TF 1-37. Five dismounts surrendered to D/1-37.

Comments

There were a lot of gunnery lessons here. First, because one of the M1A1's advantages is its stand-off capability, we should consider long range gunnery training. Our current tank gunnery tables are adequate training for European terrain and should be retained. However, we need to add long range tables specific to desert gunnery. In addition, we need to incorporate high fidelity friendly targets into gunnery and penalize tanks that shoot them.

AFV identification definitely was difficult. Gunners could easily acquire targets, but could rarely identify vehicle type past 1500 meters. Part of the problem was the sandstorm, but many soldiers pointed out that we need sights with higher magnification. The M60-series tank had a 13-power sight, and the M1A1 definitely has a higher quality fire control system than the M60. A 20-power sight would be ideal. This, or an IFF (Identify Friend or Foe) system, would greatly assist us.

The M1A1's fire control system dominated the battlefield. Boresights held for 300 kilometers of travel with only MRS updates needed. Despite the non-stop nature of operations, very few fire control systems malfunctioned. Even our main gun ammunition appeared quite sophisticated when compared with the pig-iron sabot rounds the Iraqis used. We had no problem knocking the turrets off T-72s almost every time.

In the offense, gunners should be in charge of the turret, acquiring and engaging targets, while the TC controls his vehicle or subordinate unit. If tank commanders and platoon leaders spend too much time looking through their GPSEs [gunner's primary sight extension], they get tunnel vision and can't see where their tank or platoon is going in the big picture. During defensive operations, the TC will have more opportunity to assist the gunner with acquiring and laying the gun on targets, but on the move, the TC must keep his attention on the overall situation.

Lastly, the concept of the "fighting XO" worked. Keeping the company XO forward and talking to the task force commander, while the company commanders stayed on their internal nets, proved effective.

2130 to 2200

We fought a close battle on the objective. As we maneuvered around burning vehicles and bunkers, we lost four tanks to enemy fire. The first was D-24, which was struck in the left side. The explosion killed the engine and injured the loader and gunner. Tank Commander Sgt. First Class Anthony Steede immediately began the evacuation of his crew. On the ground, he maintained radio communication via an extra-long CVC cord. While Gunner Sgt. James Kugler led the men to the safety of another tank, Sgt. First Class Steede remounted the vehicle and attempted to restart it. Unfortunately, the engine was severely damaged and he was forced to abandon the tank.

At about the same time, a tank from Company B took a hit in the rear. The engine quit, and all power controls ceased to function. Tank Commander Sgt. Christopher Rhett said later, "From my perspective I knew it wasn't a mine. It definitely felt as though we were hit."

Sgt. Tracy Sells, the gunner, added, "It rattled our cages. In fact, it knocked the TC and loader up in the air and back down again."

As a precaution, the crew immediately engaged the Halon fire extinguisher system, which put out any existing fire.

Suddenly, the tank was struck again. The crew evacuated and took cover about 50 meters away as the tank caught fire. Eventually, they were able to flag down a passing tank from Company D for assistance.

On the right flank, Company C had problems of its own. The first tank hit, C-12, was disabled, but the crew escaped uninjured and took cover under the front slope. Nearby, 1st Platoon leader, 2d Lt. Albert Alba, saw the explosion and made his way to the scene. He directed suppressive machine gun fires on the suspected enemy position and, upon spotting an undamaged BMP-1 in the immediate area, destroyed it with a sabot round. His loader, Pvt. First Class Michael Hamouz, dismounted and ran to C-12 to offer assistance.

Suddenly, the company commander's tank, also in the area, was struck. As the crew attempted to dismount, the tank was hit by a second round, throwing the commander and his loader from the turret to the ground. The crews from the two disabled tanks ran to 2d Lt. Alba's tank. When all eight crewmen were safely

on board, Alba hastily employed smoke, executed a Sagger drill, and left the area. He soon rejoined the rest of Company C to the east.

Upon hearing that the CO had been hit, 1st Lt. Jeff Fuchs, Company C executive officer, immediately assumed command of the company until the commander's return, 20 hours later.

Secondary explosions of burning Iraqi vehicles threw shrapnel and other debris in all directions as pillars of flame rose to a ceiling of black smoke.

Virtually all enemy vehicles in the area were destroyed, but dismounted troops remained hidden in trenches and bunkers. Companies C and D both reported receiving small arms fire from their rear as they swept toward the east. Fortunately, physical clearing of the trenches wasn't necessary; the Iraqis surrendered in force and came forth voluntarily. But if the infantry had been ordered to dismount from its Bradleys to clear the trenches, and if our previous artillery attack had been on target, friendly forces would have had to contend with unexploded CBUs (cluster bomb units) and DPICM bomblets from air and artillery strikes in addition to Iraqi bullets.

Comments

Speculation continues concerning what shot our four tanks. The three most probable answers are T-72 main gun, dismounted antitank missile, or Apache-launched Hellfire missile. The fact that Apaches were operating to our rear and a witness's reports of high round trajectory support the friendly fire theory. However, ballistic reports suggest that 125-mm HEAT rounds produced the damage on some of the tanks. Visual examination of others reveals an obvious sabot hole. Overall, the physical evidence implies that T-72 fire took out our tanks, but the friendly fire possibility cannot be excluded.

The Abrams is a rugged tank. Within days, we recovered three of the four disabled M1A1s with an M-88 recovery vehicle. With parts we had on hand and enough time, two of those could have been driven off the battlefield. Only one of the tanks was a catastrophic loss.

More important, the Abrams is a survivable tank. After our four tanks were disabled by enemy fire, ten crew members emerged almost unscathed and the other six had non-life-threatening injuries.

One oft discussed protective feature of the M1A1 that is worth mentioning is the commander's hatch. In the open-protected position it provided excellent protection against raining shrapnel while still allowing clear 360-degree visibility.

A combat lifesaver on every tank is a must. When we crossed the objective, our combat trains were still several kilometers to our rear. Without personnel immediately available to stabilize casualties, their status could have been much more critical.

We already train tank crew evacuation, but we also need to address actions after evacuation. Soldiers should have more than just their personal weapon and Kevlar when they hit the ground. Their rucksack should be packed so that the soldier can survive on his own for a period of days, and should be easily removable. In addition, an extra-long CVC cord should be hooked into one of the crew stations so that dismounted crews can maintain radio communication without remounting the tank and drawing enemy fire.

Lost leader drills proved their worth to Company C. They should be incorporated into all field exercises.

Finally, the use of DPICM and CBU use must be addressed in the operations order. Due to the large number of unexploded bomblets, an area attacked with DPICM or CBUs should be considered a minefield capable of killing dismounted troops and disabling wheeled vehicles. We must take great care when considering the use of DPICM or CBU in the attack, as this may preclude or make more hazardous the use of dismounted infantry to clear the objective.

2200 to 2230

Iraqi troops surrendered in large numbers to our infantry, and soon we had over 100 EPWs. 1-37's combat trains rejoined the tanks to the east and MEDEVAC procedures commenced for casualties.

Comments

Commanders need to consider command and control of the combat trains when separated from the line platoons. In addition, first sergeants don't need to be on the battlefield in HMMWVs; they should have armored vehicle protection.

EPW operations need more thought. Our biggest problem was transport to the rear. We put prisoners in whatever was available: Bradleys, trucks, scout HMMWVs, engineer M113s, even ACE buckets.

Conclusion

At 2300, the infantry reported the area clear, and at 0050 the next morning, the brigade reformed and continued the attack east. Final BDA for TF 1-37's sector of the Battle of 73 Easting included 21 T-72s, 14 BMP-1s, two 57-mm AA guns, one T-62, and an MTLB destroyed, and over 100 EPWs. Our personnel status was zero KIA, zero MIA, six WIA. TF 1-37 added two more successful battles to its history by February 28th. When the war ended, we found ourselves a few kilometers inside liberated Kuwait.

We can attribute the success of 1-37 Armor, and the U.S. Army in Operation DESERT STORM, to many things, not the least our flexibility and ability to adapt training and other operations to ever-changing situations. We must apply lessons learned from DESERT SHIELD/STORM to current training if we want to maintain an advantage on the battlefield because, next time, our enemy may not give us time to train in his backyard.

Editor: The comments provided by the author and embedded in the article are worth reading, since they provide a sense of how the platoon leader assessed the action of his unit. Of note is the potential problem caused by the use of dual purpose improved conventional munitions which scattered bomblets over an area and could be set for a delayed reaction, making these munitions a potential hazard to a force advancing into or through an area struck with them.

The platoon was part of an armor battalion that task organized prior to combat operations. In addition to exchanging a tank company for a mechanized infantry company, the battalion commander also reconfigured his mixed M113/ITV scout platoon into an all HMMWV unit. Ironically, however, HMMWV scouts were subsequently considered not viable for the combat environment of DESERT STORM due to their lack of survivability. The only reference to scout operations in this night action is their employment on the flanks to keep contact with adjacent units.

This depiction of night engagement lacks the general sense of confusion and disorientation of other, similar accounts. No doubt the unit's training and rehearsals in low visibility operations and the use of the GPS gave them a decisive edge over their Iraqi counterparts. Moreover, the attention given to the use of light filters visible to night vision devices improved awareness of friendly vehicles. This simple expedient offered a low tech and effective means of identification that did not rely upon satellites or other electronic/digital systems potentially prone to jamming.

The article provides a clear indication of the superiority of US gunnery effectiveness and related training. However, tank gunnery in DESERT STORM posed a fratricide risk, since tanks proved able to engage and destroy targets at ranges beyond which they could properly identify them. Indeed, fratricide concerns proved a driving influence in the digitization developments of the 1990s. The author highlights the uncertainty surrounding the loss of four Abrams tanks during the engagement. Given the generally low effectiveness of Iraqi gunnery on 26 February, particularly at night, it is more likely that these tanks were hit by US weapons.

Combined Arms Task Force Conducts Night Attack

Editor: This article details the actions of Task Force 2/34 Armor, a combined arms task force that engaged in a night action involving a forward passage of lines and an attack into alerted enemy heavy forces. Written by Col. Gregory Fontenot, who commanded 2/34 AR during Operation DESERT SHIELD/STORM, the article was entitled "Fright Night: Task Force 2/34 Armor," and appeared in the January 1993 issue of *Military Review*.

Before daybreak on 26 February 1991, the 1st Infantry Division (1ID) (Big Red One) moved north to join the 1st and 3d Armored divisions (ADs) in a three-division attack on the Republican Guard. During the previous two days, the Big Red One breached prepared positions of two Iraqi divisions. The 1st AD (UK) passed through the breach to attack the tactical reserves of the frontline Iraqi corps defending the western end of the Saddam Line. The remainder of VII Corps, led by the 2d Armored Cavalry Regiment (ACR), streamed around the western flank of the Iraqi defenses and moved north.

The corps plan required the Big Red One to move in a corridor, between the 1st AD (UK) and the 3d AD, which 2d ACR had cleared. The first order of business was to close on the 2d ACR, which was 40 kilometers (km) north of the division and moving. The 1st ID commander, Major General Thomas G. Rhame, ordered the 1st Squadron, 4th Cavalry (1/4 CAV) to lead, followed by 1st Brigade. Because the zone was narrow, Rhame directed the rest of the division to follow in column until clear of the British rear area north of Phase Line (PL) New Jersey. (1)

The 1st Brigade moved out at 0530 toward PL Harz, approximately 60 km north. At Harz, the brigade planned to assume hasty defensive positions prepared to attack the Republican Guard, probably on 27 February. Initially, space constrained the brigade's movement. Accordingly, 1/34 Armor (AR) (1st Battalion, 34th Armor) led the way, followed by Task Force (TF) 2/34 AR (2d Battalion, 34th Armor). Behind them trailed 1st Battalion, 5th (1/5) Field Artillery (FA) and TF 5/16 Infantry (5th Battalion, 16th Infantry). The brigade service support assets brought up the rear. (2) This article traces the operations of TF 2/34 (Dreadnought) during the Big Red One's movement forward and attack on elements of the Iraqi Tawakalna Mechanized Division and 12th AD on the night of 26-27 February 1991. Journalists have referred to the Big Red One's attack as the "Battle of Objective Norfolk." The soldiers call it "Fright Night," which far better describes the events of that night which, among other things, resulted in the destruction of nearly 300 Iraqi armored vehicles. During an all-night battle of immense dimensions and enormous confusion, the division destroyed two Iraqi brigades and penetrated the positions of both the Republican Guard and scratch forces of the Iraqi Jihad Corps.

The Dreadnoughts played a key role in the battle, destroying approximately 70 armored vehicles, two dozen trucks and an undetermined number of enemy infantry while capturing 728 enemy soldiers, including 308 during the night fighting. A balanced task force of nearly 1,000 soldiers, TF 2/34 had gone into action on 18 February 1991, firing their first shots against an enemy outpost. From then until cease-fire, the Dreadnoughts remained in constant contact with the enemy. On the morning of 26 February, still mourning the loss of two dead and four wounded comrades, they faced a new phase of war. No more fending off enemy reconnaissance or overwhelming demoralized dismounted infantry; now they were joining the main battle against Iraq's best troops. (3)

During the Gulf War, coalition forces waged the largest tank battles since World War II, testing doctrine, equipment and readiness. The Dreadnought's experiences during Fright Night provide the opportunity to consider the unique nature of armored warfare at night. Their tale is told in the belief that insights may be developed which will form part of the Army's evaluation of its performance during Operation Desert Storm. Learning from the experiences of TF 2/34, and those of the many other units that headed north in February 1991 may help the Army to meet the chief's goal of "No more Task Force Smiths!"

At 0330, 26 February, the Dreadnought orders groups convened to complete orders for the day. Both enemy and friendly situations remained vague. Brigade only knew that 1st AD (UK) was in contact to the east of the division zone and that 2d ACR had made contact with enemy reconnaissance late on 25 February. The update received by radio from the 1st Brigade commander, Colonel Lon E. Maggart, confirmed that the

brigade would occupy reserve positions, vicinity PL Harz, some 60 km north, which meant the 2d ACR was at least that far or moving. With this limited information, task force leadership completed movement planning and plans for occupation of positions on PL Harz. The Dreadnoughts would advance in a box formation with platoons in column, bringing along all of the fuelers in the battalion combat trains. Following this short meeting, the task force mounted up and moved out.

The brigade motored along at 20-30 km per hour in a nearly impenetrable murk produced by intermittent showers, blowing sand and smoke from the oil fires in Kuwait. Periodically, flashes of lighting streaked across a greenish, dull sky, followed by continuous peals of thunder. Punctuated a few times by the discovery of Iraqis trudging south, 26 February lasted forever and seemed foreboding. Only the task force scouts, maintaining contact with 1/34 AR, could provide evidence that other "friendlies" were in Iraq.

Closing on PL Harz at approximately 1200 hours, 1/34 AR (Centurions) destroyed two tanks and captured a handful of Iraqi prisoners. On arrival, both units occupied hasty positions, tied in with each other and began collecting large numbers of prisoners presumably disarmed and sent south by the 2d ACR. In addition to 200 Iraqis captured along the way to PL Harz, the Dreadnoughts processed 220 more, including four with wounds serious enough to require air evacuation. Refueled, fed and settling in, the Dreadnoughts and Centurions were ready for business soon after 1400.

Instead of orders or information, the "mother" of all sandstorms struck with amazing violence. The storm howled steadily for two hours before dissipating into occasional gusts of wind. During the storm, the remainder of the brigade continued to close on the two lead battalions. The forward area support team moved close enough to top off fuel trucks so that once again the lead battalions had fuel. TF 5/16 (Devil Rangers) and 4/5 FA, assigned to reinforce 1/5 FA, still had not closed at 1630 when Maggart issued new orders by radio.

The new mission required almost immediate movement toward a link–up point some 20 km away. At 1800, the Dreadnoughts and the Centurions were to join on the move and head for an as yet undetermined passage point through the 2d ACR. At mid afternoon, as the remaining 1st ID units closed on PL Harz, the decision had been made to commit the division. The 1st ID would attack that night with 1st Brigade in the north or left and 2d AD (Forward) in the south or right. The division placed 2d Brigade in reserve. The 1/4 CAV had orders to screen the northern flank. On the way to the passage point, the division would wheel east onto a nearly due east direction of attack. The mission was to destroy elements of the 17thAD and the Tawakalna Mechanized Division of the Republican Guard. According to the order, 2d ACR was in contact with the 17th AD along PL Smash some 40 km northeast of PL Harz.

Attacking at night made perfect sense. Clearly, time was of the essence. All indications were that the Iraqis were on the run. Obviously, if the corps defeated the Republican Guard quickly, then those enemy units fleeing north on the Basra highway could be cut off. The technological advantages of the M1 should assure victory. Spirited discussions at the club in Fort Riley, Kansas, often centered around the conviction held by most of the Big Red One's leadership that the night belonged to the US Army. Now everyone who made that argument would get to demonstrate the courage of those convictions.

But debates at the club were not on Maggart's mind when he issued his order. Maggart assigned each of the forward units a zone of action and instructed them to destroy the enemy in zone. He also assigned objectives along PL Milford, the limit of advance, to orient maneuver. TF 5/16 would follow and support. Details on the passage would be forthcoming once brigade could talk to 2d ACR. First, however, the Dreadnoughts had to link up with the Centurions.

Both of the forward battalions were off and running in minutes. The first problem to solve was how to effect the linkup. Moving on the inside of a slow turn to the east, the Centurions covered ground more rapidly than TF 2/34. Lieutenant Colonel Pat Ritter, commander of 1/34 AR, adjusted speed and passed headings that would allow the Dreadnoughts to close the distance. In short, the rendezvous would occur by maneuvering the two battalion formations as though they were ships at sea. At sunset, Bravo Company, 1/34 AR pumped smoke that confirmed the last heading, allowing the Dreadnoughts to form on the Centurions' left flank, with neither battalion having to halt.

At nightfall, both task forces were abreast and scouts were out and moving at 30 km per hour toward a still undetermined passage point. Maggart continued to work with division while his S3 (operations officer), Major Kevin Huddy, struck out for 2d ACR to arrange the passage. Meanwhile, the brigade S2 issued overlays of

enemy positions on Objective Norfolk that were by then a month old. Whether the information was still valid was unknown, but old information seemed better than none. Sgt. First Class Mike Schulte, the TF 2/34 liaison officer, departed the brigade Tactical Operations Center (TOC) with this gem in pursuit of the task force, unsure where or whether he would find them.

In the dark, maintaining formation with the Centurions proved challenging. They seemed to move in starts and stops. After a few minutes of frustration, a call reduced the confusion immediately. Bravo Team, TF 2/34 was guiding on a tank that was having maintenance problems and not on the actual flank of 1/34AR. Upon learning this, the greatly chagrined team commander found the "real" Centurion left flank. Captain Juan Toro, Bravo Team commander, also put a radio on his counterpart's net. Eventually, the pace settled to an even 30 km per hour. Finally, having attained control, time was available to exercise command. Bouncing along in their respective turrets, company team commanders briefed their units, and the task force leadership reviewed the essentials of conducting a forward passage of lines.

Maggart, too, had these matters on his mind. Initially, he planned to pass the brigade through a 10-km gap in the 2d ACR forward line of troops. Within minutes that proved impossible, as did passage through a series of lanes the cavalry had prepared. At 2100, he ordered both units to move through a single passage point at the 70/00 grid lines. Here, 3d Squadron, 2d ACR would funnel through both of the lead maneuver units. Once forward of the 2d ACR, the Dreadnoughts would break out of movement formation and accept the battle at a grid line to be agreed upon mutually with the passed unit.

Maggart based his decision to use a single passage point partly on speculation, guidance from division and Huddy's trip to the 2d ACR. There was no time to send forward control parties or the jump command post, since the brigade barely had time to reach the 70/00 grid line intersection by 2200, the time specified for the passage. However, the 2d ACR was helpful and informative, passing clear data on the passage point and battle handoff in the Centurions' sector. Similar information was not forthcoming for the Dreadnoughts' zone, because it apparently was forward of a different squadron. For reasons that remain unknown, brigade was unable to obtain solid handoff information or provide a frequency so that the task force could talk to the passed unit. Finally, since the cavalry had broken direct fire contact with the enemy, few details were available on current enemy dispositions.

As these deliberations occurred, the brigade passed corps artillery units firing in support of the 2d ACR. The Multiple Launch Rocket System produced the usual dazzling display, while the less glamorous howitzers banged and boomed away. The corps artillery and the great sprawl of the cavalry's support area were the only heartening sights during a bleak day that showed every sign of becoming bleaker. Threading a way through the cavalry's rear area slowed the brigade to a crawl, which allowed the supporting artillery and TF 5/16 to catch up.

At 2145, as the 2d ACR fired the first set of pyrotechnics to guide the brigade to the passage point, the brigade S2 issued an intelligence summary update. The information included center of mass grids to three battalions believed to be composed of T–55s and BMPs (Soviet armored personnel carriers) belonging to the 17th AD. According to the S2, one mechanized battalion lay in the zone of TF 2/34. An armor battalion seemed to be situated just inside 1/34 AR's zone. The Centurions also faced a mechanized battalion in the southern half of their zone. Both of the two northern battalions actually defended ground in the Dreadnought zone and were armed primarily with T–72s. Dug–in infantry reinforced all three positions to the tune of 300-400 infantrymen in each zone. In fact, all three battalions probably belonged to the southernmost brigade of the Tawakalna Division.

It was time to issue the operations order for the attack. The task force order stressed that the mission was to destroy enemy forces in zone. The concept of the operation was simple. The Dreadnoughts would attack with Bravo Team (tank) on line on the right. Charlie Team (tank), also on line, would attack on Bravo's left. On the far left, Delta Team (infantry) would echelon left with his tank platoon leading. Both tank teams' infantry would trail the tanks to keep enemy antitank teams off the friendlies and to provide dismounted infantry as required. The task force command group, including my tank, the air liaison officer (ALO) and the S3—both in M113s—would follow Charlie Team. Alpha Team (infantry) in reserve would follow Delta Team just to the right and rear of its echelon formation.

The battalion mortars would bound sections on either side of the command group, Alpha Company, 1st Engineers (–) would follow Bravo Team. Alpha Company, with one engineer platoon, two combat engineer

vehicles and other equipment, would provide reinforcement to the forward units in the event a breach was required, clear bunkers and assist in the evacuation of prisoners.

Once through the 2d ACR, the scout platoon would move from forward of the task force to the task force's right flank. The scouts' job would be to maintain contact with 1/34 Armor and to screen the task force boundary. Additionally, the scouts were to keep both units apprised of the other's Iocation. To that end, the scout platoon leader directed one of his sections to become the Centurions' left flank unit.

Execution of the scheme of maneuver was also intended to be simple. Once contact was made, the Dreadnoughts would advance by task force bounds. Weapons hold was in effect until released following battle handoff. The intent was to fight engagements from 2,000 to 1,500 meters to allow certainty both in target identification and target hits. This decision stemmed from information on T-72 fire control and night fighting capability. I simply did not believe Iraqis could see well enough to hit targets at 1,500 meters or greater, and I considered the M1A1 the most dangerous thing in the desert. Finally, engagements would be cleared by unit commanders and fired in platoon volleys anytime multiple targets were acquired. In short, while this was a hasty attack, I directed deliberate execution.

Issued by 2200, the task force order evoked no surprise. Warning orders specifying this approach had gone out earlier and, in any case, the order reflected well–rehearsed formations and movement techniques. Time now slowed to a standstill. The strobe effect of the rockets, muzzle flashes of the artillery to the rear and the 2d ACR ahead cast an eerie light, further adding to the surrealistic quality of the night. Just before 2230, the battlefield quieted down and the light show, except for a green star cluster to mark the passage point, ended.

At the passage point, the Centurions moved out, with the Dreadnoughts trailing at their left rear. As the passage occurred, Ritter provided details regarding recognition signals the 2d ACR was using. Additionally, Captain Marvin Meek, assistant S3, 1/34 AR, entered the Dreadnought command net to assure effective cross communications. Meek stayed on the net all night, passing and receiving information as required. On the brigade operations and intelligence net, the two maneuver S2s and the brigade S2 shared battle tracking and assessment, further reducing the load on the commanders. As the Dreadnoughts began crossing the passage point, Major Larry Steiner, task force executive officer, dropped off the combat trains out of the 2d ACR'S way and hopefully out of harms way. Steiner and the TOC, now joined by the liaison officer (LNO) and his precious overlay, planned to jump as required to maintain contact with the task force.

At almost the exact grid of the passage point, I encountered two Bradleys marked as advertised by the 3d Squadron, 2d ACR. In sight and just beyond the Bradleys, a T–72 lay smoldering with the tank commander still at his station. I pulled up to confirm the passage point in my tank, only to learn that the task force was north of the actual passage point. Nonetheless, the cavalrymen on the ground promised to report the passage of TF 2/34. (4) Incongruously, the young troopers began to cheer and yell as the tank motored off toward the burning hulk and its grisly crew.

By 2330, the Dreadnoughts had passed through the cavalry and reached the 73 Easting. At that point, the task force began to deploy out of the box formation used through the passage. Bravo Team and the scouts moved out without incident as did Alpha Team, the mortars and the engineers. Charlie and Delta, however, went astray. As the two teams broke out from columns of platoons, their tanks and Bradleys moved left away from Bravo Team in order to have room to deploy. What resulted as the effect spread was that Charlie and Delta wound up facing north. Eventually, the two teams broke off from Bravo Team altogether.

Confused, I stopped and called Bravo Team to complain that they were not keeping up with Charlie, the base team. Toro reported that he was oriented east and in contact with enemy infantry. By this time, Bravo was out of sight to the east and Charlie and Delta had disappeared to the north. Slowly it dawned on me that Toro was right. A call to Charlie resulted in the team commander, Captain Bob Burns, getting off his tank with a compass. In short order, he called to report he was indeed facing north. This information confirmed that the Dreadnoughts were in enemy contact, with two teams disoriented.

Moreover, the task force was floundering around forward of friendly troops who were probably a bit nervous.

The two team commanders believed they could straighten it out and be back on line in 30 minutes. Meanwhile, Toro launched a star cluster to mark his position, with immediate results of enemy fire and recognition from the two "lost" teams. I was out of sight of Bravo, Charlie and Delta Teams and could only

wait and advise brigade. Maggart was not happy to hear this news, but he offered no criticism and agreed to warn the 2d ACR that TF 2/34 was pirouetting forward of their positions.

During the interminable wait for Charlie and Delta, Bravo fought dismounts and what they believed were BMPs, killing some infantry and at least one armored vehicle. Toro moved up and down the perimeter of his hasty defense to assure control of his company, which was spread over a kilometer of ground and fighting both north and east. Charlie and Delta turned around, but still could not see the rest of the task force. To orient them, I launched a star cluster, which drew Iraqi fire but also attracted the disoriented, chastened and still missing company teams. A second star cluster fired from my tank got them home and produced two kills for Toro's company. Bravo destroyed a tracked vehicle and truck, both of which were firing heavy machineguns on the blissfully ignorant and illuminated command group.

Still, the ordeal was not over. As Charlie and Delta passed the command group closing on Bravo's left rear, they encountered infantrymen in spider holes who wanted to fight. Burns, leading his company team back into the fight, discovered a rocket propelled grenade (RPG) team to his direct front. He announced he would run them down and not fire, since that would endanger Bravo. I told Burns, who was passing to my direct front, to engage them with machineguns.

Bravo buttoned up, and Charlie Team went to work. Burns attempted to run over one Iraqi soldier while a Bradley to his rear scrubbed other infantrymen off his backside. Burns missed his man, who then rose and shouldered an RPG, but one of Charlie Team's Bradleys killed the would–be tank killer with a burst of 25mm fire.

Both tank platoons fired machineguns on Iraqi infantry running between bunkers, who apparently believed they could not be observed. In less than two minutes the fire fight ended. Charlie Team's infantry platoon dismounted and swept through the area, killing those who wanted to fight and taking prisoner those who wanted to quit. At one point, one of Burns' infantry squad leaders climbed onto C-66 to report, "There's an awful lot of dead infantry out there." (5)

Under small arms fire from both the Iraqis and Charlie, Toro could not imagine how things could get worse until a flash of orange revealed the destruction of a 1/34 AR scout platoon Bradley. The scout platoon leader maneuvered his Bradley to shield the burning Bradley while Ritter moved up a tank company in support. Shortly after arriving on the scene, the platoon leader's vehicle drew heavy caliber machinegun fire that badly wounded him and killed his gunner. Nonetheless, the platoon leader remained at his post, organized the evacuation of his wounded and vectored in the supporting tanks.

The brigade attack seemed stalled, with the Dreadnoughts first lost and then dogged by dismounts. More seriously, the Centurions were coping with five wounded and one dead soldier. Maggart remained, as he did throughout the night, calm and patient while the two battalions got on with it. By 0100, both were moving again and in contact. The Centurions seemed to be in the thick of it, dispatching tracks and tanks with abandon. In the Dreadnought sector, the pace quickened about 0130 as they reached the 78 Easting. The overlay brought by Schulte revealed infantry here and armor to their north and east.

Delta Team promptly began killing what they believed to be BMPs while Charlie Team drew RPG fire. Charlie quickly reduced the enemy in the trenches. Charlie's formation had now been constricted so that their tanks were only a few feet apart. That close together, with the Bradleys backing them up, they hosed down the trenches and rolled right over the enemy infantry. A few sporadic rounds of small arms from the survivors were silenced by coax and 25mm. Seconds later, Charlie and Bravo turned on enemy armor to their front.

From 0130 until 0430, the night settled into a desperate rhythm of targets reported and divided among the teams, followed by volleys of tank rounds, Bushmasters or TOWS (tube–launched, optically tracked, wire-guided missile), as appropriate. In the first hour, the task force destroyed 35 armored vehicles, 10 trucks, an unknown number of dismounted infantrymen and captured nearly 100 Iraqi troops. The enemy seemed to be arrayed in belts of company-size positions, with dismounted company positions between the belts. In fact, the Dreadnoughts were attacking down the flank of a reinforced tank battalion that was oriented south. Delta Team was nearly astride those positions. Bravo Team, at the southern end of the task force, was killing vehicles and troops from the second of two tank battalions. Charlie Team, in the center, fought through two infantry positions, and the southernmost tank company in the battalion Delta Team attacked.

None of this was apparent to anyone in the task force until they actually began to pass the enemy positions. In itself, this was no small feat since the enemy vehicles continued to explode and burn with great violence. Learning from passing their burning hulks that virtually all of the targets destroyed were tanks, explained why the Bushmaster had been relatively ineffective. At one point, Delta Team had banged away for nearly 30 minutes at six or more targets believing they were BMPs. Delta Team ultimately destroyed all of them with a combination of 25mm and tank fire and discovered, as they passed, that all six targets were tanks. By now, 1/34 AR reported enemy prisoners who claimed they were being supported by T–72s-a fact borne out by Delta Team's engagements.

A second key learning point for the task force occurred in the first hour after 0130. Several of the targets were cold. Believing they were destroyed by the US Air Force, I ordered them bypassed. One of the scouts, forward on the right flank, entered the net to report that he could see people trying to man those very vehicles from nearby bunkers. From that time on, the Dreadnoughts fired on cold and hot targets.

The system of engagement is perhaps best described in the words of one of those executing it. Sergeant First Class Kevin W. Lemon recalls the attack as a "series of repetitions." According to Lemon, "once a group of targets were spotted and confirmed, the battalion would stop on line (about 1,500 to 2,000 meters), and engage on the order of the Team Commanders. Once all of the targets were destroyed the battalion then again moved out on line (usually about another 2,000 meters) to the next firing line." (6)

This system worked but had serious flaws. Since Charlie served as the base team, Burns coordinated movement that took him off his net, often when his subordinates needed him. To prevent fratricide, team commanders had to clear all fires, which took time. Finally, distributing fires also consumed time. All of these things reduced the speed of attack to a crawl, during which each soldier believed that surely the Iraqis would kill him.

Betting on the enemy being slower was a safe bet, but the soldiers in tanks and Bradleys could not be sure and, as the night wore on, it became increasingly hard for them to believe it. Lemon believed, at the time, that this system endangered the task force unnecessarily. According to Lemon, "The adverse weather, difficult communications within the unit, control of fires, reduced capabilities of the Thermal Imaging System that kept overheating and shutting off, in addition to reduced visibility, battlefield fatigue and stress all contributed to our frustration." (7)

To add to that frustration, an unexplained phenomenon also occurred at intervals during the night. Several targets were struck, glowed and then cooled without ever exploding. Again, I concluded these were victims of the US Air Force. However, the next morning Lieutenant Colonel Daniel A. Magee, 1st Brigade executive officer, found dead crews in several tanks that had neither exploded nor burned, but which did show sabot holes. Some of these were probably killed by the Dreadnoughts, but not all of them since the Dreadnoughts, believing they were fighting T-55s and BMPs, fired relatively few of their "Silver Bullets." All but a handful of the 40 tanks destroyed that night turned out to be T–72s. The Dreadnoughts did change ammunition after confirming the presence of T–72s, but that occurred fairly late in the battle. The good news is that 120mm high explosive antitank rounds do just fine against T–72s. Who or what killed the tanks that did not explode cannot be determined with any certainty.

After 0330, the enemy thinned out. By this time, the Centurions had reached the limit of advance, having destroyed part of the centermost of the three battalions in the brigade sector and part of the southernmost of the three battalions. From 0330 until 0430, the Dreadnoughts labored on, picking off a couple of tanks fleeing the battlefield and slowing to destroy the odd abandoned vehicle. In the middle of all this, the task force reached the enemy brigade support area and began machine gunning trucks and grabbing fleeing mechanics and truck drivers. Machine gunning trucks proved foolish. Ammunition trucks went up like volcanoes, raining burning and exploding ammunition down on the task force. The Dreadnoughts asked for and received permission to leave the rest for TF 5/16 to destroy at a more leisurely pace as they came through.

The other chief excitement of the night occurred when two Iraqi BMPs suddenly emerged from the darkness between Alpha and Delta teams. Both BMPs turned east behind Delta's trailing platoon. Alpha's lead platoon quickly dispatched the two BMPs. As soon as the two BMPs exploded, Captain Johnny Womack, Alpha Team commander, came up on the battalion net to swear he was not shooting at Delta. By 0430, the task force had destroyed another 17 armored vehicles. After 0430, the task force encountered

relatively few enemy, reaching the limit of advance at 0600 destroying another two tanks and four enemy tracked vehicles.

What a night! The good news was the brigade was in reserve. At last, rest and the opportunity to refuel and rearm. At 0630, as TF 2/34 settled in at PL Milford, Lieutenant Colonel Sydney E "Skip" Baker moved forward of his task force to come up to the brigade command post. Moving east through the area "cleared" by the Dreadnoughts, Baker encountered a southbound T-55. Quick action by Charlie Team, TF 5/16 saved their commander and provided a topic of conversation for the two task force commanders. However, backslapping and open hostilities had to wait. The brigade was off again by 0930 and in contact by noon. Nearly two more days of skirmishes and still another night of fighting remained before cease-fire would allow a decent night's sleep and contemplation of just what had happened at Objective Norfolk.

The fight at Norfolk, at least in the TF 2/34 zone, was probably not as fierce as the fight on the Medinah Ridge or at 73 Easting. The fight at Norfolk was also one-sided, as the paucity of Iraqi return fire demonstrated. The Dreadnoughts fired 115 tank-killing rounds but reported only a dozen or so rounds returned. Delta Team, 2/34, trailing the Dreadnoughts as part of TF 5/16, reported seeing a great many rounds fired at the task force. Several Dreadnought soldiers traveling in the trains also claimed to have seen substantial amounts of return fire. Still, the frontline units saw no more than 10 to 12 main gun rounds and a half dozen RPGs. It is possible that the enemy was firing at 1/34 AR. The Iraqis did fire a lot of small arms, heavy machine gun and RPGs, but they only landed with small arms and so did no damage.

Despite ineffectual resistance, courage, skill and discipline were shown all around. To start with, the soldiers held to the fire discipline despite the fact they believed it endangered their lives as some of them later told *Esquire* reporter John Sack. (8) They did not fire unless cleared by a unit commander or were fired upon by an identifiable enemy. As a consequence, the Dreadnoughts did not shoot at each other or at 1/34 AR to the south or 1/4 CAV operating to their north.

Charlie Team was brilliant in close quarters against RPG teams. At one point, Burns crawled all over his infantry platoon leader for firing on C-66 with a Bushmaster. The platoon leader calmly replied he was killing enemy infantry, a fact to which I can attest. Toro's soldiers destroyed two enemy vehicles shooting at the illuminated and very nervous task force commander. Delta Team did most of the shooting and did it very effectively. Alpha Team stayed alert in reserve and destroyed two BMPs that might have wreaked havoc on the task force.

The scouts got few kills, but they maintained contact with the Centurions and coolly reported enemy positions not visible to the task force and, thus, prevented surprise. The mortars never fired a round that night; but always had a section set to fire if required. The engineers had the least glorious task of keeping the enemy prisoners moving and remaining far enough forward to support. Shortly after 0600, 27 February, the ever–vigilant engineers grabbed four Iraqis spooked by HQ-66 driving over their bunker without killing any of them despite the Iraqis showing an initial inclination to fight.

There are several possible lessons that can be gleaned from TF 2/34's experience during Fright Night. First, developing 'mission essential task lists (METL) suited to European general defense plans have broad applicability. Nearly every METL task developed in the 1st ID proved valid, including esoteric tasks such as deploying and building combat power. Obviously, conducting tactical movements and training to pass or assist passage paid off both for the 2d ACR and the 1st Brigade. Moreover, the regiment accomplished superbly the classic cavalry mission of finding and fixing the enemy.

Drills and standard tactical techniques also worked well. In TF 2/34, logistics package drills saved time day and night. Rehearsal of day and night movement, occupation of hasty defensive positions and actions on contact, reinforced drills and enabled execution when tired, frightened and under fire. Firing in platoon volleys also proved effective. Task force gunnery, in the spring of 1990, assured that the attached infantry understood the technique as well. The benefit of volley fire on multiple targets is shock and suppression of the enemy. On more than one occasion during that long night in February 1991, two or more targets exploded simultaneously.

The theory that the Iraqis could not acquire targets at ranges over 1,500 meters at night seems to have been validated by the Dreadnoughts' experience. Only Bravo Team reported multiple near misses from enemy tank fire. It is possible, however, that enemy orientation and the fact that some of their tank crews remained in

bunkers is the reason TF 2/34 took no main gun hits. On the downside, it often took too long for commanders to sort out contact and clear fires. This resulted, in part, because there is no way to determine direction accurately from a tank.

When in contact, the Dreadnoughts advanced using the technique of position improvement. Simply put, the entire task force made a short bound of 2,000 meters or less to firing positions. Modeled on the Israeli technique and not unlike the movement of the National Training Center (NTC) opposing forces firing lines, this method worked well in the open desert. In Europe or in broken terrain, this technique would probably not be effective.

Pyrotechnics, despite the fact that they attracted fire, proved essential at the passage point and in reorienting the two companies that had strayed. Chemical lights, too, proved their utility in providing visual evidence of flank units. Visual signals will remain useful for some time to come. Running lights, or at least lights on the backs of turrets, would also prove useful in maintaining control during night operations. Most Iraqi tanks and tracks were equipped with such a system. Simple to install and relatively cheap, they appear to be a useful modification for the Army to consider.

Cross talk at brigade and between the attacking battalions assured effective command and prevented fratricide. Meek not only kept TF 2/34 apprised of what his commander was thinking, but did the same for Ritter. The brigade operations and intelligence net provided a venue for analysis and assured rapid dissemination of combat information. For example, the first clue TF 2/34 had about the presence of T-72s in large numbers came from the Centurions' interrogation of a prisoner they took. Finally, Maggart's cool demeanor and patience on the radio helped restore order from confusion when both battalions were hung up shortly after the attack began. Throughout the night, he provided calm support and reached sound decisions which he communicated clearly.

There were other systems that did not work well or, in some cases, could not be used effectively. Chief among these was that despite the herculean efforts of the FA battalions to keep up, the brigade could find no useful way to use artillery during the night attack. The preparation fired by corps artillery prior to 2230 was the only artillery fired that night. By the time targets were acquired, the task force was committed to a direct fire battle.

Clearly, had resistance been stiffer, artillery would have been used, but the fire support team (FIST) platform is not adequate for acquiring targets at night on the move. At one point during the night, the Delta Team commander observed four tracked vehicles fleeing east at a range of just over 4,000 meters. Unfortunately, no one could get a decent azimuth on which to call a polar plot. Adjusting fire from an interpolated grid, based on a guess for direction, also made no sense. Those four targets got away. If every tank were equipped with an on-board direction finding device, waiting for the FIST to get its hammerhead up would never be a problem again.

Unreliable FM communications produced problems throughout the war. Burns frequently had to come up on battalion command because his XO's radio worked intermittently. At one point, when Burns was on the battalion net, First Lieutenant Bennie McRae acquired targets dangerously close to the company. McRae lost valuable time waiting to talk to Burns before concluding correctly that he should fire. McRae and his platoon destroyed two tanks at ranges under 1,000 meters—too close for comfort if the enemy had been oriented toward the company.

The failure of brigade to disseminate a corps intelligence overlay of the Norfolk area that it had received prior to the start of the ground war could have had serious consequences. When Schulte caught up with the task force and handed over the three-week-old overlay, it proved useful. However, time to study it before the attack would have revealed orientation and composition of key enemy positions, enabling the task force to conduct the attack with far more confidence and a great deal less confusion. The lesson here is to pass information if you have it and supersede it as necessary.

Finally, both the corps and division commanders believed the 1st ID would reap benefits from attacking at night. The Big Red One justified their confidence by destroying nearly 300 armored vehicles before dawn. But some units in the division suffered several fratricide incidents. It is impossible to account for the root cause of those incidents. Navigation, target identification, fire discipline and the confusion of battle all contributed.

However, the most important factor was that neither the Big Red One nor 2d AD (Forward) had been able to conduct adequate night training prior to deployment.

Fort Riley is a great training reservation, but maneuver space and the capability to conduct battalion mounted night operations are simply not available. The Garlstedt units had even fewer opportunities to conduct battalion level night training than did their Fort Riley counterparts. Only at the NTC can the Army train large formations at night. Because of safety constraints and controller limitations, night training is minimal even at Fort lrwin. The Army must find a way to conduct more tactical training at night.

No doubt other conclusions will be drawn by critical and thoughtful readers. Equally important, uncritical application of the ideas suggested here would be a mistake. To benefit from our technological advantages, we must develop systems that enable us to use them and train to implement those systems. If we do that, we will have gone a long way toward our part of meeting Army Chief of Staff Gordon R. Sullivan's goal of "No More Task Force Smiths!"

Editor: This article provides a good sensing of the confusion and disorientation that generally surrounds night operations. In this instance, TF 2/34 AR conducted a forward passage of lines and an attack into Iraqi positions. An assessment of the relative night fighting capabilities of Iraqi and US forces encouraged these actions and acceptance of the related risk. The risk unexpectedly rose when the task force had to conduct its passage of lines through a single point, guided by pyrotechnics that served as targeting points for the Iraqis. However, Iraqi interference proved minimal, presumably due to the impact of the earlier daytime battle with the 2d ACR along the 73 Easting line. The decision to attack at night also derived from an intent to leverage perceived American strengths and exploit weaknesses associated with the T-72. Although this assessment proved correct, it could not eliminate the confusion of nighttime operations, exemplified by half the task force becoming disoriented shortly before the attack began.

During the daytime movement and preparation for the night assault, planning and coordination constituted the leadership's focus. Each task force component understood its role and its position in the overall task force formation, including the scouts, mortars, and combat trains. Supporting artillery had difficulty supporting the task force, largely due to its inability to keep pace with the maneuver elements and the relative slowness of its target engagement—particularly in comparison with that of the tanks.

Preparation minimized—but could not eliminate—the confusion inherent to the night action. The highly trained task force benefited from prior rehearsals and drills that not only ensured effective gunnery at the platform and platoon levels, but because they incorporated the mechanized infantry, ensured that all task force team members understood their role and the relative strengths and limitations of the other task force assets. During the multi-hour nighttime firefight, this prior training enabled the task force to overwhelm the opposition through a combination of controlled, disciplined gunnery and steady forward movement. The excellent fire discipline also reduced the risk of fratricide. Continuous cross talk among unit commanders further ensured a reasonably high level of situational awareness and understanding throughout the engagement. Once combat began, the massed application of Bradley and Abrams firepower, skillfully applied, ensured the failure of Iraqi defensive measures.

Notes

1) Regarding the VII Corps tactical plan, see Lt. Col. Peter S. Kindsvatter, "VII Corps in the Gulf War: Ground Offensive," *Military Review* (February 1992): 16-37. Kindsvatter's article provides a first-rate overview of the corps plan

2) For Maggart's perspective on the battle, see Col. Lon E. Maggart, "A Leap of Faith," *Armor (*January-February 1992): 24-32.

3) Statistics are taken mainly from TF 2/34 AR journals, but, like all statistics in combat, are suspect.

4) See 1st Lt. John Hillen, "2d Armored Cavalry: The Campaign to Liberate Kuwait," *Armor (*July-August 1991): 8-12. See also Vince Crawley, "Ghost Troop's Battle at the 73 Easting," *Armor (*May-June 1991): 7-12. 1st Brigade actually passed through 3/2 ACR.

5) Undated letter from Capt. Robert A. Burns to the author.

6) Undated letter from Sgt. First Class Kevin W. Lemon to the author.
7) Ibid.
8) See John Sack, "C Company," *Esquire* (DEC 1991): 107-121, 186-193.

Armored Brigade Command and Staff Operations

Editor: The following unit history provides a summary of the 2d Brigade, 3d Armored Division during Operations DESERT SHIELD/STORM. While summarizing the movement and combat actions of the units, it offers insights into brigade command and staff functions, particularly the planning process that preceded combat operations and the role and actions of key command and staff personnel once the brigade entered combat. Written by unit personnel close to the time when the events described occurred, this report offers a rare perspective on the command and staff rather than the frontline combat soldiers.

History of 2d Brigade Operations in Southwest Asia: The Gulf War

Alert and Pre-Deployment

On 8 November 90, 2d Bde, comprised of 4-18 Infantry (Vanguards) equipped with M2 BFVs, 3-8 CAV (armor) and 4-8 CAV (armor) equipped with M-1A1 (Heavy) tanks. As part of the 3AD stationed in Gelnhausen FRG, was alerted for deployment to Southwest Asia in support of Operation DESERT SHIELD. At the time of alert, 2d Bde was in the process of inactivating as part of the Conventional Forces Europe Reduction (CFER) process.

The brigade had an habitual association with the 4-82 FA battalion, 45th FSB, 317th Engineer battalion, and 3-5 ADA battalion. Due to the inactivation in accordance with the CFER many of the associated units were inactivating or had inactivated. Subsequently 317 ENG and 3-5 ADA assets did not deploy with the brigade task force. Upon notification for deployment the brigade began a pre-deployment training program. The focus of the program was NBC training and preparation for desert operations—a much different mission type requirement than the brigade had been preparing for in the European scenario.

Deployment

The deployment of the 2d Bde was the responsibility of the Bde S4 Major Kevin Pilgrim. Through his personal efforts he ensured that the brigade completed all the appropriate shipping forms, coordinated the movement control and other actions that ensured a smooth transition from Gelnhausen to Saudi Arabia. The 2d brigade was the first 3AD unit to deploy to DESERT SHIELD and as such experienced many of the difficulties associated with support systems that were not yet prepared to receive or handle the requirement. However, the main body of soldiers began deployment on 26 December 1990. Some of the brigade's habitually associated assets did not deploy with or as part of the 2d Bde TF (especially engineers and ADA assets). The units' vehicles were marshaled and transported to the ports of Rotterdam and Antwerp on or about 8 December 90 for ship movement to Saudi Arabia.

On 26 December 90, the main body of the brigade began assembling at Al Khobar Village in Dharan, Saudi Arabia, a.k.a. "MGM Grand Hotel." The brigade's vehicles arrived over a 6 week period beginning about 26 December 90.

In early January (around the 6th or 7th), the brigade received the division OPLAN DESERT SPEAR. The plan called for a six phased operation. Phase I was the preparation activities in TAA Henry. Phase II was to coincide with the start of the air campaign and required the movement of forces to occupy FAA Butts. Phase III was the movement of 3AD from FAA Butts through the breach of the Saudi-Iraqi border. Phase IV was the securing and consolidation on OBJ Collins. Phase V was the destruction of the Republican Guards Forces Command (RGFC). Phase VI was the defense of northern Kuwait and further actions were TBD.

The plan required movement keyed on the determination of G-day and in support of a VII Corps deception plan. The corps deception plan prohibited movement west of the Wadi Al Batin so as to deceive the enemy of the true locations of the VII Corps units and hence the ARCENT main effort. 2d brigade supported the deception plan by restricting movement to and reconnaissance of FAA Butts. This required a plan to occupy FAA Butts based on a map reconnaissance and one engineer recon led by the brigade engineer Maj. Doug Yates.

The original Operation DESERT STORM timeline called for a 14-30 day air war keyed to the destruction of 50% of the RGFC combat power. D-day was to be 160001 JAN91. The brigade activities upon occupation

of TAA Henry were oriented toward the conduct of training for combat at the platoon and company/battery level, gunnery at the crew and platoon level, rehearsals from attack plans at the battalion, brigade, and division level, and refinement of the plan

Actions in TAA Henry

The brigade occupied TAA Henry using a company fire support base concept oriented for all around defense. This concept was designed to allow the brigade to defend in dispersed fashion but yet be close enough to reinforce each other if the need arose. All unit vehicle positions, fighting positions, and sleeping positions were dug in. This set the tone early for the brigade and provided protection against a possible Iraqi ground or Scud attack.

Daily activities for units included a 0600 and 1800 staff update to the brigade commander, stand-to at 0500, coordinated staff and command actions and unit training activities. The ration cycle was generally A or B ration breakfast and dinner with MRE lunch.

At the brigade level the activities of the air campaign were almost transparent as our deception locations were 90KM from the border. Apart from the occasional flashes of light from B-52 bombings, warlike activities were unobserved. However, the brigade staff spent much time and effort tracking the movement and battle damage assessment of the air campaign effects on the RGFC and other frontline units. These efforts proved valuable once the brigade made contact and was able to accurately template the enemy forces it faced in battle.

At the battalion level, the conduct of gunnery required that the brigade create ranges in the desert with little material but a lot of imagination. A great deal of commander's time was spent emphasizing the construction of these ranges and firing a modified tank table XII. Due to a shortage of 120mm TPT (target practice-tracer) much of the gunnery was dry runs and rehearsals on crew/platoon and company battle drills. This effort was headed by Capt. (P) Ralph Zimmerman and Sgt. First Class Fortune. The brigade commander's intent was to provide each crew with confidence and a comfort level with their equipment prior to crossing the LD (line of departure).

On 7 February a major change in the brigade staff occurred. Maj. (P) Chip Wentz departed Saudi Arabia to attend the Pre-Command Course and assume command of a battalion in the US. Major Edward Martinez assumed the duties as the brigade S-3. The brigade staff accepted the change in a competent and professional manner as did the subordinate battalions, producing minimal disruptions. On 9 February the division conducted its threat and final rehearsal of the movement from the LD to OBJ Collins. This rehearsal concluded with one of the three standard action drills—an "Action Front." The lessons learned from this rehearsal by the battalion commanders and staff proved to be the key to subsequent success of the Iron brigade in battle.

The Brigade had deployed to Saudi Arabia without any engineer assets as previously mentioned. Once the brigade closed on TAA Henry engineer support was provided to the Brigade. The engineer support came from TF 23 Engineer. TF 23 Eng was a composite battalion consisting of the 23rd Engineer BN headquarters, A/23rd EN, A/12th EN, and D/23rd EN.

Of concern to the Brigade was the possibility of a major breaching operation. Each task force was provided engineer assets to conduct an in-stride breach. It was decided that if a more deliberate breaching operation was required, TF 4-18 would assume the role of the breaching task force. Task force 4-8 would be the support task force. The 3-8 CAV would be the assault battalion. TF 4-18 was given A/23rd EN along with the majority of the ACE's (armored combat earthmover), CEV's (combat engineer vehicle), and AVLB's (armored vehicle launched bridge).

The 23rd EN also received 2 mine rakes for mounting on the CEV's. These were full width rakes and worked well in the sand during training exercises in TAA Henry. The Brigade also received 8 mine plows and 4 mine rollers which were mounted to tanks from each task force. The roller kits were mounted to tanks from each task force while the rollers themselves traveled with the R3. They would be brought forward if the need arose. D/23rd EN throughout the entire deployment was used in a nonstandard role. It was assigned to the R3 with the mission to provide security, assist in mobility, assist with EPW (enemy prisoner of war) control, and mark the Brigade MSR (main supply route). The Brigade MSR was marked by D/23 Eng during the attack with pickets every 250 meters for approximately 250 kilometers from FAA Butts to OBJ Dorset. This was cited as a major factor in preventing vehicles from becoming lost while bringing logistic packs back and forth.

Operation DESERT GUARD

During the occupation of TAA Henry the 2d Brigade had responsibility for reaction to a preemptive attack by Iraqi forces most likely elements of 12 AD, 6AD, or the 10th AD. The brigade developed OPLAN DESERT GUARD (dated 12 JAN 91). It was anticipated that any attack would be preceded by heavy air attacks, surface-to-surface missiles and probably terrorist operations against 3AD forces. It was anticipated as little as a 12-hour notice would be provided prior to a preemptive attack. The most likely objective was believed to be Hafar Al Batin and KKMC. The brigade had the mission to block the MSR Sultan and defeat Iraqi forces within the Corps sector or follow and support 1AD (US) in corps sector. The brigade developed three contingencies for this plan based on the commander's guidance of being prepared to fight now with what the brigade had on the ground at this time. All soldiers must be prepared to fight as infantry and defend long enough to allow our air assets to meet an attack by Iraqi forces principally down the Wadi Al Batin. The brigade staff devoted considerable time and effort as did each battalion/task force in preparing for this mission. The principal force in this operation was TF 4-18. Contingency plan Alpha was to occupy a battle position and block an advance along MSR Sultan, protect KKMC and allow no penetration of their position. Contingency Bravo had TF 4-18 performing a follow and support mission to 1AD as part of a Corps directed counterattack to defeat Iraqi forces. Contingency plan Charlie had TF 4-18 defending the 3AD TAC (tactical command post) from possible attack. As noted this OPLAN consumed considerable time and effort of both the battalion and the brigade.

Operation DESERT SPEAR

Operation DESERT SPEAR (3AD attack plan) called for the 2d Brigade to move from TAA Henry to FAA Butts at G minus 6. Throughout the entire preparation for combat the brigade staff continued to refine and prepare their battle plans in support of this plan. On several occasions battalion commanders and their staffs were called to orders briefings to prepare for the ground offensive. Development of a decision support template for the brigade's attack plan to Operation DESERT SPEAR took place as a coordinated staff effort during the occupation of TAA Henry. Prior to the attack on Iraqi forces the Bde S2 templated possible Iraqi counterattack options but given the collapsing enemy situation during the fight none were ever conducted.

In the development of the brigade maneuver plan, the staff realized that unique navigational graphics would be required. Because of the difficulty of navigation, battalions were issued graphics that were unlike most ever issued. Units were issued a series of navigation points (check points) to orient their movement, and phase lines were generally drawn along gridlines every 10 kilometers due to the lack of identifiable terrain features.

The brigade combat wedge formation was approximately 10 kilometers across and extended approximately 25 kilometers in depth due to the number of attachments and vehicles in the brigade formation. The brigade commander intended to place the tracked vehicles on the outside of the formation while positioning the soft skinned vehicles inside the wedge to provide security. Additionally, the brigade commander directed that no wheeled vehicles would be forward of unit combat trains after crossing the LD. In preparation for the conduct of combat operations the brigade conducted several rehearsals of the wedge formation, movement and immediate action drills. These rehearsals paid great dividends during the actual fight. Planning guidance for the entire operation was to maintain an all around security posture both on the move and during halts.

2d Brigade Mission & Task Organization

On order, 2d Brigade moves to, secures, and defends assigned TAA and FAA. Attacks in zone as the 3AD advance guard to destroy RGFC and defend Northern Kuwait.

- TF 4-18 IN
  - 4-18 IN (-)
- TF 4-8 CAV
  - 4-8 CAV (-)
  - D/4-18 IN
  - C/4-82 FA
  - A/12 EN (-)
  - 2/B/5-3 ADA (V/S)
  - 2/Recon/22 CHEM (Fuchs)
- TF 3-8 CAV
- Brigade Troops
  - 4-82 FA (-) (DS)
  - A/40 FA (MLRS)

The brigade attack plan was simple. The brigade attacked in a brigade wedge with TF 4-8 (Stallions) leading the brigade as the advance guard. On their left flank was TF 4-18 (Vanguards) and to their right was 3-8 CAV (Mustangs). Each of the battalion/task forces had an artillery battery from 4-82 FA (Dragons) travelling in its formation for direct support. Given this task organization and distribution of assets, the brigade was prepared to react to contact using one of several immediate action drills, i.e.—action right, action left or action front, each requiring one of the flank units to conduct counterattacks into the flank of the enemy formation. The intent was to use 3-8 CAV, an armor battalion, as the hammer in as many situations as possible against the anvil of the brigade.

The original division attack plan called for a 24-48 hour continuous attack to seize OBJ Collins (an approximately 220 kilometer attack) and then a 72-96 hour planning cycle to prepare for the deliberate destruction of the RGFC. In hind sight the time estimate for reaching OBJ Collins was fairly accurate. Due to unexpected success and a collapsing Iraqi defense, however, the 2d Bde engaged the RGFC early and began to destroy them as part of the movement to contact.

Movement to FAA Butts

The division's plan called for the 2d Bde to begin movement from TA Henry to FAA Butts at G minus 6. On 10 February 91, 2d Brigade was alerted the G-day sequence had begun. The brigade was now four days away from movement.

On 12 February the brigade staff briefed the last minute changes to the brigade operation order and prepared to send out their quartering parties. On 13 February the brigade received verbal approval to send forward their quartering parties but the brigade commander's decision to have the quartering parties prepared to depart on a brief notice made frequent and disjointed instruction from division transparent to the battalions.

On 140600 February 91 the brigade began forming for the movement to FAA Butts. The brigade formed in a brigade column (all battalions in column and with the three battalions on line: TF 4-18 on the left flank, TF 4-8 in the center, and 3-8 CAV on the right). However, at 1300 hrs it received reports of Scud attacks on Hafar Al Batin and possible ground attacks along Wadi Al Batin. At 1320 the brigade commander ordered the

TFs to form their combat wedge formations to protect against the possible ground attack. The Scud attacks were in fact in progress, but the ground attack turned out to be a false report.

On 150630 February 91 the brigade began movement to FAA Butts. This was part of a complicated Corps wide deception operation to avoid the Iraqi human intelligence network by going south of Hafar Al Batin. This movement was coordinated with the 1AD shift from the east to the west across the 3AD line of march. The brigade sustained its first casualty when 1st Sgt. Sanders of Service Battery 4-82 FA was discovered dead, having been run over by a HEMTT during the night. The brigade movement across the Wadi Al Batin went smooth, each TF having established an advance party to meet them as they closed on the crossing sites through the wadi. Movement through the wadi was slow and a strong wind created a Shamal (sandstorm). This slowed the movement of the brigade but did not cause any significant problems for the combat units. However, the R3 became separated during the movement and the brigade column became extended to almost 50 kilometers in depth. By 1500 the brigade was closing in on AA Iron located north of Wadi Al Batin and south of the Tapline road.

On 160600 February the brigade departed AA Iron in its brigade column formation and continued to move toward the Tapline road and FAA Butts. The brigade began crossing the Tapline road at 1100. The crossing of the road was a division controlled exercise designed to replicate the crossing of the border berm during the attack. Movement went well despite the confusion created by the 2ACR having difficulty locating the crossing points of the Tapline. At 1800 hours the brigade had completed it, linked up with the quartering party and closed into FAA Butts. The brigade was occupying the FAA in a defensive manner with TF 4-8 in the north of the brigade sector approximately 10 kilometers behind the trains of the 1st Squadron, 2ACR; TF 4-18 on the brigade left; 3-8 CAV on the brigade right; and the R3 package tucked in the center. Final preparations for combat began immediately upon occupation.

FAA Butts to LD

From 17 February to 22 February the brigade occupied FAA Butts and finalized its preparation for combat. During occupation of FAA Butts guidance about the actual G-Day was conflicting (the division directive was that we were at G minus 2 and holding). The brigade was operating under the guidance and intuition of Col. Higgins who felt that events would unfold much faster than we may expect. The primary focus was continued—NBC training and NBC equipment checks. The staff continued to refine the plan and conduct detailed coordination with the 2ACR. During the initial movement, the brigade would trail the 2ACR almost all the way to OBJ Collins if all went according to the plan. During coordination the 2ACR indicated that despite intelligence reports to the contrary he had no indication of enemy forces along the brigade axis of advance. The biggest concern of the brigade was the marking of its movement axis to the LD and ensuring the lanes through the border berm were identifiable to the task forces. On 220600 February the brigade lined up for its movement to cross the LD. The brigade lined up in its brigade column formation in 6 columns with TF 4-8 as the brigade center line, TF 4-18 on its left and 3-8 CAV on its right, and the R3 filled in behind each TF. The brigade was on a very narrow frontage of 3 kilometers with only 500 meters between lanes. The brigade plans was to move to the LD and to cross the LD with the brigade on line and battalions in column. This would facilitate movement of the brigade through the cuts in the border berm. The 2ACR had the responsibility for selecting and cutting the border berm between Saudi Arabia and Iraq to facilitate passage of both the 1st and 3d Armored Divisions. The brigade elected to use only 6 of the 18 cuts made by the ACR to facilitate command and control of the brigade and subordinate units during the crossing. Upon crossing the LD (just on the north side of the berm) the brigade would then transition to the brigade wedge and assume its advance guard formation. On 23 February 91 the brigade was ordered to begin taking the PB pills in anticipation of possible chemical use.

On 24 0600 February 91 (G-day), 2d Bde attacked in zone behind the 2ACR screen as the 3AD advance guard. The division plan called for the brigade to creep forward behind the 2ACR (specifically 1st Squadron) and to complete the day either on the south side of the LD or astride the LD at the conclusion of G-Day. The brigade commander had hopes of placing at least one TF forward of the LD that day to facilitate the brigade transition to the wedge and advance guard formation. However, as the 2d ACR, meeting little resistance, pushed farther than originally anticipated the brigade continued its forward movement and subsequently crossed the LD, Saudi-Iraq border approximately 24 1430 February 91. The brigade was ordered to continue the attack and transitioned to MOPP II on the move. By 1800 hours that night the brigade was sitting on PL COLT and established a night time laager position in its wedge formation. During the night the brigade

received instructions to establish a 5 kilometer buffer zone on its left flank with the 1AD to prevent possible fratricide.

25 February (PL Melon to PL Saigon)

For the second day the 2d Bde followed the 2ACR encountering little resistance and capturing numerous prisoners of war. On 25 0551 the lead elements of the brigade continued the attack. The enemy situation was somewhat unclear, but the division was reporting the movement of elements of the 12th Armored Division and the RGFC Tawakalna Division. At 0638 the lead TF crossed PL Apple and continued their attack. At 0805 the lead TF crossed PL Coors. During the morning the brigade received a report that 70+ vehicles were moving into the brigade sector. At 0833 the lead elements of the brigade crossed PL Corona. At 1000 hours the brigade conducted refuel operations and continued to take numerous EPWs across the brigade zone. The brigade continued movement with the lead TF crossing PL Dixie at 1100. TF 4-18 made light contact with dismounted elements on its left flank at PL Dixie vicinity the NT90 line; they returned fire and the enemy broke contact. The brigade crossed PL Falstaff at 1123, PL Vegas at 1137, and PL Light at 1345 with little to no resistance but collecting numerous EPWs enroute. The brigade approached PL Saigon approximately 1445 and continued to take EPWs. The brigade set on PL Lonestar at 1630 and conducted refuel operations. The brigade prepared for a night laager after having taken 69 EPWs throughout the day. This unexpected capitulation of enemy force without a fight caused the impression at higher levels that the attack was transitioning to an exploitation. At 2200 hours the brigade received a FRAGO that they would pass through the 2ACR and continue the attack through OBJ Collins to seize OBJs Minden and Dorset. This FRAGO produced an orientation more to the east rather than the northeast as it was moving. Although the division had not issued guidance about a possible change in direction, the brigade staff had wargamed this possibility and was prepared for this action with a fully prepared course of action. The 2d Brigade would continue leading the attack for the 3AD. At this point the 1st Brigade would be moving up on the brigade right flank and tie in with the 3-8 CAV. This would place both 2d and 1st Brigades on lines (left to right) in the division zone and leave the 3d Brigade as the division reserve trailing 2d Brigade reserve. During the night the staff conducted a detailed planning cycle to complete their course of action and issue it to the units. Additionally, the staff attempted to coordinate with the 2ACR for the forward passage lines. The 2ACR replied that they were not aware of our passage of lines and must receive their instruction from the VII Corps commander. With an uneasy feeling about the impending passage of lines and battle handover the brigade staff continued to work out a fragmentary order to issue to the units in the morning.

26 February: The Battle (PL Saigon to PL Tangerine)

On the morning of 26 February 91, the 2ACR slipped to the southeast out of the division sector and the 2d Bde attacked to the east. The brigade moved forward during the morning maintaining contact on its flank with 1AD and 1st Brigade, 3AD. The brigade attacked at 0600 crossing PL Smash at 0824. At PL Cairo (0945 hours) the brigade halted for an hour to allow 1st Brigade to come on line and to issue a FRAGO to our units from information received during the night. During this time the division issued another verbal FRAGO to the brigade. However, it had minimal impact as the FRAGO was in synch with the brigade plan and anticipated division actions.

The orders meeting was held at the Bde TAC and was concluded at 26 1045 February.

The brigade began its attack again at approximately 1200 hours. The situation was still unclear since as the 2ACR slipped out of sector a coordinated battle handover had not been conducted nor a good intelligence dump performed. 2d Brigade was the lead for the division and save for an aerial scout screen requested by the brigade commander was running somewhat blind into the enemy. At 1230 hours the brigade crossed PL Miller and continued the attack with minor engagements with enemy dismounts. During the mid afternoon of 26 February the visibility began to diminish to barely one kilometer caused by blowing sand. At approximately 1500 the brigade was preparing to set on PL Tangerine and conduct refuel operations when the brigade was ordered to continue the attack and maintain the pressure on the retreating RGFC.

Approximately 26 1630 February the brigade began encountering the “B” Brigade of the Tawakalna Mechanized Division of the RGFC. The battle was joined approximately 1630 hours and lasted until 1045 hours the following day. During the battle the 2d Brigade was the division main effort. Initial contact with enemy forces came from the Scouts of TF 4-8 who encountered air burst artillery, RPG rounds and mortar fire. Immediately followed by mortar and direct fire on TF 4-8 and then TF 4-18. The lead elements reported

an extensive bunker complex. By 26 1725 February 3-8 CAV was receiving artillery fire and the air screen enemy dismounts along the 72 gridline.

At the onset of the battle the brigade received considerable pressure from Maj. Gen. Funk and Brig. Gen. Blackwell to move forward, both believing that we had encountered only a screening force and a deliberate defense. The Brigade commander sensing that the brigade encountered more than a screen line continued to pound the Iraqi bunker line with FA and CAS and Army aviation. The brigade commander ordered the units to move up on line at 1740 hours and continue to attack the Iraqi positions. Direct fire engagements continued throughout the day and night as the Brigade developed the situation. TF 4-8 became the brigade main effort and was reporting an extensive bunker complex in excess of 3-4 kilometers in length.

It quickly became apparent that 2d Brigade was facing a deliberately prepared defense comprising the majority of the "B" brigade entrenched in bunkers and fighting positions. The brigade commander, following the intent of the division commander, moved out of enemy effective direct fire range as much as possible to allow for the use of indirect and air assets to destroy enemy forces prior to commitment of direct fire engagements. A/40 FA (general support reinforcing to the brigade) was inside the 8 kilometer minimum distance upon contact and was forced to back up several kilometers to fire their rockets. This caused some commotion and concern as several HMMWVs "bugged out" but this was quickly controlled and handled by unit commanders.

The brigade continued to use direct fire in conjunction with indirect (both cannon artillery and MLRS) and air assets (Army aviation and Air Force A-10s) maximizing the superior stand off range of the M1A1 and M2 BFV systems.

The brigade TAC with the Brigade commander and small battle staff was located with TF 4-8 CAV, the brigade's advance guard TF and ran the current fight, as the brigade staff under the direction of the Brigade S-3 coordinated all the battlefield operating system managers to support the fight. The Brigade S-3 ran his operation from his HMMWV as did the other BOS system managers. The Bde TOC collocated with the S-3 ran a "hot" TOC in a ramp to ramp configuration. Through the fight communication with all units was excellent, reporting was accurate, and operations ran in clockwork fashion.

At 261900 February the ADC (M) directed that the brigade push forward to keep pace with the 1st Brigade on its flank. The brigade commander tried to explain the situation and his concern about possible ambushes ahead of this bunker complex. Early reports from interrogations of enemy prisoners of war by the Brigade S-2 indicated that the brigade was facing a possible armor ambush behind the main bunker line defense. At 261955 February, the Brigade S-2 completed templating this possible tank ambush for the brigade commander.

By 26 2048 February, the employment of Army aviation helicopters (OH-58D and Apache attack helicopters) confirmed an armor ambush vicinity ******** [map grid coordinate] and actions were immediately taken to destroy these tanks and BMPs. At 2200 the brigade conducted a deliberate assault of the bunker complex following extensive artillery and attack helicopter attacks. By 26 2200 February the results of extensive artillery, CAS, and attack helicopters left a reported 30-40 burning vehicles and numerous secondary explosions.

During this time (approximately 2200 hours) the CG realized the extent of 2d Brigade situation and allowed the brigade to continue its deliberate attack. At 26 2355 February until approximately 27 0300 February TF 4-18 defeated an enemy counterattack located along the seam between TF 4-18 and TF 4-8 CAV.

At 2354 hours, Sgt. Dillon, an FO in TF 4-8, was killed by a short round of DPICM. A check fire was put into effect to check friendly positions and artillery lay. The brigade detected and defeated several counterattacks by the Iraqis, most of which were in the TF 4-18 sector. Numerous acts of heroism highlighted the brigade actions to include rescue of wounded crewmen under fire, repair of vehicles under fire, and close range destruction of enemy forces that managed to infiltrate near friendly vehicles. At 270300 February the brigade commander directed that 3-8 CAV OPCON a tank company to TF 4-18 to guard the TF left flank from further counterattacks. The battle continued throughout the night with each battalion/TF engaging dismounts, vehicles, and processing EPWs.

At 27 0345 February the division directed that the 3d Brigade would pass through the 2d Brigade and continue to attack through the 2d Brigade zone. During the night the brigade staff coordinated the passage of

lines while continuing to fight the battle and maintain contact with enemy forces. During the passage, TF 4-8 and 3-8 CAV reported enemy contact to the east. The brigade continued to direct the use of artillery, CAS, and attack helicopters on these enemy observations. During this passage and action the 3d Brigade TAC was collocated with the 2d Brigade TAC and monitoring the battle. At 27 1045 February 91 the 3d Brigade conducted a forward passage of lines under fire relieving the 2d Brigade in contact. Through the battle, the 2d Brigade sustained 2 KIAs, 6 WIAs, and retained a 99% combat power status.

The battle damage assessment for the 2d Brigade during the conduct of the battle is assessed as follows:

KIAs: ..... estimated 600

EPWs: 263

Tanks (T55/62): 27

BMPs: 14

BTRs: 5

MTLBs: 2

BRDM: 1

APCs (U/I types): 18

Trucks: 22

ADA assets: 2

Artillery pieces: 1

Upon completion of the passage of lines, the 2d Brigade became the division reserve and responsible for clearing the division rear area of bypassed pockets of enemy soldiers. The brigade moved behind 3d Brigade past PL Bullet to PL Success. The brigade was assigned the mission to protect the division's line of communications and destroy abandoned enemy vehicles. 2d Brigade completed its actions by occupying AA Success from 27 February through 1 March 1991.

Editor: The brigade's effectiveness and ability to react quickly to changing tactical situations directly reflected its pre-combat emphasis upon rehearsals, drills, and gunnery. Once the unit arrived in Saudi Arabia, it used its time well to acclimate to the desert environment and prepare for brigade level maneuver, exemplified by the use of the Tapline road crossing as a rehearsal for the crossing of the berm into Iraq.

The staff also worked through courses of action to facilitate rapid responsiveness to both battlefield developments and new guidance from division. Planning, coordination, and attention to detail from the time the unit prepared for deployment from Germany to the cessation of combat operations greatly facilitated execution and enabled the brigade to in some cases anticipate division guidance or mitigate otherwise disruptive guidance (as in the case of dispatching quartering parties) while achieving the division objective.

Once combat operations began, the brigade found itself executing a movement to contact once the 2d ACR was no longer to its front. Throughout combat operations, the brigade staff continued to both manage the fight while simultaneously plan for subsequent operations. This dual focus ensured the ability of the brigade to sustain the high OPTEMPO desired, and it ensured the unit's high rate of responsiveness. Effective staffing and command further ensured the effective integration and employment of all assets available to the brigade. In short, the staff work conducted by the brigade simplified the tasks of subordinate elements and directly contributed to the overall successful accomplishment of the brigade mission.

Armor Lessons Learned

Editor: In the immediate aftermath of Operation DESERT STORM, an extensive effort was undertaken to collect insights, observations, and lessons learned related to the employment of armor units. The comments presented below reflect views expressed by the command and staff of the 2d Battalion, 69th Armor Regiment. This unit constituted part of the 197th Infantry Brigade (Mechanized), which deployed to Saudi Arabia from its home station of Fort Benning, Georgia. The observations were recorded by an Armor Center team that visited the unit at Fort Benning in April 1991.

Observations of the 2-69 Armor commander and staff

The Armor School did a good job preparing company commanders for command. Platoon leaders need more confidence and assertiveness.

NCOs are technically competent. They need more tactical skill, should be able to write OPORDS, and should be able to take command.

We need to refine offense doctrine, tactics, and especially training. We are still defense oriented. *[**Note:** Reference to defensive orientation of Armor in Central Europe during the Cold War.]*

Keep orders simple, use overlay orders.

Don't pay lip service to limited visibility ops. (Train)

Dedicated howitzer battery couldn't keep up.

Fire support too slow in attack. Processing and firing lagged, tanks moved fast and ended up under own indirect fires. Preplanned fires were good.

Terrain analysis was not adequate—all levels.

Mech/Armor Team commanders differed on tactical standards. Example: all had different concepts on "actions on the objective."

197th Bde is not normally configured with combined arms battalions—they are pure, but they task organized early in Southwest Asia and established relationships and conducted drills and training in preparation for combat.

Conducted extensive, detailed MAPEXs, rehearsals and drills.

Tankers should fire Tank Table X! Many missions were section and platoon tasks once on Highway 8. *[**Note:** Highway 8 was a six-lane highway linking Kuwait City, Kuwait, with Basra, Iraq. It also became noted as the "Highway of Death" due to the large number of vehicles destroyed and casualties inflicted upon Iraqi forces attempting to retreat out of Kuwait.]*

Armor soldiers are not well versed in cavalry operations, screen and guard, but are called on to conduct them.

Training problem—soldiers don't know capabilities of our own systems and ammo.

Observations of 2-69 AR staff and company commanders:

During offensive operations, each Co/Tm 1st Sgt. needs to have a fuel HEMTT under his control in the company trains.

In the desert, no Co/Tm operates independently. It operates as part of the battalion.

Friendly casualties were light to non-existent. But the treating and evacuation of Iraqi casualties overwhelmed the US medical system at the battalion level.

Standard compasses are impractical for navigational use with armored units. Each tank company commander needs to have a digital navigational system issued on his property book. During the war, an

indirect fire mission would not be honored by task force unless the location had been verified by a digital navigation device.

Tank load plans are a problem. Participants recommended some improvements, but did not have an overall suggested fix. Most said there is too much to carry. One 1st Sgt. said that load plans become a daily adjustment task.

Turret roof mounted weapons systems are a problem, because of their exposure to the environment. Lubrication is like a magnet for sand and dust. If the unit moves any distance, the weapons must be broken down and cleaned before firing. Participants recommended a housing for the tank commander's .50 caliber machine gun.

There were PLL [Prescribed Load List—parts carried by a unit to sustain it for a given period of time, often 15 days] part replacement problems once the initial issues were exhausted. In addition, the participants stated that standardized PLLs need to be reviewed based upon war usage.

Rules of engagement were simple—must have a positive ID to shoot. Leaders' responsibility was key from tank commander up to company commander. If a leader was unsure of a target's identification, he would contact higher for verification before shooting. If the target fired at them the tank crew returned fire.

Tank driver fatigue was a real problem. Drivers sometimes drove 10-12 hours straight.

Air reconnaissance does not replace the need for a detailed ground recon to identify terrain trafficability.

Most main gun engagements took place at a range of 1500-2000 meters.

The battalion used unit trains for the entire operation. All support vehicles were positioned in a huge unit trains under the HHC commander. The medical platoon leader, battalion maintenance officer, Battalion S4 and support platoon leader herded the 100 plus vehicles.

Editor: These observations reflect the experiences of combat leaders and related staffs within a combat unit at the small unit level. In terms of leadership, company commanders and platoon leaders found that simplicity in orders facilitated execution in combat. Terrain analysis proved critical to effective maneuver of armor units, even in the desert, where the combination of expanses of featureless terrain and undulating ground periodically broken by serious terrain obstacles posed unique challenges that demonstrated that desert terrain is not actually flat. For combined arms teams, rehearsals and repetitive drills proved critical to success and helped to overcome differences in doctrine and understanding of commonly used terms. However, to derive the maximum value of combined arms teams, it is critical that soldiers at all levels understand the capabilities and limitations of all assets in the team. Without this understanding, the maximum capability of such a team cannot be realized. For armor and mechanized units, ground reconnaissance remains critical to successful employment. Some terrain features and their impact upon vehicle movement are not readily apparent from the air or satellite image. Throughout Operation Desert Storm, the availability of parts and fuel constituted continuous sources of concern, and will remain so in any action requiring sustained ground operations over long distances.

Editor: The following is an extract from the after-action report submitted by the 2-69 AR commander shortly after combat operations ceased and while the unit was still in Saudi Arabia. The items extracted reflect those whose applicability transcends Operation Desert Shield/Storm.

Department of Army

2d Battalion, 69th Armor, 197th INF

Saudi Arabia

AFVE-IN 16 MAR 91

MEMORANDUM FOR: Commander, 197th Infantry Brigade

FROM: Commander, Task Force 2-69 Armor

SUBJECT: OPERATION DESERT STORM Field After Action Report

2. INTEL:

b. MAP QUALITY: The quality and graphic detail of maps received was poor. Aside from the most prominent terrain features, there were little geographical or orientational data available. The age of development of the maps varied anywhere from 5 to 10 years and the regions go through significant geological and constructural changes. Data as simple as contour intervals are in need of revision and standardization. The 20 meter contour interval on some maps, gave the impression of fairly flat terrain when in fact it was actually impassable by a mechanized force. The 20 meter interval needs to be eliminated on desert maps since it doesn't provide the fidelity needed for desert combat operations.

c. TERRAIN ANALYSIS: The natural and man-made obstacles of an area need to be clearly defined prior to any maneuver elements reaching that particular AO. A closer evaluation of questionable terrain should be filtered down quickly so that maneuver units can formulate plans and alternate routes to prevent channeling such as our TF was forced to do on Route Alpha.

d. LACK OF IMAGERY: Imagery that was available in the early stages of DESERT SHIELD wasn't pushed down to the Battalion Level so that further analysis and planning could have taken place. This lack of imagery placed additional pressure on Brigade and Battalion level S-2's to adequately advise the commander of the conditions and trafficability of terrain, construction of key installations, and availability of enemy avenues of approach. Imagery did not reveal the 25-30 foot berm that existed around Tallil Air Field. All previous indications were that the berm could easily be breached.

3. MANEUVER:

a. SIMPLICITY OF PLANS: All orders and FRAGOs must maximize simplicity. During both the train-up period of DESERT SHIELD and DESERT STORM, BDE and TF orders were written without deviating from the way we trained. Formations remained constant as much as possible. The same infantry team was always the advance guard and the tank teams were always the counter attack force. Reaction drills, actions on the objective were all SOP, trained and rehearsed. Missions were executed merely with a mission statement, graphics, and Commander's intent and all elements including CSS executed the mission without detailed instruction. Simple plans benefited the TF when there was a change in situation or mission as happened en route to Attack Position Kelley. The entire TF was able to turn 180 degrees and resume the attack on a different route in less than an hour. All elements knew not only their mission, but also those of other units. A task force or CO/TM's ability to follow and assume another unit's mission is simplified if the plan is simple and straightforward. TF 2-69 conducted numerous OPDs, mapexes, and brief backs to better understand how the Task Force and its subordinate elements would operate on the battlefield.

b. TF QUARTERING PARTY: Task Force 2-69 standardized a quartering party consisting of the TAC (M113); a mortar HMMWV; a scout M113; an element from the unit trains; ACEs; and a tank and personnel carrier from each company team. The inclusion of the engineers in the Task Force quartering party is absolutely essential. The advantages are many to include such things as route improvement, obstacle reduction and creation of trails through impassable terrain. During DESERT STORM, this TF used the engineers,

scouts and the M-9 ACE to provide the quartering party with the ability to ensure the unhindered movement of the main body. Southern Iraq was canvassed with berms that stopped or impeded movement. The M-9 ACE was used by this TF to improve or cut trails for the passage of the main body, to include wheels. On one occasion, the TF was faced with CBU [Cluster Bomb Unit] bomblets, DPICM [Dual Purpose Improved Conventional Munition], and live ammunition. Had sufficient time been available and had that particular location been mission essential, the engineers on the ground could have neutralized the dangers. Again inclusion of an engineer advance party within the TF quartering party is recommended.

c. UNIT TRAINS: According to Airland Battle, there are three types of trains; the combat, the field, and unit trains. In actuality in the fast moving DESERT STORM environment there were two sets of trains: those you had with you and those you would never see again. The battle was so fast moving and covered such great distances that if you did not carry the trains in the task force formation you would never see them until the war was over. Simply put the logistical doctrine did not support DESERT STORM maneuver. To support the task force maneuver during DESERT STORM the trains were consolidated and positioned in the center of the task force box formation behind the TOC. They simply fell back when enemy contact was imminent and closed back up once the fight was over. To reduce the length and spread of the task force formation the trains moved in line and wedge formations. This shortened the distance between the trail unit train elements and the security of the combat power of the maneuver companies. Additionally, this allowed the fuel HEMMTS [Heavy Expanded Mobility Tactical Truck] a quicker response when conducting hot refuel operations during stops on long road marches or pauses in other combat operations.

e. EQUIPMENT: The disparity in movement rates between the M1A1's and the M113's, ITV's and FSV's resulted in the Task Force developing tank pure contingency plans for all operations. For every contingency plan, a tank pure alternative was addressed in which speed was of the essence. Generic plans were for the M1A1 tanks to deploy immediately with the two mech team headquarters to follow. Retask organizing would be conducted once the two elements were linked up. These plans were primarily for the counterattack options that the Task Force was assigned while in the reserve role. The tank pure contingency plans were rehearsed and the battalion commander's intent became ingrained in every company commander so that any mission could be initiated tank pure regardless of the previous plan. The Brigade needs BFV's to keep up with the M1A1's and the Army needs to look at an alternative power train for the FSV.

f. DISPERSION: Doctrinal dispersion between vehicles does not apply. At night the maximum dispersion used was 50 meters. During daylight and unlimited visibility, this Task Force used 200-300 meters between vehicles.

4. FIRE SUPPORT:

c. The doctrine from the Field Artillery School is Top-Down planning. In the desert, planning should be done from the bottom up. Many times, the higher HQ overloaded TACFIRE with targets on terrain that didn't exist. The TF is the unit with eyes on the target and the terrain. They should do the planning. Valuable time was wasted confirming that targets didn't exist.

d. MISSION TRACKING: Once, when the TF occupied an assembly area, we found ourselves in the middle of a DPICM dud field. All levels of command should track what type of missions have been shot in their areas of interest. We need to look ahead at maneuver and AAs when choosing to fire DPICM and other high dud rate producing munitions such as cluster bomb units.

6. MOB/CMOB/SURVIVABILITY:

a. ENGINEER SCOUTS: With mobility as the primary role of the TF engineers, our attached engineer company, C/229, placed 3 engineer "scouts" with the TF scouts to provide early engineer intell of enemy minefields, other obstacles, and routes. Although enemy obstacles were not encountered, the scouts proved invaluable to the TF in the "pre LD" berm recons, route selection during the marking of Route Alpha, and ID of FASCAM [Family of Scatterable Mines] and other munitions during sector clearing operations following the offense.

Recommendation: Engineers proved their value as scout platoon assets. Had the TF encountered enemy obstacles, they would have been even more critical. Place at least one engineer scout with each TF scout squad to provide the commander with the level of engineer expertise needed within the scout platoon.

7. CSS:

a. RECOVERY OPERATIONS: The M88A1 recovery vehicle proved inadequate for M1A1 tank recovery over the extended distances covered during DESERT STORM. Every M88A1 used for long distance recovery of M1A1's wound up non-mission capable due to engine failures. The M88A1 was able to drag 2 or 3 M113 family of vehicles without difficulty.

b. MAINTENANCE and REPAIR: Due to the fast pace of the battle, repairs or fixes were not possible on the move. The only option was to drag vehicles until a lull in the battle where repairs could be performed. The only parts or assemblies available were the PLL and major assemblies that the Task Force was carrying. The Support Battalion assets were too far away to catch up to the Task Force.

SPEED AND POWER!

RICARDO S. SANCHEZ
LTC, AR
COMMANDING

Editor: Navigation in Operation Desert Storm proved a significant challenge, particularly in light of the poor quality maps issued and the variety of terrain encountered in the desert. More recent digital maps, satellite images, and aerial photographs have simplified access to quality navigational aids, but they have not entirely eliminated the discrepancy between the imagery and the actual terrain. There is no substitute to actually seeing the terrain upon which an armored or mechanized unit will maneuver. The ability of US combat units to maneuver rapidly and adjust quickly to changing tactical situations in Desert Storm is again underscored in this report: constant rehearsals that thoroughly familiarized commanders at all levels with the overall plan, their role, and that of other components of the task force. This familiarity ensured the maximum utilization of the task force's combined arms nature in a fast-paced environment. Moreover, such familiarity has been a factor in past military successes and will be so in the future. In short, leaders intimately familiar with the mission, method of execution, objective, and commander's intent for each member of their parent team are much more likely to adjust rapidly and effectively to changes on the battlefield. The comments concerning combat trains, supply, fire support, and vehicle recovery and maintenance underscore the importance of these factors in the planning, preparation, and execution of all missions for armored or mechanized units.

Armor in the Balkans

Editor: This chapter addresses the participation of Armor in Army operations in Bosnia, Albania, and Kosovo in the 1990s. This period marked the start of the post-Cold War era and witnessed the deployment of ground combat forces in a variety of operations other than war. These operations underscored the adaptiveness and versatility of Armor.



American tank of the 1st Squadron, 1st Cavalry Regiment, 1st Armored Division crosses the Sava River into Bosnia-Herzegovina as part of the NATO-led Implementation Force (IFOR) in December 1995. (DOD Joint Combat Camera Center)

Armor and Cavalry in Bosnia

Editor: This article focuses on armor materiel employed in Bosnia, underscoring the importance of understanding vehicle capabilities and terrain throughout the planned area of operations. Written by Col. Charles Lehner (USA Ret.), it was first published as "Bosnia Report: Task Force Eagle's Armor and Cavalry Operations in Bosnia," in the May-June 1996 issue of *Armor*.

The purpose of this article is to examine the capabilities and limitations of armor and cavalry in Bosnia within the NATO alliance. This article is focused on Task Force Eagle, including attachments from other countries. In addition to the U.S. 1st Armored Division (minus the 3rd Bde), the task force includes a Swedish battalion (SWEBAT), a Russian airborne brigade, and a Turkish battalion.

Armored Vehicles Available

Armor within TF Eagle includes a wide variety of equipment, including U.S. M1A1 Abrams tanks, M2 and M3 Bradley infantry and cavalry fighting vehicles, M113 APCs, M-109A6 155mm (Paladin) howitzers; Russian BTR-80 8x8 wheeled troop carriers and BMD-2 airborne assault vehicles; Danish Leopard 1A3 tanks (attached to SWEBAT); Swedish BV-206S armored articulated all terrain APCs, Pbv-302 APCs; and Finnish SISU XA-180 6x6 APCs.

Terrain and Road Net

Fundamental to any discussion of armor and cavalry operations is a complete understanding of the terrain and road network in which they must operate. The former Yugoslavia is predominately a mountainous and hilly country. Elevations range from almost 2,900 meters above sea level at the highest peak in the northwest to sea level on the Adriatic coast. The former Yugoslavia can be divided into the following three landform divisions: the northern plains, the interior highlands, and the Adriatic coastal region.

The northern plains total about 20 percent of the land area. This landform comprises the river valleys of the middle and lower Drava, the lower and middle Sava, the lower Tisa, and the middle Danube. It is bordered in the south and west by the interior highlands and continues north into Hungary and Romania.

Terrain and Weather Effects

The mountains, steep hills, and rough karst topography that cover 70 to 80 percent of the country have a profound effect on military activities. Cross country movement of wheeled and tracked vehicles is almost impossible in these areas. In the northern plains and in the valleys adjacent to dissected hills in the east, movement is feasible all or most of the year. Vehicular movement, in general, would be easier in summer and autumn than it would be in winter and early spring when the ground is soft and wet.

Most of the roads in the former Yugoslavia's highway system are asphalt surfaced, have numerous bridges, and traverse rough terrain. City streets, as well as more remote area roads, typically have uneven or broken surfaces of cobblestone, tar, or gravel. Current conditions of these roads are poor for the most part. By 1989, the highway system totaled 123,000 km of roads. Included are the 871 km major highway (Route 1), 73,527 km of asphalt surfaced roads, 33,663 km of macadam- surfaced roads, and 15,133 km of earthen roads. Most areas of the country are accessible via modern asphalted roads. All the primary routes have numerous bridges that cross small to large streams. In some of the mountainous areas, bridges are easily washed out. These significant obstacles are difficult or impossible to bypass because of rough terrain.

Preparation for Trip to Bosnia

In October 1995, I visited Lt. Gen. John Abrams, CG, V Corps, in Heidelberg, Germany, and briefed him on recent events in Korea regarding the 2d Infantry Division, which he commanded prior to assuming command of V Corps. While in Korea, General Abrams directed a staff study on the limitations of High Mobility Multipurpose Wheeled Vehicles (HMMWVs) in mountainous terrain. The 2d ID staff concluded that it needed about 200 BV- 206S (armored version of the U.S. Army's M973A1 small unit support vehicle) to

replace HMMWVs in scout platoons of maneuver battalions, light infantry battalions, a signal battalion, an MI battalion, and an air defense battalion.

I suggested to General Abrams that BV-206S vehicles might also be useful in Bosnia's mountainous terrain. In November, I was asked by the V Corps Force Modernization Officer, Lt. Col. Ron Baynes, to formulate an organizational and operational (O&O) plan for employing BV-206S vehicles in the 1st Armored Division for their upcoming deployment to Bosnia. I was told by the Swedish Embassy in Washington that only 17 BV-206S vehicles could be made available to meet the deployment of TF Eagle in December or January. I felt that all 17 BV-206S vehicles should be in one provisional cavalry troop so that a single commander would be responsible for training, maintenance, and logistic support. This did not preclude detaching scout squads or sections to other units as needed. I suggested that the cavalry troop be manned by the crews of some tanks left behind in Germany. The O&O concept was prepared and coordinated in December, with Brig. Gen. James P. (Pat) O'Neal, 1st AD ADC-Support in Bad Kreuznach; Col. John Batiste, Cdr, 2d Bde in Baumholder; and Lt. Col. Tony Harriman, Cdr, 3d Squadron, 4th Cavalry in Schweinfurt, whose squadron was detached from the 3d Infantry Division and attached to the 2d Brigade of the 1st AD for TF Eagle. The O&O plan was well received and Brig. Gen. O'Neal said that all 17 BV-206S vehicles could be employed by the 2d Brigade, the unit assigned to cover the mountainous terrain south and east of Tuzla. However, when Maj. Gen. Nash, CG, 1st AD, reviewed the plan, he felt that he could not justify the expense of buying 17 BV-206S vehicles from Sweden; instead, he decided to requisition 20 M973A1 SUSVs (unarmored versions of the BV-206S) from U.S. Army stocks in Italy.

These visits with the 1st Armored Division enabled me to understand TF Eagle's upcoming mission in Bosnia and review the extensive training and preparation prior to deployment. I also conducted extensive research with the elements of the Swedish brigade, who have been operating in Bosnia and Macedonia for the past few years. Colonel Jan-G Isberg, former commander of the 1st Nordic Battalion, stated in his report dated February 15, 1994: "We were entirely dependent on the BV-206 to supply the positions, patrol the borders and to reconnoiter patrol tracks and locations for additional positions. All our BV-206 were exposed to heavy strain, both in stony and very rocky terrain in valleys and along steep mountainsides, where other types of vehicles could not pass at any time of the year. The BV-206 came up to all expectations. Thanks to them we were able to keep the operation running, and at no time we had to decrease our ambitions with the mission in spite of the extremely difficult terrain."

Operations in Bosnia

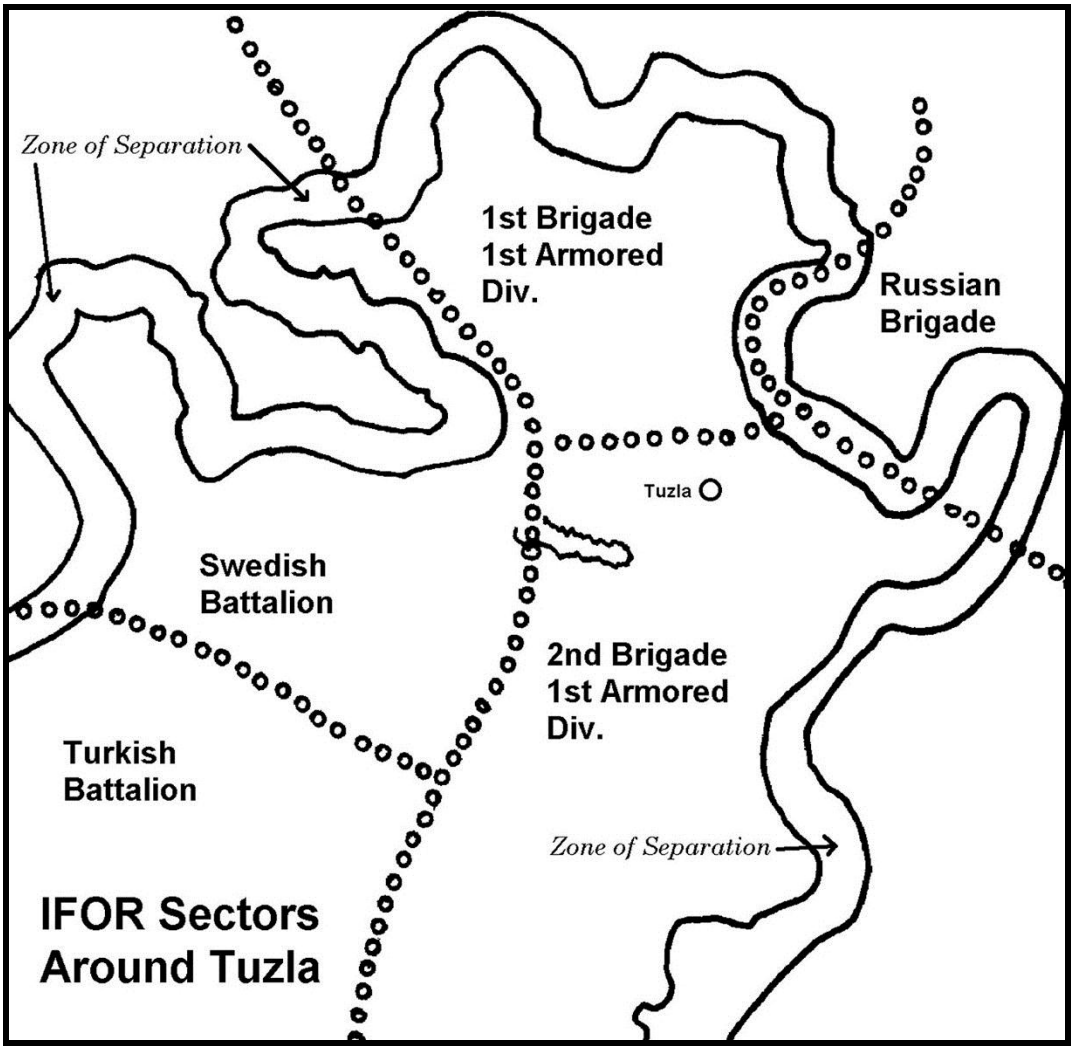
The entire area of TF Eagle was previously the responsibility of the Swedish battalion, which now is responsible for only the Northwest sector of TF Eagle (*see map*). I stayed with the Swedes from 14 to 19 March 1996 and was accompanied in my travels by Maj. Claes Wolgast, Deputy Chief of Staff SWEBAT, and Lt. Christof Reychman, interpreter. I was impressed by the professional capabilities of the Swedes and their extensive knowledge of Bosnia.

As the Germans found out in World War II, TF Eagle also knows that Bosnia is not ideal "tank country." However, the decision to send the 1st Armored Division to Bosnia, rather than an infantry or mechanized infantry division, has had a profound effect. The awesome presence of a reinforced armored division can leave little doubt in the minds of the Serbians, Croatians, and Bosnians that the United States and its NATO allies mean business in implementing the Dayton Agreement. A platoon of Abrams tanks and Bradley fighting vehicles at a checkpoint is a strong reminder of the hundreds more that are also quite visible in the camps of the 1st Armored Division. There are some areas of Bosnia that are more like classic "tank country," such as the critical Posavina corridor in the 1st Brigade's sector. However, mud can be a real problem even in this relatively flat area.

M1A1 tanks with mine rollers have proved their worth in clearing roads of deadly antitank mines. Mine roller tanks could have prevented the serious accident which happened to the Danish tank company in the Swedish sector. This was a unique mine encounter in which three TMM-1 antitank mines, connected with detonating cord, went off simultaneously under a Leopard-1 tank. Another accident that could have been prevented with a mine roller tank involved a Swedish Pbv-302 APC which struck a single TMA-3 antitank mine (6.5kg explosive) in the zone of separation. Unfortunately, two Swedish infantrymen lost their legs in this accident.

However, mine rollers off-road are another story. Sgt. First Class Michael A. Tucker, 2nd Platoon, B Troop, 1st Squadron, 4th Cavalry, reported that the mine rollers bog down in off-road areas where the soil is more likely to be soft or muddy.

The use of tanks and APCs in mountainous areas is very limited. M1 tanks and M2 or M3 Bradley fighting vehicles are simply too heavy and too wide to operate effectively in the mountainous Bosnian terrain. Lt. Graehme Parnell and his lead scout, Sgt. First Class Frederickson, 1st Platoon, B Troop, 1st Squadron (formerly 3d Squadron), 4th Cavalry, reported that much of the mountainous road net in the 2d Brigade sector is inadequate to support M1A1 tanks and M3 Bradley CFVs. Many of these mountainous roads are barely wide enough for the CFVs — Sgt. First Class Frederickson noted that an M3 CFV collapsed the shoulder of the road at one location, which damaged the roadway, prohibiting further passage. Lt. Parnell also reported that most of the bridges on these mountain roads are constructed with local timber and are barely strong enough or wide enough for passage by CFVs. Another example cited was an "S" turn which could only be traversed with a CFV going downhill. They also reported that on one narrow road a smoke grenade launcher was ripped off while the vehicle hugged the side of the cliff to avoid falling off the roadway.



NW sector of TF Eagle

Lt. Parnell reported another noteworthy incident in which some vehicles of the 501st MI Battalion were attempting to go to a snow-covered hilltop in the B Troop sector. They were unable to get some of their HMMWVs up the hill, despite equipping them with tire chains. Six of the HMMWVs had to be towed by Lt. Parnell's M3 CFVs to get to the top. Maj. MacFarland, XO 1-4 Cav, also reported an incident with a

HMMWV descending Mt. Vis, east of Tuzla; the vehicle overturned on a snow-covered road and crushed the driver.

The mobility situation has improved by the mid-March arrival of M973A1 vehicles for use in the 2d Brigade's sector. Had M973A1 vehicles been issued earlier, the accident on Mt. Vis could probably have been avoided.

After conducting a patrol with an M973A1 SUSV, Lt. Parnell reported his findings in the letter dated March 21, 1996. In his summary, Lt. Parnell stated, "The BV-206S is an ideal vehicle for Operation Joint Endeavor. It provides adequate protection and firepower for the peace enforcement mission. However, it should be used in conjunction with tanks and Bradleys to convey the overwhelming firepower image. Most importantly, it provides the mobility needed to access secondary roads, cross MLC <30 bridges, and climb snow covered mountains."

In spite of these problems, the job of patrolling the zone of separation is being accomplished remarkably well, especially with air cavalry in conjunction with ground cavalry. The two air cavalry troops in each cavalry squadron (1-1 Cav and 1-4 Cav) are performing very well in covering those areas of the zone of separation which are not easily reached by each squadron's three ground cavalry troops. Lt. Col. Greg Stone, CO, 1st Squadron, 1st Cavalry, reported that both air cavalry and ground cavalry troops are doing a superb job in the 1st Brigade's sector. The OH-58D (Kiowa Warrior), with its mast-mounted thermal imaging system, can patrol the zone day and night. The firepower of the armed OH-58D, along with the awesome firepower of the 4th Brigade's AH-64 Apache helicopters, is also an effective deterrent.

Lighter combat vehicles in TF Eagle have been more successful in adapting to the limited mountainous road nets. For example, the Finnish SISU 6x6 wheeled APC being used by the SWEBAT, and the Russian BTR-80 are doing a good job in patrolling the roads in the zone of separation. The SISU has also demonstrated better survivability when striking an antitank mine. The SISU's "V" shaped bottom apparently deflects the blast toward the sides. In one mine encounter in SWEBAT's sector, the crewmen were not seriously injured. Moreover, these wheeled APCs are less likely to tear up the roads, compared to tracked APCs.

The lighter tracked vehicles of the SWEBAT and Russian airborne battalion are also well suited for Bosnia's limited road nets. The Russian BMD-2 and the Swedish BV-206S, weighing less than 8 tons each, are able to negotiate the narrow roads and small bridges and have better cross-country mobility. The demonstrated performance of these two lightweight tracked vehicles are worth remembering when considering the future scout vehicle (FSV), which has emerged as TRADOC's highest priority vehicle requirement. Lessons learned from Bosnia will undoubtedly have an impact on the development of the FSV.

The Future

Based on what I saw in Bosnia, I am more convinced than ever that wheeled scout vehicles, such as HMMWVs, be replaced with light tracked vehicles in the scout platoons of the maneuver battalions. The same is true for the HMMWVs of the division MI, air defense, and signal battalions. As mentioned above, this same conclusion has been reached by the 2d Infantry Division in Korea, which also must operate in mountainous terrain. HMMWVs sometimes can't get to where they need to be — on high ground to perform their missions. Most would agree that having to tow HMMWVs to mountaintops to do their job is unacceptable.

As illustrated in my article in *Armor*'s July-August 1994 issue, an articulated vehicle such as the BV-206S is the right way to go for a future scout vehicle. Lt. Gen. Timmons, CG, Eighth Army and CofS USFK, has requested funds for the Naval Research Laboratory (NRL) to assemble scout and command and control variants of the BV-206S for assessment by the 2d ID in Korea, prior to acquiring the larger number of BV-206S vehicles that their staff study indicates they need.

The scout and battle command variants of the BV-206S envisioned have the same external configuration so that the command variant will not stand out as a "signature vehicle." NRL, developer of the U.S. Army's Airborne Command and Control System (A2C2S), intends to include the A2C2S C41 suite in the BV-206S, which will allow the commander to operate either from his UH-60 Blackhawk or from his BV-206S battle command vehicle, which can take him to a mountaintop to "see the battlefield" with the 2d-generation FLIR, and function with his command group from a single vehicle.

The scout version of the BV-206S will also have the same 2d-generation FLIR and abundant communications capability using the same Joint Combat Information Terminal (JCIT) as A2C2S. The BV-206S is capable of being carried internally in CH-47 and CH-53 helicopters, which will enable the scout to be employed deep (up to 100 km beyond the FLOT as required in the FSV mission need statement). The scout version would reduce the workstations in the rear car, from 5 to 1 or 2, to enable carrying up to three remote sentries, the imagery of which can be monitored from the remaining workstation(s). JCIT can also receive imagery from OH-58D scout and AH- 64 attack helicopters. Some of those operating in Bosnia are equipped with this feature and are operating in theater.

The U.S. Marine Corps also has a need for a helicopter-transportable future combat vehicle (FCV). Lt. Gen. Zinni, CG, I Marine Expeditionary Force (MEF) recently sent a letter to Lt. Gen. Timmons, CG, Eighth Army, stating that when the 2d ID validates their need for BV-206S vehicles, that the I MEF would also need the BV-206S for their reinforcing mission in Korea.

Summary

Task Force Eagle is doing an excellent job in its peacekeeping mission in Bosnia. I was very much impressed with the cooperative spirit and professionalism demonstrated by all U.S. and allied units that I visited. The troops are highly motivated and their morale is high. General Joulwan, SACEUR, said in a recent article: "With Russia and others willing to participate in IFOR, we have a real opportunity to help achieve a lasting peace in the Balkans, and thereby take one step closer to a stable and democratic Europe."

Editor: Bosnia's mountainous terrain, undeveloped road nets with wooden bridges, and mud posed several challenges for armored units. While these conditions were not present everywhere all the time, they were sufficiently common for commanders to take careful note of their impact upon unit maneuverability. Mines compounded these threats. Commanders operating in similar areas need a careful terrain analysis and trafficability assessment to determine go and no-go areas for specific platforms. Such information prior to deployment will assist in determining where units can be most effectively employed and where they will be constrained by terrain. Lighter wheeled vehicles are not always viable or desirable substitutes, evidenced by the difficulties HMMWVs experienced while trying to climb steep mountain routes. Tracked vehicles generally have provided better cross country mobility, including the tracks and trails found in more remote parts of Bosnia. In this case, this author found the armored, tracked, articulated M973 Small Unit Support Vehicle (SUSV) to be the vehicle of choice. For a large area of operations that includes mountainous areas, a mix of vehicles with varying mobility will provide commanders the greatest versatility and ability to project force. As in Bosnia, available aviation assets can provide the means of reaching those areas that may otherwise be difficult to reach with heavy combat vehicles alone.

Notes

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Joulwan, General George A: "European Security," *Army Aviation Magazine*, February 29, 1996, pp. 6-11.

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Armor Tactics, Techniques, and Procedures for Coping with Mobs and Refugees

Editor: This article outlines tactics, techniques, and procedures used by 3-4 Cavalry (later redesignated 1-4 Cavalry) during their rotation in Bosnia in 1996. It was first published under the title "Mobs, Refugees, and Armor: Tactics, Techniques, and Procedures," in the September-October 2000 issue of *Armor*. The article's author, Maj. Robert G. Ivy, commanded a cavalry troop in Bosnia.

Bosnia, August 1996. 1-4 Cavalry was operating in sector supporting various missions, including the occupation of platoon-sized observation posts, treaty verification, and security support for the International Criminal Tribunal for the Former Yugoslavia (ICTY). Mahala, a former Muslim village on the Serb side of the Inter-Entity Boundary Line (IEBL) had recently been reoccupied by Muslim refugees. These refugees, supported by the Muslim government, stood accused by the Serbs of carrying arms and endangering Serb civilians. A group of Serb policemen were dispatched to clear the town of the Muslims and were reported to the squadron headquarters by a patrol that supported the ICTY mission.

Squadron elements responded by sending a tank and Bradley scout section to Mahala to observe. Meanwhile, Serb police clashed with the Muslim refugees. Separating the two factions, the squadron guarded each until representatives from the two governments could be brought to Mahala to negotiate an end state. The Serb government responded by broadcasting on local radio stations that NATO had arrested the Serb police. Serb mobs appeared throughout the squadron sector shortly thereafter, blocking most of the key road intersections. The Serbs began transporting hundreds of people to an intersection close to Mahala. Soon, a massive Serbian mob moved toward Mahala to take control of the Serb policemen. The brigade commander, wanting to maintain control, instructed the squadron to stop the mob.

There have been several incidents similar to the one at Mahala. In most of these situations, U.S. armored forces were present in some form. Therefore, it is important for Armor leaders to understand that mob situations can be controlled.

For the purpose of this paper, a crowd is a large gathering of people that is not mobile and does not possess any kind of command and control. A mob also is made up of a large number of people, but a mob possesses command and control, is mobile, operates according to a plan, and many times has communications contact with a higher level element. A crowd is usually a spontaneous reaction to an event, whereas a mob is a planned and controlled unit. Mobs occur during planned events. Examples of planned events are various domestic protests, political rallies, and confrontations between entities. In contrast, crowds are caused by unplanned or spontaneous events. Examples of unplanned spontaneous events are crowds gathered for food and water; distribution of limited resources, such as refugee supplies; and gatherings after religious or sporting events.

Before 1-4 Cavalry deployed to Bosnia in 1996, the squadron trained at the Combat Maneuver Training Center (CMTC) and was certified for the Bosnia deployment. The squadron had trained on handling crowds and was prepared to execute an array of civil-military missions. However, it encountered several incidents that were not anticipated during training — in particular, how to deal with mobs and refugees. Through the experience of the squadron as a whole, we identified several characteristics of mobs and refugees and then developed actions that would enable the squadron to move from a reactive condition to one that put the local commander back in control. First, I'll discuss the characteristics that we identified in both mob and refugee movements, especially in Bosnia, then address the tactics, techniques and procedures we developed to gain control of the situation. I'll conclude with Standard Operating Procedures (SOPs) and Contingency Plans (CONPLANs) that can be applied to company teams or even platoons.

In April 1996, the squadron encountered its first mob activity. The incident was sparked when the Muslims gathered a group of people to cross the Inter- Entity Boundary Line into Serb-held territory. Our first indication of movement was when our observation posts started to report unusually large groups of people crossing the IEBL. The group moved into a former Muslim village on the Serb side, close to the IEBL. The Serbs reacted by deploying their special police forces into the town, initiating a conflict. The two sides faced each other and threw various items at each other, including hand grenades. Attempts by our troops to stop the

incident resulted in soldiers quickly finding themselves between the two parties and unable to affect the situation.

One of the unique aspects of the Bosnia refugee situation is their forced removal from their homes, either by opposing forces or their own friendly forces. In addition, most refugees carry all of their possessions in or on a single vehicle, either motorized or animal-drawn. Typically, every group of refugees has a leader or leaders. Usually the refugees have a plan on where they want to displace to, even if it is just following another group. Typically, refugee groups are built around someone's family unit and usually have family members of all ages, to include children and elderly. These groups then attract former neighbors or people that have lost their families. They have, on average, little food and are almost always short of water.

Like refugees, mobs also have leaders. If the mob is planned, the mob leaders may have communication with their "headquarters." During events in Bosnia, this was usually done via a person following the leader with a concealed pocket radio. Runners using residential phones were also used. Leaders control the mobs by moving the participating people to a designated area by vehicle, then forming and moving to the targeted area. Upon completion of the demonstration, the people in the mob are then moved to a pick-up area to meet their transportation.

The key to dealing with both refugees and mobs is preparation. Shaping the area of operation is still the first part of any operation, including peacekeeping. Therefore, Intelligence Preparation of the Battlefield (IPB) is paramount. Both mobs and refugees use avenues of approach, are affected by terrain, and typically are characterized as moving units. Therefore, Named Areas of Interest (NAIs) should be determined,

Decision Points selected, and a Decision Matrix developed. The key to control of refugees and mobs is controlling their mobility. Choosing the routes they can use and restricting their mass and speed helps control their mobility. Therefore, Targeted Areas of Interest (TAIs) still play an important part in shaping any area. In this case, TAIs are made up of obstacles, checkpoints, and holding areas.

A mob or refugee scenario would have preplanned TAIs that have prepared obstacles linked with the terrain. These obstacles in the preplanned stage are just engineer stakes and wire laid at a TAI so that a tank or scout section can close the obstacle in minutes. Every vehicle in the unit, therefore, will carry the necessary wire and other class IV needed to complete and close any TAI obstacle.

Early detection of refugee or mob activity is important. This will give the commander and the operations group time to start the orders process and activate the unit's plan. Likewise, the destination of the groups needs to be known quickly. Contact must be made with the group and maintained. Using available Civil Affairs (CA) or Counter Intelligence (CI) assets is best. The bottom line is to get someone to find the mob's or refugee's leadership and try to extract information while providing location and situational updates. Commanders can then slow, channel, or divert the groups as needed, using the network of TAIs.

The general principle towards refugees is to keep them moving towards food and shelter without crowding routes or blocking key terrain. The general principle in dealing with mobs is to slow or prevent the gathering. Once a mob or refugee movement is detected, it is important to act quickly in order to maintain the initiative. Clearly, the commander needs to identify and refine his intelligence requirements in a timely fashion. The soldiers manning the OPs, checkpoints, and even in convoys can help provide the commander needed information.

In addition to TAIs, holding areas are important to shaping any area. The idea of a holding area is to receive incoming groups and then break them down into manageable sizes. Holding areas can be used to supply refugees with water, in addition to breaking up masses of people. Holding areas are ideal for coordination or processing points for local authorities and NGOs (nongovernmental organizations), such as the UNHCR (United Nations High Commissioner for Refugees). This will allow the commander to thin the flow of groups entering an area of operation.

In general, any plan would be to limit the maneuverability of any group by using TAIs. Both mobs and refugees usually stay on roads which are also avenues of approach. Therefore TAIs can be very useful. Refugees require channeling. They tend to be passive and are easily guided. However, if they do not receive guidance, they will gather wherever they can obtain food, water, or shelter. The lack of a plan could result in potential logistical or humanitarian problems.

Mobs, on the other hand, require containment. In addition, within planned crowds there will be people designed to attract press coverage. Elderly, children, and pregnant women all have been forced to the front of mobs to be beaten by the Serbs, thereby increasing press coverage. Efforts should be made to safely separate these people from the mob. For example, a restriction of no vehicles in an area will cause the mob to walk further and the elderly, children, and pregnant women to drift to the rear of the mob, where they are less effective.

A tank or scout section can man a typical TAI. It is important to tie the TAI into other support and overwatch so that the section is not isolated. Consecutive TAIs could also be used to support one another. It is important that once the TAI is established, the sections both man their vehicles and provide themselves local security on the ground. This security should be in the form of two-man teams. The security teams also provide the important function of giving the members of the mobs or refugees someone to talk to. Avoid using the TAIs as blocking obstacles. Rather TAIs should act as delaying points that thin out the crowds, gather intelligence from passers-by, and observe situational conditions.

CONPLANs and SOPs are critical to success when dealing with mobs and refugees. Units should develop an execution matrix of the tasks required for dealing with mobs and refugees. This matrix needs to be updated daily so as to properly match sections and platoons operating in respective areas with their required CONPLAN tasks. For example, patrols should be briefed on NAIs, TAIs, and key terrain for each CONPLAN and be prepared to execute. In addition, patrols should have, as a SOP, the required equipment and barrier material needed to execute CONPLANs included in their vehicle load plans.

In review, mobs and refugees typically follow a plan. Both mobs and refugees have leaders and a command and control system. Likewise, mobs have a means of communication with their "controlling headquarters." Armor units can successfully manage mob or refugee activity if they prepare. Intelligence preparation of the battlefield, decision points, and a decision matrix focused on controlling mob or refugee movements are the keys to dealing with mobs and refugees.

The August 1996 incident ended successfully as squadron elements enacted their plan and slowed the mob by using several scout sections along the mob's route. These sections acted as a sifter, causing the mob to thin as mob members were stopped at the different sections. Able to go no further, mob members could only yell or talk to the soldiers present. By the time the mob reached the final TAI prior to Mahala, it had been reduced from several hundred to a few dozen people. This enabled the squadron soldiers to negotiate the withdrawal of the mob back to their intersection start point. A key point of this negotiation was the promise of information on the current situation to be relayed to the mob leaders via the senior squadron officer present. Eventually the Serb police were allowed to return to their station and the mob boarded their buses and returned home.

Editor: This article provides useful tips to Armor leaders that transcend the Bosnian experience. While cultural factors will vary, the characteristics of mobs and refugees outlined here will not. Moreover, although the Bosnian experience has begun to fade into history at the time of this publication, the lessons learned have direct validity in the operational environments of today and into the foreseeable future. A civilian presence that includes mobs and refugees is to be expected, and leaders need to have some framework of dealing with both. This article also highlights how the particular skills and assets of armor and cavalry organizations can be applied—addressing mob behavior and refugees is not a task exclusive to any one branch. Finally, these pages illustrate how a combat organization can apply basic warfighting skills to successfully manage civilian issues.

Armor in Albania (Task Force Hawk)

Editor: The following article provides observations and insights into the experience of tankers and scouts who deployed to Albania with Task Force Hawk. Written by Lt. Col. Peter W. Rose II, it appeared as "Letter From the Balkans: American Armor in Albania, A Soldier's Mosaic," in the July-August 1999 issue of *Armor*.

Rinas Airfield, Tirana, Albania – Go anywhere in the world the U.S. Army has troops and you are likely to find specially tailored task forces at work. That is no surprise to a soldier of a globally projected Army. Armor and Cavalry units in the Balkans? Nothing new there. The Bosnia mission is a familiar one, so is duty in Macedonia. So what's new?

Well, there's American armor in Albania.

This is going to be a good news story, because what is happening here is good news. I chose to write to let you know there are thousands of success stories daily — soldiers, NCOs and officers making it happen. Sometimes the situation hasn't been perfect, but what is important is how soldiers and their leadership tackled challenges and continue to do so.

I deployed here this spring with a Training and Doctrine Command Lessons Learned Team. Here, in the southeastern corner of the Balkans, I found a rather unique Army task force, Task Force Hawk, which stood poised and ready to strike, secure, or support as the Supreme Allied Commander Europe required. The task force was built around Apache helicopters and Multiple Launch Rocket Systems (MLRS) artillery. I moved around the task force assembly area, Camp Reichert, and saw forces that might surprise. Tankers and scouts, part of a "heavy" task force, serving as an integral part of Task Force Hawk's force protection team. This "Cold War anachronism" gave the task force commander the ability to conduct limited offensive or defensive operations at a time when the situation was not very clear.

The tanks and crews I saw belonged to Company C, 1st Battalion, 35th Armor, "Conquerors." The company's parent unit for this operation was Task Force 1-6 (TF 1-6), an infantry-heavy task force that included the headquarters and headquarters company and two mechanized infantry companies of 1st Battalion, Sixth Infantry, a rifle company from the 2d Battalion, 505th Parachute Infantry Regiment, and "Charlie Tank." TF 1-6 was further augmented by the scout platoon of 1-35 Armor.

Charlie Company's commander, Captain Steve Lutsky, deployed from Baumholder, Germany, explained that there were several facets to the infantry battalion task force mission that also fell within the capabilities and mission of a combined arms team. April and May found the task force focused on force protection. The tank company was task-organized into a tank-heavy company team, swapping out one of its tank platoons for a mechanized infantry platoon. Capt. Lutsky said his company team was here to provide an armor punch to any and all operations. "We can secure, surveil, defend, attack, and move to block, ensuring uninterrupted operations by Task Force Hawk units operating in and around the Tirana — Rinas Airfield." Naysayers might accuse CPT Lutsky of being overly biased towards the employment of armor. Nope, that wasn't the case. The factors of METT-TC (mission, enemy, troops, terrain – time and civilians) were different here, but the principles of employing armor had significant utility. Summing up comments by the battalion task force commander, Lt. Col. Jim Embrey, Charlie Company was an essential part of his team.

Capt. Lutsky said his fourteen tanks, their command and control and support had deployed by C-17 Globemasters. "We were given three weeks notice. We used two weeks to prepare and move to Ramstein Air Force Base, and deployed a week later."

Deploying by C-17 was just one more first for the 35th Armor Regiment. U.S. Army Europe units are used to deploying by rail and sea. Air deployment was not a mission essential task for many heavy units stationed in Germany. Charlie Company didn't accomplish this feat alone: there was great support from the parent battalion, which also deployed its scout platoon to Albania.

I was eager to hear what the troops would have to say, and wondered what had made the strongest impressions on them. Many readers will probably remember reading about the conditions Task Force Hawk found itself in during the early days. Rain and mud were not shortage commodities for this military enclave north of Tirana, and I expected that to be the strongest impression, but I was only partly correct.

Sergeant First Class Randall Sumner, a Tennesseean who serves as platoon sergeant for 3d Platoon, explained how the company team was able to remain agile. It was in great part due to the unit's preparation, he said: "Company training included mission-oriented classes covering defense, observation posts, tactical road marches and movement, hand and arm signals, occupation of hasty and deliberate positions, sketch cards, quartering parties, assembly area procedures." The list went on to include individual and crew duties, boresighting, prep-to-fire checks, and crew level (tank) maintenance.

Sgt. First Class Sumner credited the unit's preparatory training at home station, including force protection, taking and securing prisoners, base camp operations, media awareness, and time on the UCOFT (Unit Conduct of Fire Trainer). The company showed its Bosnia experience through buddy equipment checks, weapons security and good field hygiene. Sgt. First Class Sumner shared his platoon's excitement. There was even a good chance his platoon would get a chance to shoot, maybe sooner than later. Task Force Hawk had developed plans to build and operate live fire ranges for tank gunnery and small arms marksmanship. The company goal was to shoot tank tables four to eight, or at least modified tables five and six.

Staff Sgt. John Demey said he would always remember setting up the perimeter security, the process of building and occupying towers, establishing, coordinating and recording fields of observation and fire. There was a great deal of work involved in getting the berms built, commo working, and building vehicle fighting positions. What else? "The mud, he grinned." His platoon hadn't gotten a tank stuck, he said, but a soldier had sunk past knee deep, requiring three of his buddies to extract him.

Specialist Anthony Housey, a tank driver, said "tank wise," the units were somewhat limited in where the tanks could go in and around the assembly area and airfield. When not on the perimeter with their tanks, these armor crewmen could have been mistaken for military police, engineers, or even infantry. Multifunctional soldiers were in high demand and Spec. Housey would proudly remember how his company answered the call.

This was a first deployment for Specialist Jeremy Freeman, a tank loader. I wondered how the comments from a soldier unbiased by other deployments might differ. First, his loader's machine gun could be his weapon of choice over a loaded 120mm tank cannon. Spec. Freeman was also adapting to a different set of employment factors. Five hundred meters was a pretty long distance in some cases. Finally — and it was coming out again — tankers made pretty darn good dismounts when more "crunchies" were needed.

Freeman was appreciative of the creature comforts that were materializing. The Army and Air Force Exchange Service had brought in several semi-trailers set up as mobile "shoppettes." His company, when not pulling perimeter security had showers less than two hundred meters away. Chow was good. These were all "morale multipliers."

The experience another tank commander, Staff Sergeant Scott Wright, remembered vividly was the landing of the C-17 with his tank and crew on board. When the aircraft wheels touched down and the brakes were applied, the tank seemed to strain to the point of breaking free, but it didn't. Staff Sgt. Wright also considered the mud a considerable adversary, but he wasn't willing to put it in the category of the worst weather and environment he'd experienced. That memory was reserved for soldiering in one of Fort Drum's worst winters. Albanian mud couldn't compete with that and just as it came, one day it dried up and was gone.

Maintaining morale is always an important subject, especially if it is yours. Sgt. First Class Sumner reflected on the duty aspect of morale. "Guarding an airfield, so to speak, isn't the most exciting mission a tank unit can perform. But considering that, morale is good." As Spec. Housey said, a key ingredient in keeping morale up was the buddy system, watching out for each other, as teams, crews, and platoons. He also appreciated the improvements he had seen in camp life. During the deployment phase, the Task Force Hawk commanding general told his commanders and staff, "Right now, conditions suck, but they won't suck for long." The troops see the camp grow; daily improvements were apparent.

Up to this point, I had been enjoying the company of really great tankers, but I also wanted to visit with some of the troops who were keeping the Mounted Force operating, so I moved on to the tank company's support slice. It was comforting to find the company combat trains, tucked in with the tank company team. It was what Armor doctrine tells you to expect: a maintenance team, log pack, and medics tucked in with the battalion task force. Our troops at Rinas Airfield are definitely at the tip of the spear, and they have to be self-sufficient because there is little in the way of host nation support, which occurs more in spirit and security cooperation than in substance. This is no surprise, considering the economic challenges Albania faces even

under normal conditions. Add to that the burden placed on the nation by thousands of Kosovar refugees now in the country.

Organizational and crew maintenance was humming. In a choice spot where gravel was worth its weight in gold, and true hard stand was something used for fixed wing aircraft and maintenance on a very few lucky "helos," I found the company maintenance team, led by Staff Sergeant Michael Hughes, who gave me sound advice on how to conduct maintenance in truly austere conditions. Step one happens before you depart home station, he said. "Double check your PLL (prescribed load list), review your equipment list. Determine your anticipated demands and requisition those items based on the anticipated demand." Staff Sgt. Hughes noted he had a lot of help from battalion maintenance. When you are the only American tank company in the country, it is good to come with the right tools.

The senior medic, Sgt. Raymond Wyrwas, said keeping troops healthy was obviously important to him, and that stressing personal hygiene was keeping his troops healthy, but allergies caused the most irritation. I had never heard of "whooping cough dust," but I had had firsthand experience with it here. Thanks to Sgt. Wyrwas I now knew I had succumbed to Albanian "whooping cough dust." Something had to replace the mud, he said. That something was dust.

The medics doubled up to serve in many other ways. The next time I saw them, they were running the ground traffic control point at the southern runway threshold of the Rinas-Tirana runway. Two days later, Sgt. Wyrwas was running the company command post and monitoring the eastern half of Task Force Hawk's perimeter security. He was tied in with the 2d Brigade Combat Team command post and things were clicking.

For any visitor walking the perimeter and talking with troops, it is easy to recognize the importance of the missions of this deployed tank company and its task force scouts. Professionalism abounded. A good place to close out the visit was with First Sergeant Stephen Lamb. He credited smooth operations in part to the "smart book" his company had developed to prepare for the deployment. Considerable time and effort went into this book, which guided the company leadership through the process of certification and preparation. Documentation covered training, maintenance, family support, finance, billeting, personal property, privately owned vehicles. The list went on, covering every possible contingency. The first sergeant related how the company had prepared by conducting tactical training and gunnery, performed maintenance, internalized rules of engagement, and discussed base camp operations. I quickly concluded I would be seeing a great deal more of him as I captured lessons learned from a veteran unit, used to deploying.

The next time I saw 1st Sgt. Lamb, he had moved the company team to the extreme east side of the Task Force Hawk assembly area. The company area looked good, the tank crews had vigilantly settled into their security and observation posts, the ready reaction force had rapidly worked up and beat its three-minute requirement to roll from a cold start.

It was now time to find battalion task force scouts, who had just returned from a security mission. The platoon had outposted a Task Force Hawk artillery unit in the northern part of Albania, supplementing infantry-provided security to the mountain-top force. Just two and a half hours before I showed up to meet with these scouts, the platoon had been rolling in the gates of Camp Riechert, the task force assembly area.

Staff Sergeant Stanley Johnson had been in Albania about a month, having transferred from Fort Knox, where he had attended the Scout Leader Proficiency Course. He couldn't say enough about the course and its instructors. Everything the course covered he had executed here in Albania, short of calling for indirect fire.

Pvt. First Class Geoffrey Gleitz spoke with quiet pride as he listed the tasks his section and platoon had performed: route reconnaissance on all of the roads, in all directions fanning out from the task force assembly area, innumerable route and bridge classifications, many without support, some with attached engineers. Sgt. First Class Alfonso Hankerson, the scout platoon sergeant, was on his third deployment to the Balkans. His platoon had come out of Bosnia five months earlier and had conducted training at an intense pace until their deployment to Tirana in early April.

I asked Sgt. First Class Hankerson what he would remember about duty with Task Force Hawk. Hs spoke about how well the platoon had been prepared for the deployment, without knowing it was coming. It was evident he had good, seasoned soldiers. Even the new arrivals from 5-15 Cavalry, 1st Armor Training Brigade, had come ready to be trained to the next level. The platoon was humming.

I closed out my scout platoon visit with 1st Lt. Todd Retchless, the platoon leader, who told me he was impressed with the flexibility and versatility of his 19 Deltas. He reported his soldiers had run non-stop, despite

many mission changes, many given short notice. The battalion's intense training plan had paid off. Notified during an external evaluation that Albania would be their next destination, he reflected on the confidence the platoon felt in their final preparation and had proven during execution.

I was also lucky to catch a former commander of Charlie Company, Captain Ken Harvey. He had taken Charlie Company to Bosnia the year before, and had turned the company over to Steve Lutsky in July 1998. Capt. Harvey was now commander of HHC, 1-6 Infantry. Yes, he is an Armor officer. He compared duty in Bosnia to Albania. Both included operations that revolved around base camps, and relied on Brown and Root contractors for many services, such as laundry and food service. Task Force Hawk was going through some of the same growing pains the IFOR (NATO Implementation Force) had experienced in the early stages of that operation. The similarities made it easy to fall in on this mission.

As I was completing this article, Charlie Company conducted a change of command. The Army process goes on, even in Albania. Capt. Lutskey was returning to Baumholder to assume command of HHC, 1-35 Armor. Capt. Marshall Miles was assuming command. Charlie Company received a change in mission and assumed control of securing the east half of TF Hawk's assembly area.

Three days later, as his company prepared for a new operation, Capt. Miles shared his feelings about being a part of Task Force Hawk. He saw the assignment as an opportunity to show the world that Armor's utility exceeded many expectations. He was proud of the company and making sure his soldiers understood that when the Army leadership or press spoke of tanks in Albania they were referring to Charlie Company. Capt. Miles noted that being on the tip of the spear you had to be ready to point in several directions and shift rapidly when called on. As we spoke, the company was preparing for potentially its second deployment by C-17 tactical airlift. Armor was closing out the twentieth century by conducting airlifts to participate in real world operations. Up to now this capability had only been tested, demonstrated, verified.

It was a good note to close out my interviews. I don't know what will happen next. Things are fluid as I write this. I can't tell you where Charlie Company will end up or what missions the scouts will have. You will know that by the time this article is published. I do know I've been privileged to be here and see members of the Armor force on a new frontier, preparing for a number of contingencies and executing missions in rapid order. That has been a real reward. My primary duty has been to capture lessons Task Force Hawk's Headquarters is learning. I'll bring those observations back to the Armor Center for review and potential application to the Strike Force concept.

You can find members of the Mounted Combat Arm of Decision serving just about anywhere challenges arise and soldiers are deployed. Just like the rest of the troops in Task Force Hawk, soldiers forged with the thunderbolt are adaptive, innovative, and successful. I am once again reminded that excellence is as close as your motor pool, or in distant places like Tirana, Albania. They are ready to employ stealth, mobility, firepower, shock effect and mounted protection to accomplish the mission.

Editor: This article provides an overview of the activities and experiences associated with a company team executing a force protection mission for a larger force. In the austere environment of Albania—not dissimilar to that found in many other places where the U.S. Army might deploy—the unit performed its force protection mission simultaneous with helping to establish and improve the base camp. However, both tankers and scouts found that skills and preparations associated with combat operations in a high intensity environment had applicability in Albania. To this basic grounding in the fundamentals of combined arms maneuver was added some additional training to prepare the unit for its specific mission and area of operations. Once deployed, unit personnel worked to address training to ensure these basic skills did not atrophy. The mission of this unit underscored the utility of an organization able to operate as a mounted or dismounted team, with tank and scout personnel performing routine duties as foot soldiers in and around the base camp. Unit smart books and SOPs also served to sustain readiness, which included the related maintenance and supply assets so critical to armor and cavalry operations. The aerial deployment of Abrams tanks constituted an unusual feat, but one which proved viable and another testament to Armor's versatility.

Combined Arms Platoon Outpost Operations

Editor: This article provides a platoon leader's perspective on the operation of an outpost in Kosovo during a rotation in 2000. Written by 1st Lt. Michael Scott, it first appeared as "A Taste of Life at Outpost Sapper: Supporting Peace on a Volatile Border," in the May-June 2000 issue of *Armor*.

The main effort of Task Force Falcon in KFOR is a small outpost that sits on a saddle 300 meters from the provincial boundary separating Kosovo from the rest of Serbia. Outpost Sapper, named by the engineer company that first manned it, overlooks the tiny ethnic Albanian town of Dobrosin, located in the Ground Safety Zone established by UN Resolution 1034. Dobrosin is the headquarters for the UCPMB, a small guerrilla force determined to achieve independence for Kosovo. Twenty-four hours a day, seven days a week, four M1A1 tanks, four M2A2 Bradley Fighting Vehicles, two Avengers, a FIST-V, and approximately 45 U.S. soldiers overwatch this town. The unit's activities here give some good examples of the complex challenges today's junior leaders face during peace support operations.

OP Sapper is now in the sector controlled by A/2-6 IN, commanded by Capt. Mark Jackson. The company is augmented by a tank platoon from B/1- 35 AR. However, the task organization for this mission does not end at the company level; two of the platoons are task organized to the platoon level. Each of these platoons contains one tank section, one Bradley section, two dismount squads, two Avenger teams, a FIST team, and up to three medics. The two platoons rotate between OP Sapper and Camp Monteith, spending five days at each location. I am the tank platoon leader assigned to OP Sapper with my platoon sergeant, Sgt. First Class Frank French. Our infantry counterparts are 1st Lt. Steve Gutierrez and Sgt. First Class John Bennett.

OP Sapper serves two purposes: to observe activity in the town, particularly regarding the UCPMB, and to control movement through the town. The operators of the vehicles work in two-man teams and rotate shifts throughout the day. One tank, one Bradley, one Avenger, and the FIST-V are always scanning into the Ground Safety Zone at any given time. When not operating the vehicles in the battle positions, the soldiers will conduct maintenance on the vehicles not scanning, improve their living conditions at the outpost, conduct physical training, and take some down time to relax, playing cards or watching a movie.

OP Sapper controls the only access road to Dobrosin from Kosovo. The dismounts operate a traffic control point for all traffic passing through. Since November 28, the boundary has been closed to all traffic except for those providing humanitarian aid. That would include anyone requiring immediate medical attention or families going to buy food. Those passing through must explain their reasons for leaving or returning to Dobrosin. OP Sapper has three medics on site, one belonging to the platoon and two from the support battalion for MEDEVAC. One of the medics screens anyone claiming to require medical attention from a doctor in one of the bigger towns in Kosovo. The medic makes an assessment and gives a recommendation to the leader on site. If the leader decides to let the individual pass, we notify them that they must have a diagnosis in writing signed by a doctor in order to return to Dobrosin. Likewise, families going to purchase food must have food when they return, but only enough for the family. If they have an extraordinary amount of food, we turn them back or confiscate suspicious items.

The road bisecting OP Sapper also provides access to Stublina, a village that lies in the province of Kosovo. People traveling to and from Stublina are permitted free access through the checkpoint. All residents in Kosovo have an identification card that shows their hometown, and this is our verification for their destination.

The soldiers operating the checkpoint conduct a thorough search of every person and vehicle passing through, regardless of origin or destination. We look for contraband items such as weapons, grenades, mines, explosives, military equipment and clothing, and other supplies. If they discover any contraband, the soldiers seize it and detain the personnel involved. We have two options for dealing with people we detain. One is to send them directly to Camp Bondsteel for confinement. The other option is to dispatch a Mobile Interrogation Team to question these individuals. We also attempt to improve our understanding of the situation in Dobrosin by running an information-gathering campaign. The soldiers at the checkpoint have talking points and questions prepared for residents in the village that help us learn about the disposition of the UCPMB in addition to conditions of the civilians in the area. The information we gather helps the chain of command decide policy for the area.

The platoon leader and platoon sergeant on site are responsible for the operations at OP Sapper. The platoon leader is responsible for everything that happens or fails to happen at the site. I have established several areas of emphasis to ensure that the outpost operates to standard. The first area is the command post. The CP is the heart and brain of OP Sapper. The primary functions of the CP are communications and information-gathering. All SALUTE reports and reports of both boundary crossings and Stublina traffic are collected here and passed on to higher. This information goes into a database so it can be analyzed for consistencies, trends, or other observations to help intelligence personnel make interpretations and recommendations.

The next area of emphasis is supervising the traffic control point. The responsibility for permitting people to cross the boundary lies with the platoon leader. After training the dismount NCOs who operate the checkpoint on the basic rules for allowing people to cross, they make all routine decisions. However, anything out of the ordinary requires platoon leader involvement.

Another important role of the platoon leader is that he is the KFOR representative to the people of Dobrosin. Often, the elected leadership of the town, one of whom is the village defense leader and a member of the UCPMB, will come to the checkpoint to complain about the boundary closure. They want us to allow all civilian villagers to cross, regardless of reason. The platoon leader at Sapper must meet with these people and explain our situation while maintaining as friendly relations as possible to avoid unnecessary confrontation. The platoon leader also gives the platoon sergeant his guidance and standards to be met in accomplishing his duties.

Another of the platoon leader's areas of emphasis is hosting and briefing VIPs that visit the site in the absence of the commander. Since December, visitors have included the Chief of Staff of the Army, the Supreme Allied Commander Europe, the V Corps commander, the deputy commandant of the Marine Corps, and various senators and congressmen. The company commander gives them a tour of the site and briefs them on the situation from a hill overlooking Dobrosin. When the commander is not available to conduct the brief, the platoon leader must execute this operation, often with little notice.

The platoon sergeant essentially runs day-to-day operations at OP Sapper. His primary responsibility is security of the site to ensure force protection. He inspects the concertina wire and early warning devices that surround the site, establishes a 24-hour security plan, both within the wire and the surrounding area, and inspects soldiers, vehicles, equipment, weapons, and fighting positions. The platoon sergeant also establishes and supervises a maintenance plan for all vehicles.

Another important concern for the senior NCO at OP Sapper is the health and welfare of the soldiers. He establishes the detail schedule which ensures the cleanliness of all common areas, to include the mess tent, latrine, living area, and the grounds. The platoon sergeant also implements, through his junior NCOs, a solid physical fitness plan run at the section/squad level to maintain the ability to accomplish warfighting missions. Sgt. First Class French has also created a cross-training plan so all the soldiers can learn from each other. The tank crews give classes on their equipment to the Bradley crewmen, dismounts, artillerymen, and air defense soldiers. Then each other section does the same. This fosters teamwork within the platoon and prepares young soldiers to be a part of a combined arms team later in their careers.

The five days the platoon spends back at Camp Montieth are far from rest days. The day we return from OP Sapper is a maintenance and recovery day for the two HMMWVs the tank section uses, along with the infantry company's five-ton truck. The section leaders and squad leaders use this time to have their soldiers clean weapons and inventory ammunition.

For the next three days, the platoon conducts five patrols per day, two mounted and three dismounted, within the company sector. The company is responsible for approximately 70 square kilometers is eastern Kosovo, to include 16 kilometers of the provincial boundary. The task of the majority of the patrols is border interdiction. The mounted soldiers patrol routes in sector and the dismounts walk through terrain that can't be covered with a vehicle. The purpose is to apprehend individuals bypassing our checkpoints and possibly smuggling arms and supplies into the GSZ. The day prior to return to OP Sapper is another day reserved for maintenance and vehicle dispatching. The section sergeants also conduct troop-leading procedures to prepare for the five days at Sapper.

The patrols from Camp Monteith and operations at OP Sapper are interdependent. The patrols detain anyone crossing the boundary at any location other than Sapper, with the threat of sending them to Camp

Bondsteel. The intent is to influence people to either go through Sapper or not cross the boundary at all. OP Sapper acts as a detainee collection point for the patrols, so they can drop off any suspects and then continue their mission.

Another duty of the platoon leader is that he is responsible for three small villages in the company sector, Lovce, Slubica, and Inatovce. They all lie within a few kilometers of the provincial boundary. During the war, most of the people who lived there fled to Albania and Macedonia, and returned only after stabilization by KFOR. The platoon leader attends town meetings and finds out what KFOR can do to help provide a more safe and secure environment for the residents of these towns. Mostly, they want assistance in improving infrastructure, such as electricity, sewage, and water systems, sanitation, and road repair. In most of these situations, the lieutenant passes the information to higher. Then the battalion refers the problems to a nongovernmental agency that can help the residents improve their quality of life. As the KFOR representative for these towns, the lieutenant must reinforce the fact that KFOR is here to provide a safe and secure environment, not rebuild the country.

The meetings also provide a platform for information sharing. The lieutenant passes along information from KFOR to help the people understand KFOR's needs, and then attempts to obtain information critical to the company mission, primarily concerning people bypassing the checkpoints and transporting weapons and supplies. This helps the company to focus its efforts on certain areas or people that may be of concern.

In addition to conducting peace support operations, soldiers in Kosovo cannot forget that American soldiers fight and win our nation's wars. In order to maintain their proficiency for high intensity conflict, we executed a training program to maintain their necessary skills. During their time back at Monteith, the tank commanders and gunners will spend time in the MCOFT to maintain gunnery skills. We also established a plan to train and test all soldiers on the TCGST [tank crew gunnery skills test] skills required for all 19Ks, and the Bradley section sergeant executes similar training for Bradley crews. Dismount squad leaders conduct common skills and EIB [Expert Infantry Badge] training.

Peace Support Operations at Outpost Sapper reflect the versatility and flexibility of today's Army. Leaders must have the ability to expand their focus to ensure that all required tasks are trained and soldiers are capable of executing both peace support operations and high intensity conflict to standard. Sergeants and corporals routinely execute tasks that exceed the normal responsibilities given to junior leaders, which allows them to gain experience and develop the leadership skills they will use as senior NCOs.

Soldiers are also expected to conduct a difficult and complex mission that requires a great deal of intellect and compassion on a daily basis. They are required to conduct this mission in an unfamiliar environment, separated from family and loved ones for long periods of time, during holidays, working seven days a week. Each one of the soldiers at OP Sapper is doing an outstanding job representing themselves, their unit, KFOR and the United States. The performance of these soldiers makes the leader's job that much easier, and it truly displays the amazing depth of the U.S. soldier.

Editor: Despite the absence of combat in this example, leadership responsibilities associated with outpost operations do not diminish. The necessity of regular reports, managing the traffic control point, reacting to crises whether significant or trivial, and sustaining a posture that can apply combat power quickly if required mandates the platoon leader's reliance upon his NCOs. In addition, vehicles must be maintained, the unit must be supplied, and personnel needs must be attended to. Training serves as a means both to sustain basic warfighter skills and to maintain morale and prevent the onset of complacency born of boredom. Rotation back to Camp Montieth provided a break in routine and an opportunity to address critical maintenance and conduct training. The platoon leader's responsibilities also included interaction with the local populace, which will be a regular occurrence in most deployments of American forces in the 21st century. Leaders must establish basic relationships with the people that reside near or routinely move through areas dominated by outposts. These relations provide intelligence and indicators of conditions in the area of operations, and they are more likely to be positive—or at least not hostile—if initiated by the outpost commander.

An Armor Battalion in Kosovo

Editor: This article addresses the use of armor in Kosovo to perform a security and stability mission following the withdrawal of Serbian military forces and the arrival of United Nations and NATO military missions. First published as "An Armor Battalion in Kosovo," in the November-December 1999 issue of *Armor*, its authors included Lt. Col. Timothy R. Reese, Maj. Kevin W. Farrell, and Capt. Matthew P. Moore, the commander, operations officer, and S3 (Air) for 1st Battalion, 77th Armor, during its Kosovo rotation that began in 1999.

Sending a tank battalion to the Balkans to conduct peace operations is no longer as strange an idea as it might once have seemed; in fact, it is now routine. The implementation of a tank battalion as part of KFOR (Kosovo Force) is still, however, fraught with challenges. This article will highlight some of the unique aspects of the mission faced by a U.S. Army tank battalion deployed to Kosovo. It will begin with some general points concerning the mission as a whole, then move on to address specific lessons learned by the Steel Tigers of the 1st Battalion, 77th Armor, and will close with some thoughts for future deployments of tank battalions to the region.

KFOR's mission is to (1) enforce the provisions of the Military Technical Agreement (MTA) between NATO and the Former Republic of Yugoslavia (FRY) and the Undertaking for the Demilitarization of the Kosovo Liberation Army, (2) to establish and maintain a safe and secure environment including public safety and order, (3) and to provide assistance to the UN Mission to Kosovo (UNMIK), to include providing core civil functions. At the battalion task force level this translates into: (1) enforcing the terms of these international agreements with the Serbian military along the border with FRY and inside Kosovo with the Kosovo Liberation Army (KLA), (2) providing law and order at all levels by serving as the police, and (3) working with the UN to establish local civic administrations and supervise their functioning, and working with the IGOs/NGOs to provide relief to the region.

An Unstabilized Situation

The mission in Kosovo is not just another Bosnia mission with a new name. Although nearly all active-duty tank battalions now have soldiers who are veterans of a deployment to Bosnia, previous Balkan experience proves to be a double-edged sword. The situation in Kosovo is in no way stabilized and the nature of the mission changes on a weekly basis. The mission of KFOR is more akin to IFOR, not SFOR; the routine has yet to be established. There is no zone of separation, no effective international police force, no functioning civic governments, very few public services, and the economy is just above subsistence level. For most intents and purposes, KFOR serves as the military, the police, and the government.

Tankers as Nation-Builders

Tankers in Kosovo can expect to conduct a lot of tactical and road movements, sometimes coming under and returning fire. They can expect to function as police for crime prevention, apprehension, and investigation, and adjudication of property disputes. In the area where TF 1-77 is now deployed, a major operational issue is the protection of the minority Serb, Croat, and Roma (Gypsy) populations against random and deliberate acts of violent revenge by Albanians. They should be prepared to work with business owners to set up work rules for ethnically mixed work forces.

Tankers may also find themselves developing school registration and districting policies. Tankers will spend time guarding everything from their own company CPs, to religious structures, to schools, to medical facilities and finally, providing convoy escort for civilian vehicles as they traverse ethnically hostile areas. They should be prepared to clean up the gruesome aftermath of fatal machine gun, mortar, RPG, and grenade attacks on civilians, including children, and to treat traumatic gunshot and fragmentation wounds as well as other injuries.

As in Bosnia, there are no clear "good guys" or "bad guys." Yet unlike Bosnia, ethnic populations in Kosovo are interspersed with one another in either mixed communities of mutually hostile Albanians and Serbs, or Serb enclaves surrounded by hostile Albanian communities committed to revenge. The international police force is just now beginning to arrive in Kosovo and is a long way from providing normal police functions. The majority of a unit's time is spent doing police work.

Although ethnic tensions are commonplace throughout Bosnia, what immediately distinguishes Kosovo is the high level of violence occurring on a daily basis. Usually the violence is directed against the minority population and only occasionally against the soldiers of KFOR. In the first six weeks of peace operations in our area of operations (AO), there were at least 11 homicides and over 100 acts of armed attacks, arson, and looting. Although the violence has diminished somewhat by September (time of this article), there is little chance that it will disappear completely.

Another difference from Bosnia is the disposition of U.S. forces. Rather than being confined to a base camp with daily missions originating from and finishing in the base camp, the vast majority of maneuver units' assets are positioned and live within the assigned areas of responsibility. Day-to-day operations are conducted at the company level and lower, with the battalion task force providing guidance and resources; this is a platoon and company-level "fight." Operating in this fashion creates a number of benefits and challenges. By living within the local area, leaders and soldiers are able to develop a thorough understanding of the ethnic makeup of the population, identify local concerns, and establish meaningful relationships with the people in the area. Instead of doing a "drive-by" patrol once or twice a day, soldiers are always present in the community and, in turn, reassure a threatened minority population.

Naturally, living within the AOR and outside of Camps Bondsteel and Montieth involves risk as well. Force protection is more difficult, and those resources dedicated to maintaining command posts, living support areas, and force protection detract from other missions, such as presence patrols and manning checkpoints. In the current fluid situation, such risks are far outweighed by the benefit of having a continuous presence. Living and operating with the local community provides the only hope of understanding the dynamics on the ground and being able to respond to disturbances in a timely fashion. It is also the long-term presence and continuity of personnel that allows the civilian population to trust the tankers.

Specific Issues Related to a Tank Battalion in Kosovo

When it comes to shock effect, mobility, and sheer intimidation, the M1A1 has no rival in peacekeeping operations. It provides the maneuver commander with a tremendous asset that allows rapid and unmatched escalation in times of crisis. The arrival of M1A1s during a firefight or a civil disturbance serves to quiet the situation rather quickly. It is vital that a tank battalion remains in the American sector of Kosovo for it provides a useful deterrent against any cross-border intervention from Serbia. Usually, it is a combination of assets: tanks at a checkpoint in combination with intensive dismounted patrols and occasional mounted patrols that provide the best solution. At the battalion task force level, we are task organized with two tank companies, one mechanized infantry company and one airborne infantry company, giving us a very flexible set of capabilities.

Implementing a tank battalion in the Kosovo environment also presents some unique challenges of its own. First of all, the sheer size and weight of the M1A1 tank makes its use in the rural Vitina Obstina (county) of Kosovo a daily challenge. The transportation infrastructure of Kosovo was already fragile before the bombing campaign, and it is now even more precarious. While trafficability in itself is not a problem for our tanks, the damage they cause works against the long-range goal of bringing Kosovo to an improved state of economic viability. Simply put, over the long run, our tanks (and Bradleys) will destroy the roads and bridges, and will worsen those fields and parking areas where we place them. Thus, the use of the tanks must be weighed against the damage they will do in every situation in which they are used.

Maneuvering in a Small Place

The crowded nature of the villages and towns of Kosovo pose a second problem in the use of armored vehicles. Narrow streets and congested traffic serve to complicate an already bleak urban situation. The overabundance of curious children and reckless drivers increases the risk of civilian casualties every time tanks are employed. The arrival of up-armored HMMWVs (M1114) in the near future should alleviate a majority of these problems.

Even though it was sometimes difficult to integrate the use of armor into the symphony of peacekeeping operations, the presence of heavy forces did provide a great opening movement to display to the local population that law and order had arrived. An initial "thunder run" throughout the AOR served to announce that our major combat forces had entered the area and communicate our high level of resolve. Initial visibility was further enhanced by using tanks to support traffic control points (TCPs) along major MSRs, and by using

tanks to conduct mounted patrols between villages. How better to protect a facility at risk than to park a 70-ton chariot of destruction next to it? We let the population know what our priorities were by placement of our tanks. This tactic was especially effective when the facility was located adjacent to a major LOC. Also, clamping down on an area of increased violence usually meant an increased presence of tanks at TCPs or on commanding terrain overlooking the area in question. The psychological effect of armor provides a distinct advantage but only if ones takes conscious measures to increase its visibility.

Coupled with the tank's psychological effect, the weapons capabilities of the M1A1 bring a lot to peacekeeping operations. From well-chosen terrain, a tank can observe and engage targets over one mile away in all weather conditions. This capability proved very useful in providing security for Serb farmers harvesting their crops and for deterring the "bad guys" from attempting to dismount and bypass secured and established KFOR checkpoints along roads. Mounted OPs utilizing the tank's thermal sight (TIS) are extremely effective in anti-mortar and other security operations. The TIS can also be used to vector friendly dismounts to suspected "bad guys" from a great distance. When addressing the subject of using tanks for security missions, technology, terrain analysis and a little discipline can go a long way in stretching your span of control.

In Kosovo, tankers must be prepared to participate not only in traditional mounted operations but also in dismounted patrols as well. The necessity to get in close with the local population and the shortage of infantrymen require that tankers dismount to patrol. This is a role for which most tankers are unprepared. Therefore, tank battalions preparing to deploy to Kosovo must train dismounted patrolling.

Instead of throwing our hands up in disgust, we chose to adapt. We quickly accepted the fact that our tankers would dismount and addressed the following shortfalls:

***Organization*:** Faced with only 16 soldiers in the platoon (versus 30 in an infantry platoon), we created small four-man "fire teams" based on the tank crews. Presence patrols are normally conducted at the fire team or squad level. We essentially use the tank crew and section as an infantry fire team or squad, with a contingency to "mount up" when required. It also allows the other section to perform security, maintenance, and serve as a QRF if needed. Additionally, this maintains the normal command relationships essential to maintain small unit integrity.

***Equipment*:** Once we created our fire teams, we faced the problem of how to equip them. Each tank platoon has only eight M16s, no dismounted communications, and no crew-served weapons. While only two of the crewmembers are qualified on the M16s, we accepted that it is better to have a rifle than a pistol on a patrol. We conducted familiarization firing prior to deployment in an attempt to offset the qualification problem. In order to provide dismounted communications, we transferred some of the dismount radio kits from the scouts and mortars to the tank companies. We have not yet been fielded the M240 dismount kit. Luckily, our scouts and headquarters fielded the M240B. Instead of turning in the displaced M60s, we transferred those to the tank companies for their use.

***Training*:** While not accustomed to conducting dismounted operations, our tankers proved they could rapidly adapt. Based on TTPs learned from the various infantry manuals (FM 7-7, 7-8, 7-7J), our small unit leaders quickly developed SOPs to deal with the missions we are likely to encounter. These missions include vehicle and personnel searches, reacting to a sniper, reacting to direct fire, entering and searching a building, and detaining suspects. Combat Lifesaver training is an absolute must; the more tankers trained to do this the better. The battalion developed SOPs on threat assessments, mission planning, pre-combat checklists, and risk reduction to aid platoons and companies in their daily operations. We also learned a great deal from having an airborne infantry company attached to the battalion task force.

Learning and applying the ROE and operating with live ammunition on a daily basis proved to be more challenging than we expected. In comparison to other deployments, the liberal ROE establishes a lower threshold for firing and using deadly force, and grants that authority to leaders at the lowest level. Leaders must apply their best judgment in a very complex environment. USKFOR has also developed a Weapons Control Status (WCS) which guides the use of ammunition and weapons. Soldiers must clear their weapons before entering a base camp, WCS GREEN. Soldiers must load a magazine whenever they leave their base camp, WCS AMBER. Any leader is entrusted to order WCS RED (round in the chamber) or WCS BLACK (round in the chamber and weapon off SAFE) if they believe their mission requires it and to open fire when necessary without permission from higher headquarters. Ensuring that leaders and soldiers understand the ROE and WCS policies is a matter of life and death.

Of course, no professional discussion of employment of armor would be complete without discussing logistics. We took great measures to get our breaching assets (tank mine plows and rollers) fully mission capable prior to deployment. The first two weeks of operations included numerous hours of mine clearing and proofing, resulting in a significant increase in our use of class IX suspension parts. Due to the added weight of the mine plow and rollers, the battalion used 350 road wheels during the first two weeks of operations in the AOR. Units should stock or pre-order the most commonly broken and replaced tank plow and roller parts in order to keep their breaching assets operational. Bottom line: if you plan on conducting mine-clearing operations, anticipate significant increases in replacement of class IX tank suspension and plow replacement parts.

During the first 30 days of operations, we experienced six times the normal optempo rate in our M1A1 fleet (a half year of optempo in only one month). This also led to a noticeable increase in the use of suspension and automotive parts. The wear and tear on all vehicles, especially the M1A1s, proved to be an operational readiness rate challenge. As we became more familiar with our tactical situation, we overcame the OR rate challenge by moving units closer to anticipated trouble areas within our AO. Additionally, the time lag within the supply system was eventually reduced, allowing the mechanics to work their magic. The normal deployment lag of the class IX repair parts system, coupled with the high optempo experienced while operating in an unfamiliar environment can have a severe impact on readiness if not properly anticipated.

Conclusion

In preparation for deployment to Kosovo, tank battalions should definitely continue training for the mid- to high intensity level of conflict. Soldiers in USKFOR and TF 1-77 have been involved in firefights with both Serbians and Albanians. Combat is still a possibility and the worst thing a unit could do would to be to deploy to Kosovo under the impression that combat was unlikely. Soldiers should also be prepared to fight as infantrymen on dismounted patrols. Furthermore, they should arrive with a decent understanding of the unique historical events that have led to the ethnic hatred so widespread throughout the region; read at least one of the many books that have been recommended elsewhere. (See "Books on the Balkans," May-June 1999 Armor.) In addition, negotiating skills and crowd/riot control are essential tasks that need to be trained prior to deployment.

The nature of the mission here has changed significantly since we arrived in late June and will be different still for follow-on battalions. The relative division of labor for us has shifted from enforcing the peace agreements, to quelling violence and establishing some kind of law and order, to performing civil affairs functions. Leaders at every level must be prepared to adapt their focus and tactics as the situation on the ground develops.

Editor: In this case, an armor battalion adapted basic armor warfighting capabilities to execute a stability and support mission. The unit deliberately exploited the psychological impact of a tank force to deter violence and clearly and visibly demonstrate the arrival of a force capable of upholding law and order. Careful employment of tanks indicated unit priorities and provided significant capability enhancements to OPs and checkpoints, even when weapons use was not required. The tank's optics and ability to observe even in low visibility conditions ensured continuous observation and the ability to interdict hostile action with precision from afar. The versatility of the tank battalion in this type of mission is demonstrated by the ability of the unit to operate dispersed as companies and platoons amid the populace rather than removed from it on a remote base camp, and to operate as a dismounted team. The ability to conduct mounted or dismounted operations increased the unit's adaptiveness to changing conditions throughout its area of operations. These qualities gave the commander more flexibility in the deployment of his battalion, and he could, when desired, opt for a lighter presence that did not damage local infrastructure. Overall, the battalion's experience underscored the importance of training oriented upon the most dangerous high intensity warfare threat. The related skills proved readily adaptable to conditions in Kosovo, while the unit retained the ability to resume its basic warfighting function if required. Units designed and oriented upon a low end threat cannot do so.

Global War on Terrorism

Editor: This chapter addresses the participation of Armor in the Global War on Terrorism. It highlights the use of armored organizations in a variety of roles from high intensity combat to counterinsurgency. It also illustrates Armor's ability to operate as a heavy mounted, light mounted, or dismounted force, depending on the operational environment. This tactical agility remains a defining characteristic of Armor.



Armor in Iraq.
(U.S. Army Armor School)



Air Deployment of TF 1-63 Armor into Northern Iraq

Editor: In 2003 the U.S. Army committed an armored task force to northern Iraq. The unit made an aerial deployment and immediately began combat operations. Written by Maj. Brian Maddox, who served as the task force operations officer, it was initially published as "Checkmate on the Northern Front": The Deployment of TF 1-63 Armor in Support of Operation Iraqi Freedom," in the September-October 2003 issue of *Armor*.

Strategic Chess Match

Chess is a game of strategy where an indirect approach is often more valuable than overt strength. A skilled player deliberately maneuvers to eliminate his opponent's options and then, at the right time, boldly moves toward the objective — checkmate. During March and April 2003, coalition and U.S. military planners crafted a strategy for Northern Iraq worthy of a gifted chess master. At stake in this "game" was the defeat of Iraqi forces north of Kirkuk and coalition control of the critically important Kirkuk oil fields.

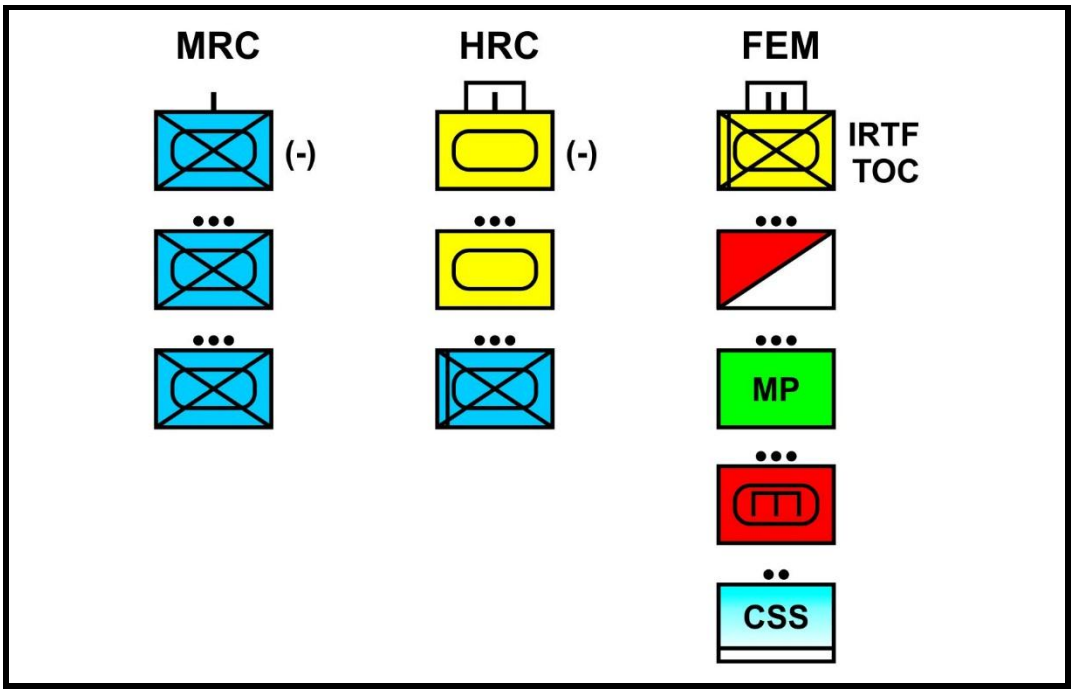
Diplomatic differences with a newly elected Turkish government prevented the planned deployment of a large coalition force to open a second "Northern Front" in Iraq. Military planners turned to a different option that relied more on finesse and flexibility to accomplish stated objectives. This strategy involved a diverse group of forces and organizations that included national intelligence agencies, conventional U.S. Army and Air Force units, Special Operations Forces, and Kurdish Pesh Merga fighters. One of the conventional units involved in this campaign in Northern Iraq was the 1st Battalion, 63d (1-63) Armor, 3d Brigade, 1st Infantry Division, Vilseck, Germany.

The air deployment of Task Force (TF) 1-63 Armor to Iraq in April 2003 played an essential role in the success of the Northern Front. TF 1-63 Armor's deployment demonstrated that the United States could project a viable heavy armor force anywhere in the world. The mere presence of U.S. armor in Northern Iraq weakened the resolve of defending Iraqi forces in the region and contributed to their rapid collapse north of Kirkuk. This article outlines TF 1-63 Armor's unique organization, briefly describes the unit's actions in Northern Iraq, and provides lessons learned from this historic deployment.

Background and Organization of the Immediate Ready Task Force

TF 1-63 Armor deployed to Northern Iraq as the U.S. Army Europe (USAREUR) Immediate Ready Task Force (IRTF). The IRTF is a unique organization with an unusual organizational structure. Born in the wake of Task Force Hawk, the USAREUR IRTF was designed and equipped to accomplish a wide range of short-notice missions. In 1998, USAREUR identified the requirement for an armor force capable of deploying rapidly anywhere in the European Command (EUCOM) area of operations (AOR). Originally designed around a mechanized infantry or armor company team, the IRTF has since expanded to a battalion task force consisting of a medium ready company (MRC), a heavy ready company (HRC), and five force enhancement modules (FEM). The MRC consists of a company headquarters element and two mechanized infantry platoons equipped with M113A3s and four dismounted infantry squads. The HRC consists of one M1A1 Abrams platoon and one M2 Bradley platoon with two dismounted infantry squads. An additional M1A1 or M2 serves as the HRC commander's vehicle. (1)

In addition to the HRC and the MRC, five supporting FEMs provide the IRTF commander with the force multipliers needed to accomplish various missions. For example, the command and control FEM consists of two modified M997 ambulances equipped with an array of communications and computer equipment. These vehicles provide the IRTF commander a highly mobile tactical operations center (TOC) capable of planning and tracking armor operations. The four remaining FEMs consisting of combat service support assets, engineers, military police, and scouts complete the IRTF's organization. Each FEM is air deployable and capable of supporting task force level operations or, with proper support, limited independent operations.



Immediate Ready Task Force Organization

The IRTF was not originally designed to deploy or operate independently. The IRTF was created to provide a light infantry organization with a viable armor capability. In the EUCOM AOR, units serving as the IRTF often trained with the 173d Airborne Brigade based in Vicenza, Italy. This brigade provides a lethal, highly mobile infantry force, but lacks a heavy armor punch. The IRTF is designed to provide that armor punch. A series of successful training exercises conducted at the Combat Maneuver Training Center, Hohenfels, Germany, and training deployments to Hungary and Poland in which various IRTF units trained with the 173d Brigade, cemented a successful working relationship in a training environment. In Northern Iraq, TF 1-63 Armor and the 173d Brigade validated this relationship during combat operations.

Bashur Landing and Operations in Northern Iraq

Early morning 8 April 2003, the first M1A1 Abrams tank drove off the back ramp of an Air Force C-17 at Bashur Air Field in Northern Iraq. This was the first time an M1A1 had air landed in support of a combat operation. The task force operations officer arrived on the ground with the first M1A1 and began to coordinate the arrival of the rest of the task force.

The task force commander's plan was to first deploy the HRC's tank platoon, an M88 recovery vehicle, and small command and control elements to quickly get an organized force on the ground capable of conducting and sustaining combat operations. By 10 April, the situation in the vicinity of Kirkuk began to change rapidly. Kurdish Pesh Merga fighters continued to press their attacks against Iraqi forces defending north of the city.

The 173d Brigade commander believed the time was ripe for a concerted move on Irbil. The task force commander arrived at Bashur at approximately 0300 hours on the morning of 10 April and immediately received a verbal warning order to be ready to move south in three hours. At that time, TF 1-63 Armor had five M1A1 tanks and two M2 Bradleys on the ground at Bashur. No recovery or maintenance assets had yet arrived. TF 1-63 Armor soldiers hurriedly finished off-loading the last of the vehicles to arrive and began to prepare for offensive operations.

The task force commander decided to assume risk and prepare to move what force he had toward Irbil. The commander believed that the mere movement of an armored force south toward Irbil and Kirkuk would provide coalition forces an important psychological advantage. Intelligence reports indicated that Iraqi forces, dug in north of Kirkuk, did not expect to encounter American armor moving from the north. Even a small

armored force moving from Bashur might convince the Iraqis to abandon their defenses. Likewise, Kurdish Pesh Merga fighters, energized by the presence of armored vehicles, could press home their attacks against Iraqi positions.

For over a decade, Kurdish fighters struggled against Saddam Hussein's regime with antiquated small arms and homemade artillery and explosives. The Kurds fought valiantly, but they lacked the heavy weapons to defeat Iraqi forces dug in and supported by artillery. For days, Kurds wondered when the tanks would arrive. (2)

Prior to the arrival of the main body of TF 1-63 Armor at Bashur, the task force operations officer and the liaison officer conducted leader's reconnaissance of two possible routes to Irbil and Kirkuk. The liaison officer traveled the direct route down Highway 3 to a point just North of Irbil. Any forces traveling this route could secure the Irbil airfield and if necessary skirt the western edge of Irbil and continue south on Highway 2 toward Kirkuk. This route had two advantages: it was suitable for armored vehicle traffic, and it allowed coalition forces to use the Irbil airfield to stage future operations to the south.

The disadvantage of the Irbil route was that it led right into the teeth of the Iraqi defenses north of Kirkuk. Forces moving south along this route must travel through a wide valley with steep rolling hills. The imposing Kani Domlan Ridgeline dominates the southern edge of this valley. Iraqi infantry and artillery positioned on this key terrain continued to hold this ground despite weeks of heavy bombing by coalition aircraft and attacks by Pesh Merga fighters and U.S. Special Operations Forces. Forces moving along this route would also have to cross the Little Zab River at the town of Altun Kupri. Local Pesh Merga reported that Iraqi infantry occupying a small stone castle on the east side of the river heavily defended Altun Kupri. Intelligence reports indicated that these troops would strongly resist any effort to dislodge them.

The liaison officer and the task force operations officer also conducted reconnaissance on an eastern indirect approach route south toward Kirkuk. This route winds southeast of Bashur through small villages and numerous narrow mountain switchbacks to the town of Taqtaq, located on the Little Zab River. The advantage of this route was that it avoided the strength of the Iraqi positions along the Kani Domlan Ridge.

Approximately 10 kilometers north of Kirkuk, there is a gap in the ridgeline where a small tributary of the Little Zab River flows into Kirkuk. The commander of the 173d Brigade referred to this gap as the "sweet spot." He believed that if the route was trafficable for armored vehicles, he could use the gap in the Kani Domlan to envelop the Iraqi positions on the ridgeline to the northwest.

The route south from Taqtaq was not suitable for armored vehicle traffic, unfortunately. Several of the bridges along the route were incapable of supporting Abrams tanks. Additionally, road conditions deteriorated significantly south of Taqtaq. Unimproved mountain roads and narrow village streets greatly restricted armored vehicle mobility. This route was, however, suitable for lighter vehicles and was used by the 2d Battalion, 503d Infantry (2-503d) during their attack on Kirkuk. The success of this operation validated the 173d brigade commander's analysis of Iraqi defenses and his desire to exploit key terrain to defeat a potentially strong enemy position.

At approximately 0600 hours on 10 April 2003, TF 1-63 Armor began its movement to Irbil. The brigade's mission was to conduct a reconnaissance in force in the vicinity of Irbil to demonstrate coalition resolve in Northern Iraq. (3) The brigade commander learned that Pesh Merga planned to attack Iraqi forces located in Altun Kupri. This accelerated the brigade's movement timeline. The brigade commander assigned 1st Battalion, 508th Infantry (1-508th) the mission to move along Highway 3 to Irbil and support the Pesh Merga attack on Al tun Kupri. The 1-508th would also secure tactical assembly area (TAA) Boston located to the west of the Irbil Airfield. From TAA Boston, the 1-508th, if needed, could conduct reconnaissance to the west and determine the location and strength of any Iraqi forces moving east from Mosul. TF 1-63 Armor's mission was to follow 1-508th to Irbil and occupy TAA Boston. The task force would then prepare for future combat operations.

During the movement to Irbil, the soldiers of TF 1-63 Armor experienced a mixture of emotions. The tension and wariness of moving south toward an enemy defending in unknown strength stood in sharp contrast to the overwhelmingly friendly and joyous reception that greeted the task force as it moved toward Irbil. Elated Kurds greeted soldiers with flowers and embraces as they passed by. Large banners with

"welcome to the liberation army" greeted the armored troops as the long column of vehicles snaked toward the south.

When TF 1-63 Armor reached Irbil, the cost of conducting a 50-kilometer road march, without any heavy maintenance and logistics support, hit home with a vengeance. Two of the M1A1s had major problems that required considerable time to repair. The task force commander faced the difficult decision to push on with the limited combat power remaining or wait for the sustainment package, which was scheduled to arrive in the next 24 to 36 hours. The task force commander decided to see how the situation developed involving 1-508th operation near Altun Kupri. He was prepared to support the 508th with what combat power he had available, if necessary. If the 1-508th was successful in their mission without armored support, TF 1-63 Armor could build combat power and prepare for follow-on operations in Kirkuk.

The task force commander's decision was difficult, but it paid long-term dividends during initial support and stability operations in Kirkuk. The Pesh Merga assault on Altun Kupri was successful and led to the ultimate collapse of Iraqi forces defending in and around Kirkuk. The 1-508th and the 2-503d followed in short order and secured the strategically important Kirkuk oil fields. TF 1-63 Armor entered Kirkuk with the combat power and sustainment needed to conduct stability operations. The task force successfully accomplished the strategic objective of providing an armor presence in Kirkuk to demonstrate coalition resolve and deter Iraq's neighbors in the region from attempting to gain control of the Kirkuk oil fields.

Lessons Learned

During the deployment of TF 1-63 Armor in support of Operation Iraqi Freedom, task force leaders learned several key lessons for future air deployment of armor forces. These lessons learned primarily deal with deployment preparation and execution, task organization, and operational employment.

The austere configuration of the IRTF does not allow its structure to be reduced without severely degrading its capabilities. The task organization contains a limited amount of combat power, command and control assets, and logistics to function operationally. Any reductions in this configuration can cause the IRTF to be combat ineffective in a high-intensity conflict (HIC) environment.

Due to limited airflow, it took over two weeks for the IRTF to deploy to Northern Iraq. This piecemeal approach reduced the combat effectiveness of the organization until more assets arrived in theater. The IRTF needs to flow as an entire force over a relatively short time. This ensures that all command and control and support assets are in place to support the limited combat systems.

Deployment of TF 1-63 AR

7 APR
Chalk 1:
1x C-17
1x M1 (1)

8 APR
Chalk 4:
1x C-17
1x M1 (2)

9 APR
Chalks 2 & 5:
2x C-17
1x M1 (3)
1x M2 (1)
1x HMMWV (1)
2x AMB (2)
1x TRL

10 APR
Chalks 3, 6, & 16:
3x C-17
2x M1 (5)
1x M2 (2)
1x M113 (1)
1x HMMWV (2)

11 APR
Chalks 7, 8, 9, 14, 10, & 11:
6x C-17
2x M2 (4)
6x M113 (7)
1x M88 (1)
10x HMMWV (12)
1x Truck (1)
2x HEMTT (2)

12 APR
Chalks 12 & 18:
2x C-17
1x M2 (5)
3x M113 (10)
4x HMMWV (16)
1x HEMTT (3)
2x Truck (3)

13 APR
Chalks 13, 14, & 17:
3x C-17
1x M113 (11)
3x HMMWV (19)
2x HEMTT (5)
1x Truck (4)

14 APR
Chalks 20 & 21:
2x C-17
3x M1064 (3)
1x HMMWV (20)
2x HEMTT (7)

15 APR
Chalk 22:
1x C-17
1x 1064 (4)
3x HMMWV (23)

16 APR
SCT Chalk 1:
1x C-17
5x HMMWV (28)

17 APR
MP Chalk 1:
1x C-17
7x HMMWV (35)
2x TRL (3)

18 APR
N/A

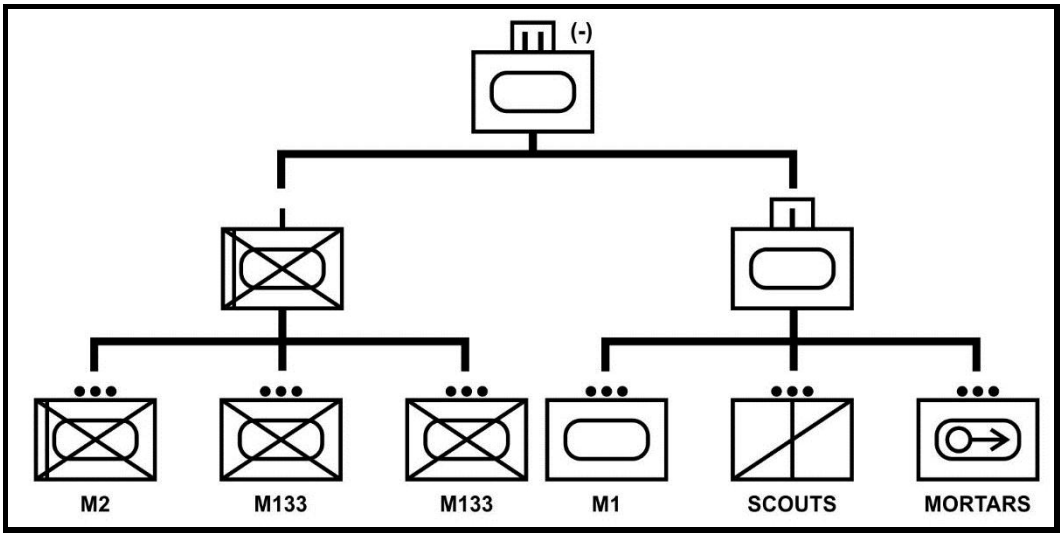
19 APR
MP Chalk 2:
1x C-17
2x HMMWV (37)
1x PLS (1)
1x TRL (4)

Total Number of Vehicles

Combat Vehicles	Support Vehicles	Aircraft Used
5x M1 5x M2 12x M113 4x 1064	1x M88 37x HMMWV 7x HEMTT 4x Truck 2x AMB 4x Trailer 1x PLS	24x C-17

If the IRTF is to be deployed for future HIC operations, the combat power of the organization should be increased to include two additional heavy platoons — one M1A1 platoon and one M2 platoon. This would enable the HRC to operate as a tank-heavy team with two M1A1 platoons and one M2 platoon, and the MRC to operate as a mechanized infantry team with two M113 platoons and one M2 platoon. Without this added combat power, the capabilities and firepower of the MRC are severely limited with only M113s. If one task organizes the M2 platoon to support the MRC, the HRC is left with only one tank platoon. These two additional platoons allow the HRC and MRC to operate as true company teams and both maintain sufficient combat power to operate in an HIC environment.

When TF 1-63 Armor deployed to Operation Iraqi Freedom, the commander task organized to balance the firepower and mobility between the HRC and the MRC. The task organization in the figure below was in effect for the majority of missions in Northern Iraq. Without such a balanced task organization, the two company commanders would have been unable to resource the troops to tasks assigned.



Actual task organization of TF 1-63 AR

Once fully deployed, there is great temptation to break apart the IRTF and attach its assets to light airborne units, thus significantly increasing the firepower of each light element. This technique, however, does not afford the brigade commander the shock effect and combat power of a heavy task force to react to armored threats.

Even during support operations and stability operations, the IRTF was a very effective resource to project coalition resolve and provide overwhelming presence at trouble spots. The IRTF is best used as a separate heavy force capable of rapidly reacting to armored or mechanized threats. The task force commander often stated "don't task us for equipment, give me the task and we will accomplish the mission." (4)

In summary, TF 1-63 Armor's deployment to Northern Iraq validated the concept of deploying an armored force by air anywhere in the world. The M1A1 Abrams and the M2 Bradley are powerful symbols of America's military power. The ability to deploy these systems by air provides a tremendous psychological edge and credible combat power to light units.

During Operation Iraqi Freedom, TF 1-63 Armor demonstrated that armor and mechanized forces work well with Special Operations Forces and light infantry units in remote environments. The U.S. Army must continue to work with its sister services to ensure that we develop the joint capabilities to transport and sustain heavy forces to future battlefields. One Special Operations soldier operating near the town of Taqtaq put it in plain language: "We have done all that we can do. We've bombed these guys for three weeks. We need tanks and heavy infantry to drive them off the ridge." Unthinkable? Not anymore — checkmate.

Editor: The aerial employment of armor provides a broader range of options for the application of ground combat power. In this case, the tanks of TF 1-63 Armor provided muscle to a light ground unit, enhancing the latter's combat power and increasing the impact of its operations throughout the area of operations. For an expeditionary army, the aerial insertion of armor is not only viable, it is also an effective means of delivering combat power into areas otherwise considered inaccessible or too remote from the threat of armored ground forces. Used in conjunction with a light ground force, the armor provides precision firepower when required, sustains momentum, and provides security against heavier threat assets that may appear. The experience of TF 1-63 highlights special considerations that must be addressed during the aerial deployment of armor. In addition to the preparations for the aerial transport and delivery, sustainment of the vehicles once on the ground will become a challenge, since the unit will likely be operating in austere conditions and not have access to maintenance facilities. Supplies will initially be limited to what the unit can carry, underscoring the importance of effective load plans. However, use of tanks in austere environments for prolonged periods is not without precedent. American armor, mechanized infantry, and armored cavalry organizations routinely operated in this manner during the Vietnam War, relying generally on aerial supply and increasing the level of maintenance performed in the field.

Notes

1) If a mechanized company is assigned to the HRC mission, the commander's vehicle is an M2.

2) One Special Operations Soldier working with a group of Pesh Merga outside the village of Taqtaq reported that the Kurds wanted to know when the Big Red One would arrive.

3) Operations Order Brief for Operation Bayonet Deterrence, 2 April 2003.

4) Concerning the integration of heavy and light forces, there were occasions where the IRTF placed platoon-sized elements under the operational control of the light battalions. The armored protection and additional firepower provided by the heavy unit nearly doubled the capability of the light unit (platoon or company) to which they were attached.

Thunder Run

Editor: The following pages include excerpts of interviews conducted by the editor with TF 1-64 Armor soldiers who participated in the Thunder Runs into Baghdad in April 2003. The interviews address leadership perspectives from the battalion commander down to tank commander. Collectively, they provide insights into the challenges associated with task force supply and maintenance during the drive to Baghdad and the nature of armored combat in a major city.

Battalion Commander—Col. Eric Schwartz

Question: Where did the concept for a strike into Baghdad originate and what was its purpose?

Schwartz: I don't know where the concept for striking Baghdad came from. Regarding your second question about what the intent of the operation was, the answer is really threefold. Gain information about the enemy, destroy defending forces, and finally, send a clear message that coalition forces were in the capital city. First, the mission was intended to gain information that we badly needed. Up to this point, in the five previous battles, we had little actionable intelligence that we could use to our benefit. For the longest time, that bothered me. I felt that going into this as the lead element, I would have access to information about the composition and disposition of the enemy. Instead, we were the reconnaissance-by-fire force, the probe-and-get-information force, but with the speed of our movement, that's the way it had to be. There were no human intelligence (HUMINT) sources that we could keep forward because we were moving so fast that we'd just overtake them. That's the first important note. We were going in to determine what was there, and the attack on the 5th of April – known as the Thunder Run –was essentially 17 kilometers and two hours and 20 minutes of moving to contact, identifying what was there, destroying it, and at the same time trying to gain an understanding of what the future environment would look like. We knew we weren't going to stay in Baghdad on the night of 5 April, so the idea was to get in there, make some noise and then simply demonstrate that we were there and get out. Understand, identify and destroy, and then move out of the area to link up with 1st Brigade and complete that first day's attack. At the completion of that attack, it was critically important for us to come together and synthesize the information we collected.

Question: What were some of the principal considerations in the actual planning of the Thunder Runs?

Schwartz: I've been thinking a lot about that question because there wasn't a lot of planning involved in the attack to seize Baghdad. The Thunder Run mission was the simplest of all tasks that we were given. There was no maneuver required. It was simply battle orders followed by battle drills.

When we received the brigade order, I remember coming out of the brigade tactical operations center (TOC) with our battalion operations officer, Major Mike Donovan, our intelligence officer, Jason Farrell, and our fire support officer, Mick Kolinski. We walked over to my Humvee and laid out the map. I believe that as a task force commander, I have a vision of how every battle is going to be fought and that translates into a commander's single directed course of action. I would say, "I'm going to tell you how we're going to do this, and we'll work out all the associated pieces of the plan together." At the Humvee I shared my initial commander's vision with the chief planners. My vision wasn't complex. There was nothing bold or dramatic that I had in mind. I ended up saying, "Let's look at the start point and the end point. We have one road to travel and let's just look at all the bad things that could happen on the way."

We knew there were going to be some constants. We knew we were going to reach an outer defensive cordon and an inner cordon that encircled Baghdad. We knew we were entering into an unconventional fight. We had seen fighters who were just not your traditional infantry enemy that we'd all studied and trained against. Up to this point, we'd seen fighters dismount out of ambulances and fight us from schools and hospitals. There were great volumes of fire coming out of mosques. We had fighters holding up women and children, using them as shields. I figured that all of these things were going to be magnified as we went into Baghdad. We stepped through a single directed course of action followed by a brief war game, followed by branches and sequels – what would happen if X went wrong.

I called forward and had our company commanders and specialty platoon leaders meet us back at the battalion TOC. It was about 1500 hours. I knew we had a couple hours of daylight left and we needed to

provide the commanders with enough information so they could get back to their companies, plan, issue orders and rehearse, all before sunset. I asked our battle staff at the TOC to lay out the map board and the micro armor, and instead of writing a five-paragraph field order and going through a deliberate wargaming process – which we didn't have time for – I was issuing a single command directed course of action followed by a brief wargame and concluding with brief backs and a rehearsal.

Question: Was there anything different in the planning for the second Thunder Run on 7 April?

Schwartz: Yes. We had much more time available. We had enough time to proceed through the formal orders process. However, that process was interrupted the night prior to the attack when an infantry team that was securing the line of departure was moving into position and identified a complex minefield. The minefield consisted of 444 anti-tank mines, 500 meters deep, spanning the entire section of the road.

Our formal planning was essentially interrupted by having to conduct a night covert breach of the minefield. I shifted immediately to developing a plan to breach the minefield, but we also needed to continue our planning for the second attack into Baghdad. We had two events going on at the same time.

To the credit of the engineer company commander, Captain Dave Hibner – when we identified that minefield, I shot a report up to the brigade commander and said, "We have a complex obstacle here." That got everybody's attention. There was a minefield in the direction that the brigade was going to attack.

It was getting late in the evening and I knew we had to have lanes cleared by 0530 at the latest. The conversation on the brigade radio net was chaotic. The radios were squawking. Everyone had great ideas about how to breach the minefield. They were talking about throwing mine clearing line charges (MCLCs) across the road, bringing dozer vehicles up to scoop the mines out, and it was becoming distracting to our planning.

By 0515 the minefield was cleared, the lanes were marked and we were ready to go. I don't think anybody truly appreciates what the engineers did that night, in the middle of the planning process. That minefield could have ground the second Thunder Run to a halt.

There are a myriad of things that happened during that second attack that are associated with that obstacle. As the enemy showed up in the morning to provide covering fire over the obstacle, we had to destroy them. There was also a berm and wire obstacle as well that we had to breach before we could even get to the minefield. This all happened while we were still planning and preparing for the second attack into Baghdad. That was a complex situation.

The engineers went into the minefield and lassoed mines at night. These were anti-tank mines that had an anti-handling device on them. All the Iraqis had to do was turn a switch and they would have been armed. They were fully-armed mines but they didn't have the anti-handling device triggered on them. A smarter enemy would have taken the outer belt of the obstacle and not placed anti-handling devices, and then would have done so on the ones closer in, but they weren't smart enough to figure that out. After our guys lassoed the first two or three belts of mines, they ran out of time so they went out there and picked up the mines one by one and placed them off of the side of the road.

There were a lot of mines.

Question: Prior to the Thunder Runs, did your task force have any experience or training with urban operations at all?

Schwartz: We had extensive training in urban operations in the desert of Kuwait. We were in Kuwait for six months before the ground attack into Iraq. During that time, we built an urban village in Kuwait and trained with a mix of infantry, tanks and engineers. That was critical to our future success. We needed to train infantrymen on how to use tanks and train tankers on how to use infantrymen in the urban environment. Obviously, we couldn't replicate what we were going into, but we did understand and practice in great detail the fundamentals of room clearing and shooting near, through and around buildings. It's an emotional event for infantrymen to be standing on the side of a tank when that tank fires. That'll change your life. That's a trained skill and we were able to do that.

How do you integrate the engineers in an urban operation? We trained on that for months. Was it enough for what we were coming up against? I think it was. Our first urban battle occurred on Objective Rams. There were eight to 10 buildings inside of an industrial complex. During this battle we had four fights going on at the same time: The engineers were locked in a battle while trying to emplace a roadblock. Our tank company that was the lead effort was locked in a fight with technical trucks. A tank team was working a multiple building complex. The infantry was dismounted flanking the enemy out of the east. The mortars were firing and close air support was rolling into the objective.

There were a lot of things going on. But, when the infantry dropped the ramp on the Bradleys and our dismounts came out, it was a beautiful thing. The squads poured into the buildings. They stack, they clear, they mark and they exit, and all of that training paid off on that afternoon. They took that training base they learned and converted it to combat and it looked exactly as it did in training. They did extremely well. We carried that on for the next few weeks. Fundamentally they understood urban operations, how to clear and how to integrate tanks and Bradleys. They did a solid job.

Question: Did the urban environment of the Thunder Runs pose any special challenges to your leadership and command and control at the task force level?

Schwartz: The fight in the urban environment is a 360-degree fight. It's an asymmetrical fight. It has no borders or boundaries. It's a head-on-a-swivel fight. There's so much information that you have to distill and make decisions based on what's really important. It's not the Desert Storm fight. As a tank company commander in Desert Storm, I was single direction focused. The urban fight on the other hand was just chock full of information. Finding out how all the pieces of information fit together was the greatest challenge. During OIF, our company commanders did a superb job of not just reporting information but reporting information that they knew I had to do something with to make decisions. If you want to understand battle command, learn it from a very complex urban environment.

Question: What was the most surprising development during the Thunder Runs?

Schwartz: The methods the enemy employed to fight the urban battle. The Iraqis were creative in their employment and use of weapons. We were attacked by soldiers on motorcycles, pickup trucks loaded with explosives, and civilians firing from their homes and places of work. We were attacked by fighters who dismounted out of civilian vehicles, attempted to charge our column, and in many cases attempted to mount our tanks. We took high volumes of fire from businesses, mosques, apartment buildings, and overpasses.

Soldiers fought from ditches that were three and four feet away from our tank. They would pop up in six- or seven-man teams and fire. Our troops kept their heads on a swivel and reacted to this unconventional threat. We sensed a greater level of commitment from the Baghdad defense forces than we sensed from Karbala and Najaf. In the earlier fights, they appeared to be fighting for their town or village, but it wasn't until Baghdad that we found a sense of nationalism. In Baghdad, they were fighting for a greater purpose so they fought differently, and you could sense it. In Baghdad, there was a fanaticism that we hadn't seen before. In Baghdad, we encountered civilians and soldiers who were committed to establishment of a defensive belt around Baghdad and doing everything they could to keep that belt from being penetrated.

Question: How important was momentum to the success of each Thunder Run?

Schwartz: The momentum of the Thunder Run was important but not essential to mission success. I wanted to maintain speed and momentum, but I quickly realized that there were going to be moments in the battle when we were going to have to stop and do some things that were going to cause us to lose our momentum. For example, once we penetrated the inner cordon we needed to reload ammunition and perform triage on our wounded soldiers. We could do that on the move and still maintain our momentum, but at this point we had vehicles that were shot catastrophically. We were performing battle damage assessments in order to get them back in the fight.

The battlefield conditions, however, indicated that it was an appropriate place to take a short pause and regroup. We paused for 22 minutes and took the opportunity to reload and care for soldiers. That action caused our momentum to slow but what we did during that time was that we reset for the next fight, the inner

cordon. We stopped, regrouped, performed casualty evacuation and conducted maintenance, all in 22 minutes.

Is momentum important? Yes, but sacrificing certain elements of your plan for momentum is a risky event. During the Thunder Run, a tank commander was killed, a Bradley was hit, soldiers outside the Bradley had broken legs and burns, a tank was on fire, and soldiers had been shot. I could tell in the voice of our lead company commander that I needed to make a decision on slowing or stopping the attack so we could regroup. I told him, "Take the time you need. We're not racing." Later he would say that that was a calming response for him to hear. It allowed him to regroup and reset, because he had been taking the brunt of the action.

During the Thunder Run, I learned that momentum is important. However, I didn't feel it was the right time to sacrifice other things for the simple sake of just going, going, going.

Question: What are the most important lessons learned by you about the use of armor in urban environments?

Schwartz: The greatest lesson learned was the importance of integrating combat power between tanks, Bradleys, and engineers in the urban fight. There's a 20-degree elevation limit on an M1, which equates to being able to reach the third story of a building while moving down a narrow urban street. When you're moving through a town or city and have buildings that reach 10 to 20 stories high, the smart fighter will get up in the higher windows and fire at you because he knows you can't reach him. That is where the engineers can be employed during a mounted urban battle. The engineers are the high elevation shooters.

Another lesson learned was the survivability and lethality of our weapon systems. Every one of our vehicles was hit with lethal direct fire during the Thunder Run. One of our Bradleys received five RPG hits during the first Thunder Run. It couldn't shoot any more but it could still move and we continued to use it during the fights. Tanks were struck with rockets and other large caliber weapons. One tank was struck by an RPG in the soft spot between the turret and the hull. It was a perfect shot. Except for the smoke and shock, the crew had no indication that they'd been hit by an RPG.

The M1 in an urban fight is a proven winner if it's used in conjunction with the combined arms team. It does, however, have some limitations. It's a big gas hog but it's a great platform to fight from. It provides great visibility and it sends a clear message. When you take an M1 into an urban area, you are showing that you care to send the very best.

Command Sergeant Major William Barnello Jr.

Barnello: I think the responsibility of the task force command sergeant major during combat operations is one that was never really well defined. You kind of have to find that on your own. You have a hard time figuring out where it is you're supposed to be. We don't doctrinally tell the command sergeant major of a task force where to position himself or where his responsibilities lie during the operation. As a first sergeant, it's pretty well defined. You're responsible for the logistics, administrative functions, rearming and resupplying of the company team. At the task force level, the sergeant major really isn't responsible for those details. You just kind of oversee it. The way I saw myself was as another set of eyes and ears, a sensory node for the commander and inasmuch I tried to position myself where I could best fill that role.

During the Thunder Runs, I put myself in the armored personnel carrier (APC) of the lead company team first sergeant's vehicle. I was in there with him. I didn't have an armored vehicle to ride in. I had a Humvee, and when we went heavy that vehicle wasn't really going to do me any justice on a combat maneuver like that. I packed a little ditty bag and threw some stuff in there that I thought I'd need. I grabbed as much ammunition as I could bring with me, my M16, and jumped in the vehicle with the first sergeant that morning before we started out.

Question: Did you play any role in the planning of the Thunder Runs?

Barnello: Again, it was almost the same mentality with the planning process. I had planning responsibilities along with the task force logistics officer (S-4). We looked at some of the logistical issues like rearming and resupply and where the medics were going to be, but it was more of an advisory role. I would watch the staff as they formulated the plan and use all my experience from all the years I had been doing armored maneuver to see if anyone was forgetting anything, missing something or doing something just a little bit odd. Nine times

out of 10, I would impart my advice to that staff officer or that staff NCO who was planning that particular phase of the operation. I might whisper in their ear or bring them off to the side and say something to them. "Are we forgetting about the scouts? Are we forgetting that we have an emergency standby refueler at the combat trains command post (CTCP). We may not have to move assets from the field trains just yet." That kind of thing.

As a special staff NCO to the commander, I just floated around during the planning process and would pull him off to the side sometimes or talk to the task force executive officer (XO) and say, "I think we're moving in the right direction." Or, "Has anybody thought about this?"

Most of the time, the Desert Rogue staff was a really tight group. Everybody felt their self worth and it was really something to watch for me as we formed that team, as we all started to become a group of brothers that listened to each other. Nobody was disregarded. Everybody seemed to be almost handpicked for their positions and they rose to the occasion. For example, the folks who worked in the intelligence section (S-2) did a good job and when they spoke everybody listened because they had really important things to say. We knew that Captain Farrell and his team in the S-2 shop really dug deep, got the right information for us, went beyond what the brigade S-2 was giving us and even went further than that. They started making connections and doing their own analysis. Their staff work and their analysis was really important to the task force. The commander made everybody feel like their opinion counted.

Lieutenant Colonel Eric Schwartz was just really good at bringing out the best in people and he had a really calm demeanor. Likewise that transitioned to me too. When I did take the time to say something, everybody knew it must be important. I didn't always have a lot to say during the planning process, but when I did people would listen to what I had to say. In that, everybody gained their power base in the task force from the commander and everybody was given the leeway to have something to say and feel the self worth or the freedom to express their opinion.

On the off chance that somebody had something to say that was a little bit out there, they still wargamed that. Even if something sounded farfetched at the time, we were conducting some pretty farfetched operations.

Going up to the brigade tactical operations center (TOC) and getting told that the next day we were going to attack into Baghdad, it was like, "What?" That's been replayed a lot but that's pretty much how it happened. When Lieutenant Colonel Schwartz and the XO came back from that encounter at the brigade TOC, it was like, "Gather round boys. I've got something to tell you guys. No shit, we're going to attack into Baghdad tomorrow." Everybody was like, "You're kidding!" "No, I'm not." It was a very accelerated, condensed planning process but the task force was ready for that. We were well positioned. Maintenance wise we were in pretty good shape as well.

Editor: The following response refers to the extended storage racks attached to the rear of the tank turrets in the 3d Infantry Division intended to enable carrying additional supplies and gear.

Barnello: We went through a lot of pain and heartache getting those things made and mounted on the vehicles. I think there were some plusses and minuses to those. As we were in a combat column or moving from Kuwait into Iraq, no crew had enough places to store all the stuff they were given. When we're in a training environment, we have stuff hanging all over the inside of our vehicles that you really don't want in combat. You want to put that on the outside. That goes even further for the Bradleys. They have dismounts inside there and they all carry gear.

Trying to solve that became almost a logistical nightmare. Everybody had to repack their bags and we took things out of our B-bags and gave them to the supply sergeant to carry for us in his truck. "This is what you need. Put this in your A-bag or your rucksack and just keep that." There are also other pieces of equipment we have to carry. We have OE-254s (antennae) on some vehicles just in case we need them. We also had extra ammunition. Where were we supposed to put all that stuff? The racks came in handy for that. In a combat situation, when, oh by the way, you're not the only one shooting bullets, they're shooting back – all that stuff in the racks is getting shot.

During the first Thunder Run, I remember Sergeant First Class Gaines coming over the radio saying how much fire he was receiving on an overpass. This was the third overpass we had gone under, the first two were

hairy to me and he didn't say anything about those two. He didn't compare those two to this one. He just came over the radio and said, "Hey, I'm getting a lot of fire at this third overpass." We were getting closer and closer to the airport. The amount of soldiers running around and firing back at us was increasing. They had built a defensive perimeter at the entrance to the airport where 1st Brigade had set up and it was like the meeting of the two armies there. The hair on the back of my neck stood up and I was very uncomfortable. There was a civilian photographer embedded with us in the vehicle and I looked at First Sergeant Hayes and said we needed to button up. I was trying to give him some hand and arm signals because the volume of fire and the noise made it hard to communicate unless you were coming over the intercom. We communicated with each other that we needed to button up and we got it done just moments before an RPG hit the side of the vehicle. Smoke filled the inside of the vehicle. The smoke cleared and everybody was checking each other to make sure they were okay. The RPG destroyed everything that was on the outside of the vehicle. There was an OE-254 bag that the first sergeant carried that was destroyed. I remember being really irritated that my ditty bag with all my stuff in it that I had brought with me – a change of socks, an MRE, a couple bottles of water, my shaving kit – was destroyed. I was livid. There were little chunks of MRE all over the place. I was finding little pieces of toothpaste everywhere. They had destroyed my bag and I was actually using that bag to prop my hand on. I tell you that because the side of the first sergeant's vehicle that carries all this company stuff – the white board for the commander, the terrain model kit, some tent material so they could put up a little shelter – all of it was blown to pieces. You can take that and multiply it throughout the task force on every vehicle.

When we pulled into the airport and I got off the APC and started walking around and talking to folks to see how they were doing, sides of Bradleys were on fire because the hydraulic fluid and petroleum products that they were carrying in those racks had been engaged and shot at. RPGs had hit the side of that and exploded stuff. Bags were on fire. We had vehicles literally burning as we pulled onto the tarmac of the airfield, and it wasn't because the vehicles were burning; it was all the stuff that was being carried in these racks. The racks were great to help us combat configure our vehicles and get a load plan that was going to be able to work during combat, but we didn't think about what would happen when we got shot at. All that stuff was taking fire. It was good in one respect because it was exploding RPGs before they got to the skin of the vehicle, but we lost a lot of equipment.

Vehicles had to stop during combat, get out and take five-gallon jugs of water and put fires out on the side of their vehicles because their vehicles were burning. It's a little unnerving to be in the middle of a combat situation, there are flames all over you and it's not because your vehicle is on fire. It's because all of the gear you're carrying just got soaked in diesel because your diesel cans exploded and now they're on fire. To some degree or another, that was repeated throughout the task force. The vehicles look like some caravan going down the road. So, the racks helped in a lot of ways and I think they were very useful and helpful in moving the task force, but when you know you're going into combat you need to figure out what to carry and what not to carry in there. Stuff that will be detrimental to you, like petroleum products and diesel – things that will catch on fire and not really absorb the impact of an RPG – that needs to be downloaded and left behind. We learned that after the first Thunder Run. On the second one, we didn't have nearly the same problem. We knew that if we left stuff behind, it eventually would catch up with us again. It's other people's responsibility in a combat situation to get fuel and hydraulic fluid to you. All you have to do is report it. "Hey, I'm low on this," and we'll get it to you. You don't necessarily need to carry it with you. Our supply system works.

Question: Do you have any guidance or insights that you would pass along to another armored task force command sergeant major?

Barnello: I don't think there's a whole lot in our doctrine that tells an armored task force sergeant major where to be or where to position himself. There's nothing that says what his job is during the planning process or in the execution phase. You don't have a vehicle that's going to allow you to go forward with your task force, but that doesn't mean you don't go forward. You need to figure out how it is that you're going to do that. If you feel comfortable loading for a tank, then do that. I didn't. I'm going to leave loading the tank to the guy who's really good at loading a tank. I can pick up a sabot round or a high explosive anti-tank (HEAT) round as well as anyone, but that's not all the loader does and everybody knows that, so that wasn't a good spot for me to be in. Being on the battalion commander's tank or being on the S3's tank was not a good idea either. You need to get to an armored vehicle – whether it's a Bradley, an M88 or a 113 with one of your first sergeants. You need

to be forward and lead with the rest of the leaders of the task force. Staying in back with the field trains or the CTCP is not where you belong. You're a leader and it's important for your men to see you up there leading from the front just like the rest of the leaders in the task force. You couldn't have kept me from the fight. I had a need to be there and I think all armored task force sergeant majors in a combat situation want to be there, so figure out where it is you're going to be. Without the benefit of doctrine or a written procedure or plan on where the task force sergeant major should go, you have to feel that. You get that from communicating with your commander. Where do you want me? Where do you think I could best provide a second set of eyes and ears for you? Is it in the middle of the column? Well, that's where he is. He isn't in the lead. He kind of positions himself in the middle of the task force. Do you need me up front or behind you? Where do you want me to be? In the first Thunder Run, I was with the lead first sergeant. In the second one – because we had learned from the first one – we configured a combat vehicle for myself, the S4 and the personnel office (S1) to all fight from an APC. We went forward together as a mini-CTCP because those were all the leaders from the CTCP who went forward in that 113, and it worked really well for us. But we had to design that vehicle and take it out of hide from somewhere else because that vehicle didn't exist at the time. If I had any advice for an armored task force command sergeant major, it would probably be to define yourself without the benefit of doctrine telling you what your job is in a combat situation. You have to take what you know of your task force, what you know about your commander, what you know about the abilities and inabilities of the men who fight in your unit, and then position yourself in the best place to do the most good. I guess that's almost common sense, but common sense is really hard to find sometimes in a combat environment. You almost have to stop and look for it.

Battalion Task Force Executive Officer—Lt. Col. Ricky Nussio

Question: Did you have a particular command platform that you used? Did you modify it at all?

Nussio: Initially my position was supposed to be in the task force tactical operations center (TOC) in the 577s, and I was in a 1025 Humvee. Before the war in moving out, I had made an arrangement to, when we drew equipment out of the Army prepositioned stocks (APS) fleet out of Qatar, the brigade actually had some additional armored vehicles that they had apportioned out. I took an M113A3 armored personnel carrier, very similar to what they used in Vietnam, just modified – stronger engine, better power train, external fuel tanks, with a lot more room inside – as the base vehicle. Then we modified in that I put a QEAM antennae, which is a quick erect antenna mast, which gives you increased range. I took my radios out of my Humvee and made a modified command and control platform. It was basically a task force TAC, if you will, that I would move ahead of the TOC to establish communications, maintain communications with the task force as we're moving forward, to provide an additional command and control platform. As well, for additional protection, we had the standard .50 caliber mounted on it, but we added some of the armored cavalry shields to it, bell turret for the commander's cupola, and I had the maintenance personnel put on the side machine gunner's shield that I mounted an M240B machine gun in just for close-in personal protection.

The majority of the time I rode in the crew compartment. I'm talking on the radios. Captain Molfino, who was the task force plans officer, as the assistant S3, was the tank commander and Sergeant Lee was actually a 35B military intel specialist – he was the driver. The thought there is with me as the XO, the planner, Captain Molfino and Sergeant Lee, a military intelligence NCO, at any one time we had the necessary personnel to plan the next 24 to 72 hours for the task force on the move, while the rest of the TOC could be moving, monitoring the current battle and monitoring the current fight. It was really an added capability that came out of our understanding that if we were going to move, we were going to move far and we were going to move fast, and we'd have to have the ability to plan our move. One of the benefits to the vehicle itself is it had these additional blast shields installed that actually slid back and forth so you could reach compartments behind them. In addition to storing crew equipment behind there and additional supplies – ammunition, whatever we had – I was able to post maps. Many of the different products we had made available to us by the engineers were on the side walls, so I had an entire joint graphics map of basically all of Iraq up for looking at the big picture. I also had some of the special maps we had produced that had routes, graphic control measures and significant things on them that at any one time I could look left, look right, get a situation update on what was supposed to be the plan, as well as my individual map book that I kept up on top of the vehicle with my GPS for navigational purposes. I thought in the end that it was a very functional platform.

There were several times, especially during the dust storm that we ran into around 25 March, that we were able to get the commander, myself, the S3 and some of the key personnel in the task force together in a closed

compartment. We turned lights on, had radio communications with brigade and did planning, discussions, whatever we needed to do to prepare for the next mission upcoming without having to go back into the TOC, although we did establish the full TOC on a number of occasions. This is a way to do it on a move. As well, on several occasions, An Najaf specifically, as well as inside Baghdad itself, I had to move the task force commander from place to place. He could ride inside a vehicle that was not soft-skinned and protected from fire as well.

Question: Were there any problems with spare parts supplies?

Nussio: Roger Guillemette, I called him Chief G. He recommended very early on that based on the distances we were going to be moving, he said, "Don't plan on getting any supplies." Talking about what we were going to do to mitigate that was to carry our own PLL. Start stocking up as much as you possibly can, which is kind of counter to the Army's supply system of order it, it's in the pipeline and it comes. But we made the decision to leave our mine rollers at Camp New York and use the associated lowboys that came with them and put additional V-packs, spare PLL and extra packaged PLL products on all our HEMTTs and all our vehicles. Everybody carried additional spare parts as well. Most of the tanks had two or three road wheels bolted on, additional track block. There was a lot of PLL distributed throughout the task force of extra parts that the crews could have access to. Chief G also brought a lot of the common items that, based on his experiences, he knew would probably fail. So we brought our own. Plus, he was in contact with the other maintenance techs and the brigade. Chief Acevedo and Chief Vincenze over in 3-15 [IN] and 4-64 [AR] equally traded parts with other units in the division. So if they needed something, they knew they could call somebody else. We did receive some parts, but as far as the routine maintenance procedures that we always practiced, they were not followed as our doctrine says they should be.

Question: How difficult was it to keep the task force supplied during the march to Baghdad during the Thunder Runs with things like fuel, ammunition, water? Were there any special measures adopted to ease some of these supply concerns?

Nussio: Very early on, when we were in Kuwait, still at Camp Pennsylvania when we first arrived – in fact, I believe we'd been training for maybe 30 to 45 days – many of the company commanders had brought up their concerns about when we're talking about our "go to war" packing list, what it was going to be, specifically on the vehicles in terms of soldier bags, additional ammunition and water supplies. It was very, very clear that there were some mismatches in terms of what the expectation was of what we were going to carry and what we could actually put on the vehicles. Lieutenant Colonel Schwartz directed me to get enough service ammunition and what they wanted to carry, MREs and water and all crew equipment to fully load a tank and a Bradley. We loaded a tank and a Bradley in October with everything they were supposed to carry, and it was impossible. The back of the Bradley – there was literally no room whatsoever for soldiers and you just couldn't do it. So we started looking at extension racks for what could be put on the vehicles and what could be strapped to the outside. The idea was developed to mount additional racks and cages, as we called them, to the outsides of the vehicles. The Bradleys got side racks on the skirts and the M1s got a bustle rack extension that extended out about 12 to 18 inches. It provided enough room to put on additional PLL bags, baggage and life support things. We had to carry eight days of water, which is a very bulky item to store. We had the commercially-available clear plastic bottles that came in cardboard cases that were put on every vehicle, and those had a tendency to take up a lot of room. But in all this planning, we developed these racks that were eventually contracted out to a British contractor who hired a Syrian welder to do the work on American vehicles. They actually worked out so well that the rest of the brigade purchased them as well and they made them for all the vehicles in 2nd Brigade. I know some of the other vehicles in the division got them too. That really, really multiplied what we could carry in terms of additional crew supplies.

The task force, in the planning for this, there was one supreme success of this operation that I think still goes unknown to this day, and that was the fuel planning. I'm not sure who was ultimately responsible for it but the fuel planning for this operation was a phenomenal success. We had 11 5,000-gallon fuel tankers assigned pretty much to every task force. The tractor trailers and the cabs would do these continuous turns all the time of pushing fuel forward from a pipeline that was established from the berm up through Tallil Airfield over to As Samawah up into Objective Rams, north to Objective Peach, and they just kept this continuous supply line of fuel. We never had to stop the task force because somebody was going to run out of gas; it just never happened.

We had enough small arms packages stored and pushed forward to us that we never ran out of small arms. There were some ammunition shortages in terms of the multi-purpose anti-tank (MPAT) round that was newly issued to us for the 120s, but I was never really made aware of any one unit that went without in terms of ammunition. There were shortages from time to time, crews cross leveled but nobody ever ran out of ammunition. It seemed like that was always something that was continually pushed forward and supplied to appropriate amounts. I credit most of that to Captain Anderson Puckett, the task force S4, who was the supreme logistics planner. He had a phenomenal plan of support for the task force. I give all credit to him, even though as the XO I'm kind of responsible for that area. I knew I could always count on Captain Puckett to have the supplies there where they needed to be. Each battalion-sized element had a forward support company dedicated directly to us and they provided outstanding support in terms of the fuel they pushed forward to us.

Question: After the actual fighting during the Thunder Runs, did that put any kind of undue strain on supplies, particularly ammunition?

Nussio: A lot of small arms usage, primarily coax on the tanks. I know that was a concern. It seemed to me like .50 caliber was used somewhat sporadically, primarily because once you fired 100 rounds, it's a difficult weapon to load especially while you're in contact. But there was never really a strain put on small arms to the point of where, like I said, somebody was in danger of going actually zero balance and not having any. I know at times folks would get concerned. I fired 2,500 rounds of 240 on one particular day and just basically that evening, stocked up and got more. We carried about 4,000 rounds on the vehicle. Because of the fight, I don't want to say pause, but because we oftentimes returned to a secure location or the trains caught up with us at our location, we were able to resupply at least once every 24 hours. Even when we were in some stationary positions and more or less in continuous contact, like in the vicinity of An Najaf, we were able to push forward, pull tanks off the line, maybe get a plus-up of small arms ammunition, get some more main gun and then move back up. I don't think that was necessarily ever a problem.

Question: You mentioned you fired off 2,500 rounds with the 240. Is that normal experience for a task force XO?

Nussio: Well, I think part of that is proximity to where I was located. It's probably not normal but I don't think the operation we were on was normal either. Part of the nature of the fight, because when we attacked into the city on 5 April and attacked up the major highway, Highway 8 that comes up through the south of Baghdad and then turns towards the airport, the column got stretched out. All those side streets and at the major freeway interchanges that were defended, once you punched through and the lead element was through that interchange, you still had those side roads. There were vehicles that were driving up, transporting actual soldiers in green Iraqi uniforms or, in some cases, civilian-dressed fighters coming at you in civilian vehicles. Generally speaking, a warning burst at a vehicle coming towards you down the street was enough to turn away somebody who didn't have ill intentions. If they continued to come at you and if you spotted a weapon or you saw somebody in a green uniform, then you engaged them, or the vehicle. In some cases, these vehicles were close enough to see uniforms and identify them as legitimate targets even though they might have been in civilian vehicles – and in one case a garbage truck, actually. So, no, it was probably not normal. But Colonel Perkins has the famed incident of his 113 commander, Captain John Ives, who was the assistant intel officer for the brigade and who was engaging some dismounts who were close to the vehicle. He was changing ammunition on his .50 cal and actually threw an empty can at one them. Colonel Perkins was close enough that he pulled out his nine millimeter and shot a fighter. Not normal for a brigade commander to use his nine millimeter in combat. So I think that kind of experience is resident with many of the folks who went on these Thunder Runs, of the continuous contact. Even though the lead element, Team Wild Bunch, punched through many of these intersections, all the elements along the way the entire length of the column – even Lieutenant Shane Williams, who was the Charlie Company XO, whose mission was to be the trail vehicle in the battalion task force and have his turret over the rear to provide rear guard, he was even engaging vehicles that were coming to chase him from the rear. So it was almost like a very big long porcupine, if you will, going down the road on 5 and 7 April.

Battalion HHC Commander (Maj. Warren Sponsler), S4 (Capt. Anderson Puckett), and Battalion Maintenance Officer (Capt. James Mazurek)

Question: What did it take to keep the task force fueled, supplied and maintained? During the drive to Baghdad and the Thunder Runs, were there any special problems that you encountered in terms of supply, logistics and maintenance?

Puckett: I think it took a lot of flexibility more than anything. We developed and rehearsed fueling plans and all of those changed day by day. We relied pretty heavily on external assets that we embedded from the forward support battalion (FSB) to keep our fuelers fueled.

Sponsler: I think a lot of it was also preparation prior to the execution of the mission. We spent a lot of time configuring loads, establishing methods and rehearsing in order to be able to get things done. We also took a lot of external assets with us from the FSB which we normally wouldn't have had, and that assisted greatly in maintaining flexibility and not being reliant on a long train behind us to be able to execute.

Puckett: We basically split them up amongst the combat battalions so we had our own little package from the FSB. Each battalion did.

Question: How did you run your logistics packages (LOGPACs)?

Puckett: We kept the LOGPAC staged south of the city and when we secured the area downtown in the parliamentary district, all the LOGPACs were consolidated at the brigade level and we brought up fuel and ammo with Bradley escorts into the city and then took them back out of the city that night.

Question: Can you also talk about LOGPAC operations on the drive to Baghdad?

Puckett: We set up refuel points and did them service station style as we were moving. That seemed to work well and it was the fastest way to do it.

Sponsler: The challenge was trying to keep up as the rest of the task force was maintaining momentum moving forward. That's where we relied on our internal assets and the additional assets we got from the FSB. There were a couple times when we actually had to catch up with the task force to keep them fueled. Fuel was our biggest challenge and trying to keep it forward. As far as other logistical assets, food and water were obviously a concern. Once we started to get established, we were kind of waiting around to get water, but it never got to the point that it was a dire concern and we had people completely running out of water. It was certainly a challenge to organize those refuel operations and, in the field trains, we would kind of split the organization in order to make sure we were covering down on those assets.

Puckett: Typically that falls on the support platoon leader but we split it up between the HHC commander, the support platoon leader and myself. We would take whatever assets we needed and just split it up so we were doing things as efficiently as possible so we could continue to move. The challenge with the non-fuel and ammo logistics was that our cargo trucks were packed full with ammo and/or other living supplies. At that time, we were keeping the smaller cargo trucks – like the deuce-and-a-halfs – available for prisoner transport and medical transport, so we underestimated the need for that cargo space.

Capt. James Mazurek: If I remember, we also used some of those big cargos and packed them full of Class IX repair parts. Not so much during the Thunder Runs but on the initial move into Iraq.

Question: What was the spare parts situation like for the march to Baghdad? Did you have enough for the operation or did you have to resort to cannibalization a lot?

Mazurek: When we left Kuwait, we brought a fair amount of parts. We filled up a couple of our big cargo trucks with as much as we could order in the lead up. We pretty much went through a lot of that during the march. Once we were in contact and continuing to move and operate, there really wasn't any Class IX resupply coming in behind us, and for a significant portion of the time cannibalization was the only way we were able to keep the task force ready to go. I don't know whether it was a blessing or a curse, but in the first fight in Najaf, one of the Alpha Company tanks got stuck to the point where we couldn't get it out. We were hoping to get a float tank but that never materialized. The good piece of that, though, was that we were able to use that tank to keep another six or seven tanks running. Between the Thunder Run to the airport and the one

into Baghdad, that day in between there was a Bravo Company tank that we were able to get 15 road wheels off of. We were even trying to take the gun tube off that one.

Sponsler: We took a lot of Class IX parts forward. It was far and above what would be the normal parts load list (PLL) that we'd be taking. I think Chief G [Roger Guillemette] did a great job in figuring out what to take, but there was just no way to anticipate the fact that we would not receive any Class IX resupply for the duration all the way. It was very frustrating because we had anticipated that we were going to have some of these issues – especially some of those wear items – but we never anticipated never receiving any higher echelon support. The assumption was that once we secured the airport and Baghdad, we were going to start having the opportunity for some resupply, but there was none to speak of. Even above the combat vehicles we definitely did cannibalization to keep things rolling. If you came across a dead vehicle en route, you'd usually take a look at it to make sure there wasn't something on it that you could use. At the same time, if you left something behind the assumption was that you'd never see it again, that it would be cannibalized by units following behind you.

Puckett: Most of that is that we were underestimating the wear on the routine wear parts. Not internally or externally but just as a whole. I think the Class IX supply in theater underestimated that too. We had a hard time, even in Kuwait, getting access to routine wear parts like road arms, sprockets and small armored vehicle track.

Question: Did the nature of the fighting during the Thunder Runs pose any special challenges for battle damage assessment and repair?

Mazurek: There was the Charlie 12 tank that caught on fire and had to be left. We eventually went out and recovered that but it had to stay out there for a while. The majority of the attacks were small arms and rocket-propelled grenades (RPGs), and for me back in the task force unit maintenance collection point (UMCP) it wasn't that much of a challenge because almost every vehicle except for that one was able to drive back or get towed back to my location and my mechanics were able to look at it. It really wasn't a case of us having to go forward. I think we did that maybe a handful of times in and around Najaf to look at stuff, but it wasn't standard for us to do that. It was a lot more of them bringing their stuff to us.

Puckett: I don't know if it was by design but I think we were probably forced to go this way after the M88s broke down. We put a lot of energy and emphasis into self-recovery. Like Warren was saying, for both track and wheeled vehicles we became very good at self-recovery, and that's not how we were training at NTC or even in Kuwait. We were training to send the M88s forward to get the vehicle. This was different.

Sponsler: I think the crews got very good too at taking care of their own stuff. In no other place was the emphasis on crew-level maintenance like it was there. The guys realized that their vehicles were their homes, their transportation and their security, and if they lost that thing it wasn't, "Oh, I guess I'm not training today"; it was, "I'm going to get left behind" or, "I'm really going to be stuck."

Question: Were the extension racks that were put on the vehicles effective?

Puckett: Absolutely. We could not have done anything without them. We just could not have stored the days of supply, water and food and PLL to keep the fleet moving if we didn't have the racks. We just didn't have the storage. We just couldn't have done it.

Question: Was there an unanticipated protective value from those extension racks during the actual Thunder Runs?

Puckett: In a couple cases, yes. There were risks with them too. It made the Bradley much wider than the drivers and track commanders were used to, so it was a maneuver challenge. There was some pre-detonation RPG value in several cases I know of.

Mazurek: During the actual movement, a lot of what Warren just said also applied to the UMCP. The lack of radios combined with having a lot of those deuce-and-a-halfs as well. On that same long movement, we had two collisions and a trailer full of PLL parts that ended up on its side in the middle of the night. We were trying to recover that stuff and my motor sergeant, my chief and I were the only three guys who had radios. That was certainly a challenge. The Class IX situation was also a problem once we went through the parts we had stockpiled beforehand. There were a significant number of times where a mechanic was able to identify a problem and he'd just look at me and say, "Hey, sir. I could fix it if we had the parts, but there's nothing I can

do right now." That's when we started scouring the net to find out if there was maybe a tank somewhere that we could take parts from. I would say far and away the parts situation was probably the biggest challenge maintenance wise.

Company Command—Maj. Larry Burris (Charlie Company, 3-15 IN), Maj. Andy Hilmes (Alpha Company, 1-64 AR), and Capt. Douglas Baker (Alpha Company Executive Officer)

Question: Can you give some examples as to how combined arms principles were utilized?

Burris: During the Thunder Runs, within the company team, you knew each person personally. But we also had worked with the same fire supporters. Andy [Hilmes], you had the Air Force enlisted tactical air controllers (ETACs) with you. In addition to Andy's tank platoon and our organic fire support observers, I had a Marine air and naval gunfire liaison company (ANGLICO) team that was with us that was able to integrate close air support, if required, prior to going on any mission. We would always request armed reconnaissance along the routes. I think more at the task force level, they were able to integrate the whole combined arms team together.

Hilmes: I guess one of my most vivid memories in the middle of that operation was hearing what I thought was enemy gunfire extremely close to my tank and probably 50 meters off my flank in the big open field that we were receiving fire from, from dismounts. But it wasn't like anything I had heard before. It was a very distinct sound. I'm like, "Holy crap, that's really close. Are they training an air defense artillery gun on us?" We had seen a lot of enemy air defense guns being used in direct fire mode up to this point, and I'm like, "This isn't good." I heard a noise and then as I looked over I saw in probably about a two- to three-second delay, the effects of whatever this weapon was. That's when I realized it was an Air Force A-10 that our air liaison officer had called in. This was danger close, but there was never a doubt in my mind that they were lasing in on it correctly. It was an incredible morale enhancer to see that but it was also extremely effective against the enemy. I think that was the result of our team having trained together. We were very comfortable firing in close proximity to one another. Because in the military operations on urban terrain (MOUT) environment, everything is so constrained and there's no such thing as standoff. It was a close-in knife fight from the moment we LD'd until the moment we did forward passage of lines with 1st Brigade at Baghdad International Airport. You did not have time to clear fires in a very lockstep manner. I was positioned behind my lead platoon, which was my Red Platoon, and standard talk on the company net was, "Hey, Red 4, Black 6, I'm firing right off your left rear." "Roger, got it." And that was it. Then the same thing within the company. Larry's company, Charlie Mech, was right behind me. "Hey Rock 6, Wild Bunch 6, we bypassed at least 15 dismounts on our right side approximately 75 meters out. Be prepared." "Roger, I got it." We handed off targets like that from one company to the next because there was no way, as the lead company, that we could even handle the volume of targets we had. In order to conserve ammunition, we had to discern, okay, what is truly a threat? A threat may not be an enemy soldier with a weapon. You may have to decide, okay, this guy's actually getting ready to fire a rocket-propelled grenade (RPG) at me. If it's just small arms, maybe I'm not worried about that because I can't afford the ammunition, so maybe that's something I have to hand off to the guys behind us. I know Larry will probably end up handing off a lot to the tank company, Cobra, behind him. So, you know, it was definitely a combined arms fight but a lot of it, I think, was enhanced by the relationships and the trust that was built up over the preceding six months.

Burris: I think we were all comfortable with working with all the different weapons systems platforms. We understood what they're capable of and what the effects of the weapons systems were. I was very comfortable with a tank firing behind me or in front of me or another Bradley or dismounted guys operating in close proximity to me.

Hilmes: Twenty-five millimeter on the Bradley, we definitely learned to respect that for overpasses and taller structures. It was tremendously effective.

Hilmes: Twenty-five millimeter high explosive (HE) was incredible, especially against bunkers and trench lines.

Question: The familiarity that you and your soldiers had with the weapons systems, working closely together – was that a lot better than anything you had experienced in other units you had served with before the war?

Burris: Absolutely. I think it's a function of when we went to Kuwait. For me, that was the first time we were able to do a full, according to the 23-1, Bradley gunnery. We were pretty much unrestricted on training resources and so we were able to do a full six, seven and eight. We did all the dismounted tables. We did realistic Tables 11 and 12. So the more we shot, the more comfortable we got with our weapons systems and the more proficient we got. I think it's a function of the time and the amount of training resources we had.

Hilmes: Well, what's funny about it is, Udairi Range in Kuwait is not a fancy range. It's very rudimentary. It's just a big, open desert that American and Kuwaiti soldiers are allowed to fire into. So it's not very restrictive. They do have a range control there but these ranges we ran were not fancy. It was master gunners going to Camp Doha and signing for lifters from the training and support center (TASC) warehouse there and then going out into the desert and walking the turf with fellow master gunners, company commanders and first sergeants. They would say, "Okay, this is how we're going to set up the range." So the company commanders and the company master gunners were putting together their own training packages. The targetry, again, was not fancy. We had to go downrange a lot and fix it from time to time, but it resulted in some of the most effective training a lot of us had had. I think it was just that Udairi Range, while it operated safely, was not nearly as restrictive of an environment to train in as it is at home station. Like in the United States where you have very distinct range fans and their range control organizations aren't as willing to give you very much latitude when it comes to firing over soldiers' heads and doing combined dismount and maneuver platform training. So that was definitely a plus for us.

Question: From the company command perspective, what were some of the biggest challenges in terms of commanding your company in the Thunder Runs?

Burris: I think the largest challenge was telling the guys we were going to do it. That may sound simple but it's the most heavily defended city in the world and you have to go back and say, "Hey, tomorrow morning, six hours, we're going to go do that – and oh by the way there's nobody else going with us. But we're going to make this happen." I think once you were able to do that, the guys just fell back on their training. It was very easy. As you move along, I could hear Andy giving reports to Lieutenant Colonel Eric Schwartz and then listening to my guys and it didn't matter. It was just like any other operation where you were getting spot reports: "Engaged two 'PCs," or whatever it is. So you're getting constant feedback and you're able to see what's going on around you, but also able to visualize what is occurring in your company at large and then be able to describe that to Lieutenant Colonel Schwartz so he could then visualize what was going on during the operation. I don't think it was any greater challenge. The challenge was, this is what we're going to do, and then everybody said, okay, we're going to do it. Then we fell back into just like any other training event or any other operation we'd done before.

Hilmes: I think our biggest challenge during execution – and Doug and I had a good relationship with this and a good system – but the biggest challenge in terms of battle command during execution was managing your company net and your reporting systems on the battalion task force net, so you, yourself, were not overwhelmed and were conveying good information, both up and down. Down to your subordinates and up to your commander. The general rule of thumb was that I did not talk on the task force net unless I had something that I personally wanted to inform Lieutenant Colonel Schwartz, Rogue 6, of. I let Doug do all the reporting. I don't know how he did it – you need to tell them about your systems – but Doug was getting volumes of contact reports from the platoon leaders and the platoon sergeants on the company net. Somehow he was wrapping that up into nice, tidy reports so he wasn't cluttering the task force net – very crisp reports on the task force net. "Rogue 6, Wild Bunch 5, engaged and destroyed 1 BMP, 24 dismounts, vicinity of this grid, continuing to develop the situation. Out." Very concise reporting that allowed me to focus on the company net and manage those platoon leaders and those platoon sergeants so I could fully understand what was happening and then give them guidance based on that.

What's sort of funny about that is with two nets screaming in my ears at the same time, I could not sense the battle as much as I probably should have. Several times during the fight, my loader, then Pvt. First Class Chris Tucker, every now and then he would start shoving me down in the turret. I'm like, "What are you doing?" He's like, "Sir, didn't you hear that? Didn't you hear that?" It was bullets and RPGs whizzing over our heads at very close ranges. I thought he was crazy because I couldn't hear this. As soon as he would do it, I would immediately get back up. I remember looking in front of me, at the tank in front of me, and Sergeant First Class Ronald Gaines, the platoon sergeant in that tank, was leaning out of his hatch. He's kind of a short guy, he's depressed over his .50 cal, and he's firing it manually and adjusting it underneath with the slip

wrench, and I'm thinking, "Well, it can't be that bad because Gaines is fully exposed in his turret, he's firing at the enemy, he's taking it to them and, damn it, if a platoon sergeant can do that and he's not afraid, as a company commander, I sure as hell better be up there."

When it was all over, weeks later when we finally had time to talk about it, some of the guys from the platoons behind me were telling me that, "Hey sir, you know, you really inspired us by hanging up out of your hatch and firing. If a company commander is hanging it all out, then we need to be doing the same thing." I was like, "Well, shit, I was watching Sergeant First Class Gaines and I figured if it wasn't that bad then I could certainly hang." Then Gaines came back and told me, "Actually, sir, I saw you and I thought if the company commander's doing this, then I better be out too." So to me that's a pretty significant aspect of battle command because courage goes two ways, and your soldiers look to you for courage. That said, I think if any commander or leader tells you they don't get courage from their soldiers – watching their own soldiers do the hard stuff – then they're probably lying, because I got every bit as much of my confidence in combat from my own soldiers as they did from me.

Presence on the FM radio net, command presence, is invaluable. It's worth its weight in gold. We were talking to Lieutenant Colonel Schwartz about this last night. When things got the hairiest, for me anyway, was when Staff Sergeant Stevon Booker was shot and killed two tanks in front of me, as I called up the situation to Lieutenant Colonel Schwartz to let him know that we had a casualty and we were evaluating it to find out the extent of his injuries. Right as I was calling that report up, my infantry platoon got hit. The platoon sergeant's Bradley had an RPG that entered the engine compartment and detonated, injuring the driver. The driver thought he was on fire; and as the Bradley came screeching to a halt, the Bradley driver popped his clamshell and dove out onto the highway because he thought he was on fire. The soldier also had a broken leg so he was immobile. I'm trying to tell Lieutenant Colonel Schwartz this on the net that we had a fatality, and at the same time on my company net I hear the infantry platoon sergeant screaming that he's dead in the water, he can't move, he needs us to stop and close up the gap that was starting to happen between where he was and the rest of the company that was continuing to move. For a couple seconds, I thought to myself, "Oh crap, I'm losing control of my company. I've possibly got a fatality." I began to feel pretty unsettled. As I called that up to Rogue 6, his reply was exactly what I needed at that moment in time, and it was, "This is Rogue 6. Roger, I got it. You have all the time you need. You figure out what you need to do and call me back. Rogue 6 out." Right then and there, I knew everything was going to be okay. I guess I was really worried. We had already had a long halt of 45 minutes or more as we had that Charlie Company tank that had caught on fire. We had taken a real pounding just sitting there on the highway as the enemy repositioned and started to counterattack us. The enemy's fire was really picking up and it was really getting bad. So I knew when we had to evacuate Staff Sergeant Booker, I knew the last thing Lieutenant Colonel Schwartz probably wanted to do was stop the column from moving. We really couldn't afford to sit on that highway exposed like that for very much longer. So, to me, again, to emphasize battle command, presence on the net, Lieutenant Colonel Schwartz with those few words to me reaffirmed that everything was going to be okay and we were able to make a pretty bad situation that much better. I think we were able to get Staff Sergeant Booker off his tank and into the medic track probably within five minutes and continue the fight without taking any more casualties.

Platoon Leadership—Capt. Ryan Kuo (Platoon Leader, Alpha Company, 1-64 AR) and Sgt. First Class Ronald Gaines (PSG, Alpha Company, 1-64 AR)

Editor: CPT Kuo commanded the trailing platoon of Alpha Company while SFC Gaines was a platoon sergeant in the leading platoon of Alpha Company. Alpha Company led the task force during the first Thunder Run on 5 April 2003.

Kuo: Well, I had train security but we only brought the two 113s with us. There really wasn't a whole lot back there. From my standpoint, 1st Platoon would go through an area and stir up the whole hornet's nest, then we'd come up behind and get right in the middle of the nest. I didn't really see much of a difference between the locations of the two platoons in the fight that we saw. I know [Lt] Bobby Ball, who was the 1st Platoon leader, had some issues with navigating. The maps we'd received initially were just the 1:100,000 maps. We also got some satellite imagery as well, but halfway through there was some confusion because there was an area called the "spaghetti junction" and we weren't sure which onramp to go on. We figured, "It's a city.

We'll just follow the signs to the airport." So he was just going to do that, but there was so much smoke from all the firing that was going on in the area that it was hard to see the signs. He did make one turn but he corrected it relatively quickly.

Gaines: We got the op order late at night and there was only one legible map of Baghdad. My platoon leader, Lieutenant Ball, took that map and he was the lead tank for the mission. The problem was that the map was so bad that you couldn't tell what onramps went where. We didn't really know what the route was. We knew the route going up, but once we got into that spaghetti junction area we couldn't tell which part of the ramp we needed to take. At that point we figured just to follow the signs.

Kuo: It was just like driving in Chicago or any other big city. You get confused on how to get to the airport and which road to take. There was one tank that did [not] make that turn and missed the fact that we all turned around, made a big U-turn at some point and kept on going. He got into a circle and got into his own little firefight before he corrected himself and came back into the fold. It does cause issues, but the problem was that, in our eyes, we weren't prepared to go into the city. It was a shock to everybody to get the order to go into the city for both the Thunder Runs.

Gaines: Prior to that, they had said there will be no tanks in Baghdad. We were told that if we ever had to go in there, it would only be for a rescue mission or something like that. So, it was a surprise the night we got the op order. We were also surprised at the order of march and that we were the only unit going in. We took a look at everything, decided to use a staggered formation and to stay on the right side of the road in the proper lane instead of splitting it. We didn't know if, when we got to the center of the city, we could have reconfigured the convoy or if they'd split up. It was a good thing we did it this way because we would have been in trouble once we got to the spaghetti junction.

Kuo: There were these big concrete barriers as well, so even the tanks would have had difficulty crossing over from one side of the road to the other. Plus, we also weren't sure what the traffic was going to be like. If we had faced a lot of oncoming traffic, it would have been very easy to have it get bunched up and block one side of the road, and then you have a whole column of vehicles that are just sitting there. That wouldn't have been good so we just stayed to one side of the road. Land navigation is tough in the city especially when you don't have any satellite imagery – or if the satellite imagery you have, like the one Bobby got, was old. Some of the construction that was going on and some of the things that were wrong with the roads weren't even on the map.

Question: How much of the column's navigation was dependent on that lead platoon leader?

Kuo: The whole column. All of it.

Question: So the lead platoon chooses the route and everything else is pretty much follow-the-leader?

Kuo: Yes. We all knew the route, but the problem was that we only had those 1:100,000 maps. Our route was literally an inch long on the map. That's no way to navigate inside an urban environment.

Gaines: The commander only had one map and he gave it to my platoon leader to navigate off of. The commander was behind me so he was pretty close anyway, but the map didn't show what was on the ground.

Question: Between the poor map – wrong scale, perhaps – the limited satellite imagery and whether or not there were visibility issues, how disorienting was this as you proceeded on either of the Thunder Runs.

Kuo: It wasn't that bad.

Gaines: It was good until we got to a certain point – the big junction. At that point, we had destroyed a lot of vehicles. They were burning, and there was a lot of smoke. We actually had to take a quick stop. We called up and said, "Hey, I don't know which ramp to take." It was hard to see. It was hard to keep your head outside the hatch, too, because we were getting shot at. Other than that, it was good because we could see where we were going and could continue on. It was just that one junction.

Kuo: It was a relatively smooth movement. Bobby found out he was on the wrong track almost immediately and he got us corrected, turned around and back to where we needed to go. The second Thunder Run went even smoother. We'd already done it. We'd already gone on that route; it was just that we made a big right turn to go to downtown at that point. Once you get on that big famous road between the airport and the Green Zone, then it's just a straight shot right downtown.

Gaines: It was an easy fix. Once we got on the ramp and were going up, we saw the ramp we should have been on. It's just like being on the regular freeway and seeing the exit you should have taken. In a tank it's easy to fix, though. Left turn, run over the barrier and continue on. That's basically what happened. As soon as we crested it, we knew it was the wrong one.

Question: Were signs still up?

Gaines: Signs were still up. My driver was reading how far we were from the airport, but if you know the spaghetti junction in Louisville, this one was five times as bad. We could see certain signs but a lot of them were obscured by smoke. At that point, we had shot a couple of BMPs underneath the underpass and they were smoking everything out. It was hard to see until we got through the smoke. There were a bunch of ramps coming in at one time.

Kuo: That one area had all these ramps coming in, there was the smoke, and the onramp was underneath a bunch of the other overpasses, so all that smoke was collecting in that area as well. Visibility was an issue. I even thought about popping smoke at one point. Underneath that underpass that would have been a big mistake, though, so I'm glad I didn't do that.

Question: Did you find it difficult to retain formation and prevent individual vehicles from becoming separated at any time?

Kuo: The only time we really had an issue was when Charlie Company's tank caught on fire and we kind of got spread out a little bit. They stopped and we kept going a little bit before they notified us that we were supposed to stop. For the most part, we were very good at keeping other vehicles that weren't part of the column, outside of the column. When they did get close, they usually weren't close for very long.

Question: Were you surprised by the intensity and close-range nature of the fighting during the Thunder Runs?

Gaines: We kind of talked about that before. We didn't know what it was going to be like. We'd had other contacts and other battles that we had fought and we discussed what it may be like prior to going in. We thought we'd be looking at a bunch of guys sitting on the side of the road, and that's pretty much what it was. I was surprised at how close it was. The answer would be, yes, it was close. Any time you were going for a sidearm or a carbine from the top of your tank, or you were shooting guys from as far away as me to you or double that distance, that's pretty close. That's not what tankers are normally used to.

Kuo: Or you're manually inputting the range for your coax, dropping it down to 100 meters. The intensity of it was expected. We were going into Baghdad, so most of us knew that it was going to be something of a high-intensity firefight, but we weren't anticipating it to be as close as it was. A lot of the highway was in a big bowl. So, for anybody to really get at us, they had to get into that bowl too. You had enemy all on the high ground and they weren't more than 50 meters away at times. Some of those buses unloaded guys at 20 meters. One guy tried to touch my tank at one point, and I wasn't too happy with that.

Gaines: Not only did you have the fighters and the local militia, but you also had the guys who were just shooting from their balconies and their houses. It was even hard to see where the faraway shots, which were pinging off your tank, were coming from. They were coming from the apartments, buildings and rooftops along with all the other guys on the roads, the overpasses, the bunkers, the underpasses and the foxholes.

Question: What about when it came to fire discipline and coordinating fires as the column was moving through the streets. What kinds of problems did you have?

Gaines: Our fire discipline was awesome. The amount of civilian traffic that was on the road in the beginning was light and, as the day began to go on, more civilian traffic got on. We were extra careful, and at one point I called my three-tank commander and said, "Watch out, you've got something." He was already braking triggers and letting civilians go. You could kind of see it. I know you talked about the bus on the side. If it didn't look right, we would take an extra second to look at it; and more often than not they would open up on you. Whether it was an ambulance, a school bus, a tour bus, a cop car or a fire truck, they pretty much used all of those vehicles to engage us. Our fire discipline was good. We talked about the oncoming traffic coming down the road; and if we couldn't really tell if a vehicle was civilian or not – and if then you could see them as they were going past your flank moving weaponry or something like that – you would call back to the platoon behind you. More often than not, the guy behind you would light them up. It was easy.

Kuo: I think the biggest challenge from my standpoint was getting some of my guys to take some of those danger shots. We were in a tank and if they (inaudible) your back a little bit – you have a guy off your right rear, you can't get at him and you need your wingman to take him out – normally you wouldn't shoot that close to another vehicle, especially your own vehicle, but every once in a while you had to do that. You'd just tell the guy in front of you to get down and then take that shot. I really had to train my guys to do that. I had to convince them to do it. "I want you to take that shot. If I get hit a little bit, I don't care. I'll be inside the tank and I'll be all right."

Gaines: We joked about that prior to, that if you heard your call sign and the word "Duck!" you needed to get down. My lieutenant was right in front of me and we were all shooting at the same stuff all around us. He had some guys approaching him on his right flank and the shot was right over his right shoulder. I knew where I was, I knew where my weapons system was pointing and I started shooting. I remember him looking back over his shoulder. I sent a radio transmission, telling him it was me and he said, "Keep it coming." We shot really close. We did stuff you would never do in training.

Kuo: It was almost stuff they train you not to do to a certain extent, but in those situations you have to do it and you have to take those risks. That's part of being in combat. You take certain tactical risks in order to accomplish what you're trying to do. We got a lot of looks when we talked about this when we got back, especially in the Career Course. I definitely got some looks about it but it was something that needed to happen at that point.

Gaines: Even after those battles, my lieutenant would bring back a handful of the petals that were from a sabot petal or an impact petal that discard off the rounds. He'd pull quite a few out of his bustle rack. It was close but it was a risk you had to take, and we knew it going in. We stayed close to keep the convoy tight, the security up and keep vehicles from penetrating the convoy.

Platform Command—Sgt. First Class Jason Hall, tank commander, 2d Platoon, Alpha Company, 1-64 AR; Staff Sgt. Chad Walker, loader and driver, Charlie Company, 1-64 AR

Question: After the first Thunder Run, did you have to do much in terms of vehicle maintenance to get it battle ready for the second thunder run?

Hall: My tank was on its last leg. I used to joke with my gunner all the time that I didn't think we were going to make it. I could just see my tank dying in the middle of the fight. It would backfire and would backfire so loud that it would sound like a mortar round was coming in. It was pitching black smoke and I knew it wasn't going to make it much longer. When we got the order that we were going into Baghdad that was the first thing on my mind. I said, "I hope this thing makes it. I don't want to have to bail out of my tank in the middle of Baghdad." I was missing two road wheel arms that had been sheared off. They were chained up to keep them out of the way of the track. The engine was about to go. Our maintenance guys did a fabulous job of keeping it running even without hardly any parts coming in. The parts just weren't coming. I don't think they made it across the Karbala Gap. They were still back waiting to come forward by the time we were ready to do the Thunder Runs, so we had to go with what we had.

Question: Did you resort to cannibalization of other vehicles?

Hall: Definitely. That's the only way we got parts. That was a big thing. If your vehicle went down, it wasn't coming back up because it was going to be used to fix all the other vehicles. The platoon sergeant's tank in Red Platoon, his gun tube name went all the way to Baghdad. We got to Objective Rams, though, his tank didn't make it. His power pack failed him and he got stuck. The bottom line was that his whole tank got cannibalized. We used to tell him that his tank did still make it to Baghdad, there were just pieces of it everywhere in other tanks. I had his LRF.

Question: How were targets handed off from one vehicle to another?

Hall: I think we did exceptionally well at that. I remember many times either getting a target or passing a target off to the tank behind me. A lot of times the enemy was dug into bunkers and things and we wouldn't know if we had taken them out. We'd pass on descriptions of what the bunker was or where it was at to the next guy. With the tanks being staggered, it would take two tanks back in order to engage that same target because the

tank behind me would be on the right side while I was on the left. The passing of targets was actually very important.

Question: Was that something you guys had trained on before you crossed the berm into Iraq?

Hall: Not really. Our Table 12s have us giving descriptions on how many things we engaged and destroyed but not a lot of passing targets back. Everyone just seemed to understand they had to do it and it was the obvious thing to do.

Question: How much maintenance did the crews in your platoon perform on the vehicles once you crossed the berm into Iraq?

Walker: We did maintenance every day, especially with Charlie 65. We encountered a lot of problems with that tank. About four hours after we crossed into Iraq, we had a dog bone just break apart and shatter. A scavenger fin went out and I think we had a uniter go out on us as well. We didn't catch up to the battalion until just short of An Najaf.

Question: So your vehicle basically dropped out of the formation?

Walker: Yes. We picked up a lot of other disabled vehicles along the way, made our own little column and kept on marching to An Najaf.

Question: I take it that there were a lot of vehicles having maintenance issues that were falling out?

Walker: Yes. The tank is like a mean child. You have to give it a lot of care and, if you don't, it will weigh down on you.

Question: Were some of the maintenance issues due to the age of the vehicle or was it something more specific to the way it was being used and the types of terrain you were driving over?

Walker: I'd have to say the terrain and the way it was being used. I don't think it was designed for that type of abuse. From the time we crossed the border, it was full throttle and get there as fast as we could. I don't think the tank was equipped for that kind of fight.

Editor: The Thunder Runs into Baghdad constituted the first major urban combat operation conducted by armored/mechanized assets in many years. In the decade prior to Operation Iraqi Freedom, military operations on urban terrain (MOUT) received a lot of academic attention, but they did not become a staple of armored training. Moreover, the initial plans for the invasion of Iraq anticipated armored columns reaching Baghdad, where they would remain outside the city, supporting infantry elements charged with actually capturing the city. The situation changed, however, and armored forces not only reached the capital first but also became the first to conduct combat operations within. The interview comments highlight the key impressions and insights of those who participated in the Thunder Runs, particularly underscoring the importance of battle drills, gunnery, familiarization with weapon/unit capabilities, and the application of ingrained skills to a unique environment. The emphasis given to maintenance and supply concerns reflects the challenges faced by armored soldiers responsible for conducting combat operations in a hostile city after a period of continuous movement and combat that posed challenges for unit sustainment. These operations underscored the importance of planning, preparation, and training, while the execution of the Thunder Runs highlighted the combat power of an armored task force even in the constrained environment of a major city.

Tank Company Urban Assault

Editor: This article provides a detailed description of an attack by tank company elements to relieve a dismounted team isolated and pinned inside Sadr City in April 2004. The action is described by Capt. John C. Moore, who commanded the operation. The article first appeared as "Sadr City: The Armor Pure Assault in Urban Terrain," in the November-December 2004 issue of *Armor*.

The Crusaders had been operating in Sadr City since October of 2003 when an ambush in the city killed and wounded a number of troopers from 2d Squadron, 2d Armored Cavalry Regiment (2/2 ACR). From October 2003 to April 2004, constant operations in Sadr City had familiarized the 2d Battalion, 37th Armor (2-37 AR) with the local terrain, which proved vital during the attack.

The 2/2 ACR redeployed to Fort Polk, Louisiana, in March, and the Crusaders began to work for 2-5 CAV (Lancer), which had assumed responsibility for Sadr City. The Crusader's carried out two major combat operations to relieve Comanche Red, which led to a 3-kilometer fight out of Sadr City to evacuate the platoon and their casualties.

The Initial Attack by Crusader Blue Platoon

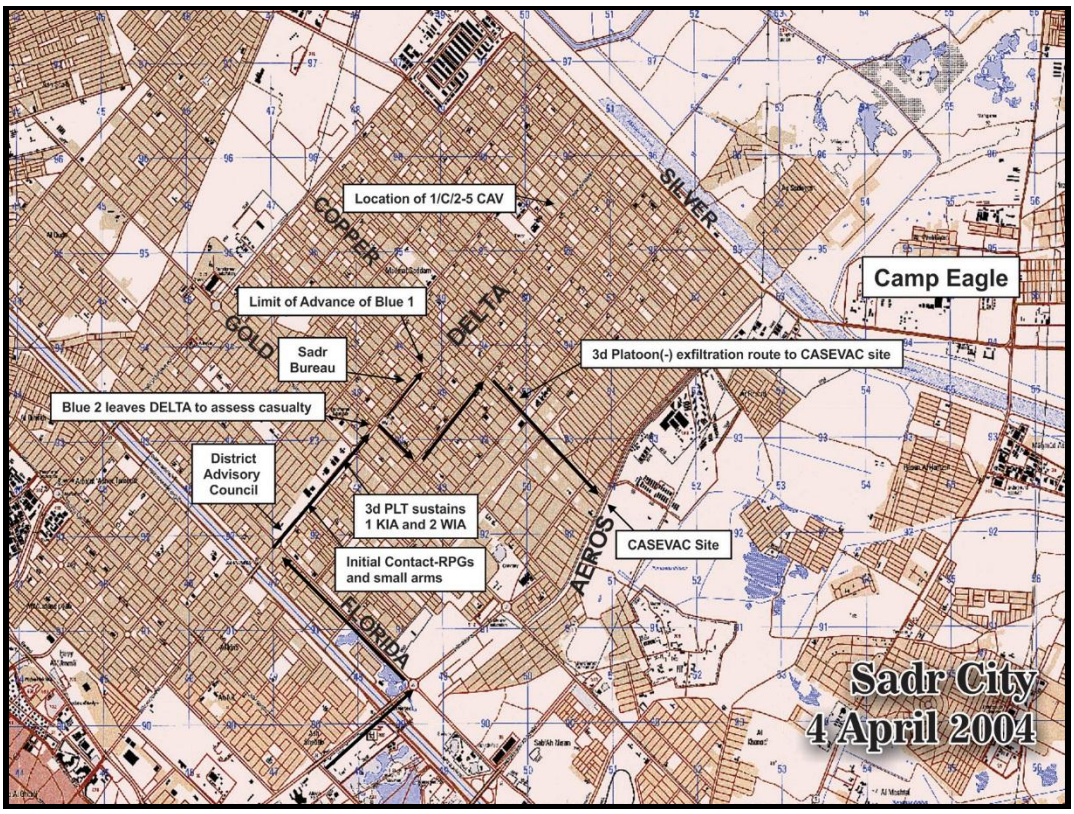
Crusader's third platoon, with four M1A1 tanks, stood by as a quick reaction force (QRF), on order from the commander of 2-5 CAV, as a result of perceived higher tensions in Sadr City.

At approximately 1630 hours, following Lancer's decisive contact throughout Sadr City, Lancer Main called Crusader X-Ray and informed Crusader to ready the QRF immediately and send it northeast of routes DELTA and COPPER to relieve Comanche Red, which had suffered casualties and was isolated and in continued contact. Crusader Blue left its operations base at the Martyrs' Monument within 10 minutes and proceeded northeast along route AEROS and then northwest along route FLORIDA to begin its attack northeast up DELTA to relieve Comanche Red. Crusader Blue turned northeast on DELTA and had initial contact just north of the district advisory council (DAC).

Crusader Blue fought for several minutes traveling northeast up DELTA toward route GOLD and received several rocket-propelled grenade (RPG) rounds from the buildings on the eastern side of DELTA, none of which hit the tanks. Small-arms fire was very intense, however, and came from both sides of the street. All four Crusader Blue tanks engaged the enemy on both sides of the road with coax, .50-caliber, and M240 loader's machine guns, M4 carbines, and M9 pistols. Many of these attackers were dressed in Iraqi police uniforms, and third platoon substantially reduced the attackers' numbers.

Blue 1 ordered the platoon to continue to fight north. After fighting past route GOLD, RPG and small-arms fire continued, and about 500 meters northeast of GOLD on DELTA, Crusader Blue suffered three casualties. Blue 2 decided to move off of DELTA to get to a position where he could assess the casualties. He turned southwest off of DELTA between route GOLD and the Sadr Bureau, then traveled southeast to route CHARLIE. Crusader Blue followed his move. Blue 1 ordered his platoon to follow his move back to route DELTA and continue the attack. At the same time, Crusader 5 informed Crusader Blue that they should move their casualties to a hasty casualty collection point (CCP) at the intersection of routes AEROS and COPPER. Blue 1 brought his tank back to DELTA and turned northeast, but the remainder of the platoon continued to the hasty CCP. Blue 1L informed Blue 1 that the other tanks in the platoon had not followed. Blue 1 immediately ordered the tanks to consolidate at the DAC and continue their attack.

The platoon's other three tanks moved to the CCP to conduct casualty procedures. After the casualty exchange and receiving several hundred rounds of 7.62mm ammunition from Crusader White in an up-armored high mobility, multipurpose wheeled vehicle (HMMWV) platoon, the three Crusader Blue tanks returned to the DAC and consolidated with the unit. As the C Troop commander, I was at Camp Cuervo, battalion headquarters, during this operation and immediately returned to the Martyrs' Monument to ready the three remaining tanks to join Crusader Blue to form a larger element with which to conduct a subsequent company attack.



Crusader Attacks

On arrival at Martyrs' Monument, I mounted my tank with my crew and proceeded to the DAC using the same route as Crusader Blue. A section of two tanks from Crusader Red also arrived, bringing the company's strength to seven tanks. Both radios on my tank were not working, so I jumped to Blue 1's tank, which had communications on both company and battalion nets. Blue 1 became my loader and Blue 1L went to my tank. I knew Comanche Red had been isolated for almost an hour and wanted to start the attack immediately. After Blue 1 explained the situation, the company was organized into a staggered combat column, which I led on the left and Red 1 led on the right. I organized the platoon sergeants to follow with their tanks to bring up the rear of the six-tank staggered combat column. Crusader Blue 3 remained at the DAC to secure the site, which had a number of 2-5 CAV soldiers there with one of their HMMWVs destroyed. I called Lancer 6 and gave him my capabilities concerning vehicles, weapons, and ammunition and requested permission to attack. Lancer 6 gave the order to attack northeast up route DELTA. We attacked immediately.

We came under intense small-arms contact 300 meters north of the DAC from both sides of the road, just as Crusader Blue had experienced earlier. We fired coax and .50-caliber to kill and suppress the enemy and continued to move. Two to three hundred meters south of route GOLD, we received RPG fire, and small-arms fire began to accurately hit our tanks. Red 1G returned fire with 120mm high explosive antitank (HEAT) rounds at RPG positions on the southeast side of DELTA, 500 meters to our front.

The hydraulic servo valve (Delta P) went out on my tank and I was forced to fight in emergency mode, which meant stopping to stabilize the main gun and coax machine gun for the gunner. Given the constricted terrain and better position for command and control at the front, I was not willing to send another tank to assume the lead of the left file. After we passed GOLD, fire intensified with the company receiving more than a dozen RPGs, none of which hit. All of them seemed to hit short and the overwhelming majority of them came from ground level. There was an attempted top attack on my tank from the southeast that missed long.

The enemy primarily concentrated on using alleyways, shop windows, and low roofs of one-story buildings to assault. They were very persistent and were very difficult to suppress. Many of them had good tactical patience and waited until we were within 150 meters to fire. Their fires were more effective, but their close proximity meant they usually could not escape down alleyways or through shops before we engaged with

either .50-caliber or coax fire. We fired three HEAT rounds during this portion of the fight. They almost always engaged from the front flanks in the more open terrain southwest of the Sadr Bureau.

This changed as we approached the Meredi market area and the large traffic circle with the large al-Sadr mural north of the Sadr Bureau. In this area, there are a large number of kiosks and commercial stands that encroach on the street, providing cover and concealment for the enemy. I fought open hatch the whole way and ordered Red 1 to do the same, as we were very vulnerable from the flanks as we approached the market and could not traverse our turrets well there. Blue 2 also went open hatch because he was ordered to bypass on the left and establish a support-by-fire (SBF) position on the company's left flank to facilitate left flank security as we inclined to the right up DELTA toward the mural.

The dense shop stands forced our company into a file on the northeast side of DELTA as we proceeded to the northeast. The market area was the scene of very heavy fighting with coax, .50-caliber, M4 carbines from turrets, M240 loader machine guns, and M9 pistols. We received heavy small-arms fire and engaged and destroyed the enemy as close as 20 meters on our flanks as we broke out of the market to the northeast. Blue 2's SBF allowed Red 1 to take the lead from the right and I followed though the canalized section of DELTA at the Meredi market. Blue 2, Red 4, Blue 4, and Crusader 6G followed in file until we could break out to the northeast and resume a staggered combat column.

During this time, we received confirmation of Comanche Red's location in a section of buildings northwest of DELTA. I coordinated with Comanche Red 1 on the battalion command net for our arrival and he updated me on the situation. We coordinated nonstandard casualty evacuation, which would be done on our tank turrets, and prepared his platoon for our arrival. We continued the attack to Comanche Red's position under intense fire. The sun had started to go down when we began the Meredi market fighting and it was very near end evening nautical twilight (EENT) when we arrived at Comanche Red's location. The fight through the market near the Al Thawra Iraqi police station was brutal and very close to a great number of barriers and burning barricades.

The company attack from the DAC to Comanche Red's location was four kilometers and it took us over an hour and a half to fight. My primary concern was to preserve my force and remain focused on killing the enemy and clearing the route for any additional casualty evacuation or recovery efforts. Comanche Red 1 confirmed that none of his four wounded were urgent. Additionally, DELTA had very poor trafficability with dozens of burning roadblocks and roadblocks consisting of large metal objects such as air conditioners and refrigerators. These obstructions caused us to set multiple SBFs along the route to allow either Red 1 or me to maneuver on the obstacle and attempt to reduce it with our tracks. The roads and alleyways that ran perpendicular to DELTA all had to be cleared by gunners before the column could advance because we identified early that the primary RPG threat was to the flanks.

On arriving at Comanche Red's location, I set far side security with four tanks and two of my tanks provided center sector and rear security. Fire at this location remained intense for several minutes. The enemy assailed us from windows and rooftops. Our most effective weapons were carbines and loader's M240 machine guns in the center and to the south. I dismounted and ran down the alleyway where Comanche Red Platoon was defending.

I assessed the situation and informed Comanche Red 1 to account for his men and equipment, and I would load the casualties onto my tank and lead the way out. My tank was also in closest proximity to the alleyway where they had established a platoon defense. Contact remained constant and intense to the northeast. After I dismounted my tank to coordinate with Comanche Red, Blue 1 reapportioned our defense, reloca ing Blue 4 to cover an exposed alley across the street on DELTA from the alleyway in which Comanche Red was defending. Blue 4 killed many enemies in this alley that had been firing down the alley at Comanche Red and me.

Gunners on the forward four tanks killed at least 15 enemy soldiers, all at ranges under 100 meters. Blue 1 and I engaged attackers in the south with carbines as close as 20 to 30 meters, while the infantry platoon readied to load on our tanks. Duke 6 arrived with his tank and distributed ammo to our tanks as we were going black on both 7.62mm and .50-caliber ammo. I remained on the ground and went back to the infantry platoon and supervised as casualties were loaded onto my tank. Comanche Red had three HMMWVs; one had been destroyed and burnt to its frame.

The enemy continued to attack from the north as we were stationary. They attacked three times using cars or vans, all of which were destroyed and their occupants killed. The enemy attempted drive-by shootings with their lights off, but they did not drive quickly and were easy targets for coax engagements. Civilian cars blocked Comanche Red's path from the alleyway. They had to use their HMMWVs to push these cars out of the alley way, which took a long time. It took us about 30 minutes at this location to develop and brief the plan, conduct casualty evacuation, and clear the alleyway to get the HMMWVs. We were in contact with the enemy the entire time.

After we accounted for all friendly personnel and equipment, we continued to attack northeast up DELTA to turn south east down SILVER to return with casualties to Camp War Eagle. Route SILVER is very narrow, so I ordered the company to close to a file and follow. I attacked with Blue 2, Red 1, and Red 4 behind me. Two of the 2-5 CAV HMMWVs followed the four lead tanks. Blue 4, the third 2-5 CAV HMMWV, and then Crusader 6G was in the rear. Contact on SILVER was as intense as it was on DELTA. On the northeast (left, given direction of attack) of SILVER is a canal with generally open fields of fire. To the southwest (right) there are a row of houses and shops. We had heavy contact at the intermittent shops, but little from the houses.

B Troop, 2-37 AR (Battlecat) had set a defensive position at the intersection of routes SILVER and AEROS, which was to our front, so we could only engage with coax once we were fairly close to their position. Carbine engagements from tank commanders' hatches on the right side of the tank turrets proved most effective. The first five tanks and two HMMWVs fought all the way to Camp War Eagle using this method.

The infantry fought amazingly with multiple tires shot out on their HMMWVs. It was a great help to have the infantry on the turrets; they easily and effectively engaged the enemy. The last HMMWV broke down and Crusader 6G pushed the HMMWV with his tank at speeds of about five miles per hour for two kilometers to Camp War Eagle. About two-thirds of this distance was along SILVER where contact persisted. Crusader 6G engaged enemy on roofs and in alleyways with his M9, M16, M203, and .50 caliber, while commanding the tank and instructing the driver on how to safely push the HMMWV. Blue 4 returned to provide security to Crusader 6G and Duke 6 followed our march element to provide rear security.

When we arrived at Camp War Eagle, we downloaded the casualties from Comanche Red and entered Camp War Eagle to refuel and rearm. We also received some equipment that White 1 had brought to us, including more night-vision devices and a .50-caliber machine gun to replace the one that had been destroyed during the fight. I proceeded to the tactical operations center and debriefed Lancer 6 as my men refueled and rearmed. I then conducted adjacent unit coordination with Comanche Blue Platoon for a subsequent mission to move in and secure the Al Thawra Iraqi police station. This would begin the sixth day of constant intense night defenses of Iraqi police stations in Sadr City.

The Power of Experience

The company attack, relief of Comanche Red, and attack to Camp War Eagle lasted over three hours. We were in constant contact the entire time. There were many salient lessons learned from this attack:

Reconnaissance by fire is very effective against strong dismounted opposition in urban terrain. The Mahdi army fought very courageously and demonstrated good tactical patience waiting to engage until we were within effective range of their weapons systems. However, the Mahdi army was not disciplined once engagements began. They rarely waited for flank shots with their RPGs, electing instead to fire at our oblique fronts so that they still had time to escape. Their positions offered little or no mutual support and they had a tendency to break contact or relocate when we conducted recon by fire. This was especially critical at the Meredi market where both main gun and coax machine gun fire flushed many of the enemy out of the cover and concealment they took in the dense market stands. The enemy usually tried to exfiltrate away down alleyways, but often had to run from positions of concealment to these exfiltration routes, so it was easy for us to anticipate where to kill the enemy. Tanks in second positions of the combat column could cover these exfiltration routes as lead tanks flushed these enemy elements out of concealment and cover.

During military operations in urban terrain (MOUT), tank units without infantry support need to fight open hatch. Naturally, there are terrain considerations in Iraq that would affect this, but even when surrounded by buildings three or four stories tall, it proves to be most effective, as you can fire rifles and

carbines out of your turret hatches without exposing the loader and tank commander. The enemy fought primarily from ground level. We killed a number of enemy on rooftops, but constant fire from our coax machine guns and .50-caliber machine guns kept them from putting together cohesive attacks from two- and three-story building rooftops. Reflexive fire from loaders and tank commanders with carbines accounted for a substantial number of enemy casualties on rooftops at ranges under 50 meters. During this and subsequent battles, the enemy fired almost constantly from the hip. They all fired on automatic and did not appear to aim their shots. Our loaders and commanders were exposed from the shoulders up, but could deliver very accurate fires at close range and showed the discipline to do so.

The close proximity of light poles, vending stands and buildings severely limited our ability to traverse the turret. The only way to cover our exposed flanks in this congested terrain was to fight out of hatch. Tank commanders and loaders were somewhat protected from the most common threat, which was ground-level fire. Tank units unsupported by infantry in MOUT need to assume the risk of tank destroying systems in constricted terrain. Tank commanders and loaders can also positively identify enemy and noncombatants if they can see them from the turret, thus limiting unnecessary deaths.

Once battle is joined, Mahdi army elements demonstrated incredible commitment to recover their casualties and equipment. Once we inflicted casualties on the enemy, continuous coverage of the location where their soldiers were down proved key. Mahdi army soldiers would often try to assist their comrades and expose themselves to our fire when they tried to conduct casualty evacuation or recover weapons. This is specifically effective at night because the enemy often fought in squad-sized elements. If a crew only identified a few enemy troops, there were very likely more troops close by in cover or concealment.

Mahdi army elements are inexperienced with the RPG. There was a very high dud rate on our tanks and many of the near misses were duds as well. One RPG dud bent the lip of the turret ring on my tank, but that was all. Who knows whether they failed to properly arm the RPG or if it was just poor ammunition?

I saw three RPGs launched at my tank that initially appeared to be coming right at the front of the tank, but they all dropped short, one skipped under the tank, one exploded short, and one failed to explode as it skipped into our right track and deflected across the line of march of my right file of tanks.

Mahdi army elements set many burning roadblocks that had to be destroyed immediately. After contact, Mahdi army personnel continued to roll tires and combustible objects into roadblocks. Red 1's gunner killed at least one enemy improving a roadblock just 400 meters north of the DAC at the outset of our company attack. Construction or maintenance of such roadblocks during combat operations in a hostile combat environment constitutes hostile enemy intent. After the initial fusillade of RPGs from behind the thermal concealment of roadblocks, I ordered my company to destroy any enemy who was building or reinforcing obstacles, whether or not they had observable weapons. Reconnaissance by fire at these locations is critical.

Mahdi army elements are intimidated by 120mm main gun engagements. As soon as we began destroying the enemy with 120mm main guns, the enemy broke and ran. These engagements were often at short ranges where the concussive effect of the cannon was lethal, even if the enemy was not directly hit by the rounds. This proved to be the case during the nights of continuous Iraqi police station defenses. *[**Note:** The unit was lucky to have any 120mm ammunition at all. It had turned in its main gun rounds the previous day as part of preparation for redeployment. However, one of the platoon leaders managed to secure the ammunition from another unit, which then had to be distributed among the vehicles and loaded. This process was completed at the DAC while the unit was under fire.]*

120mm HEAT is better than .50-caliber for limiting collateral damage. Commanders at all levels need to understand this. Tanks engaged snipers firing from windows with .50-calibers, and dust was flying from windows, six windows down from the point of impact. This was particularly true of tanks firing armor piercing incendiary (API).

We need .50-caliber ball with tracer. API was penetrating too far and there was too much of a risk of killing innocents. HEAT causes a great deal more structural damage, but dissipates after one or two rooms, killing everybody at the point of impact. We need to think of collateral damage more in terms of innocent civilians being killed, rather than reconstructing buildings used by the enemy. Using 120mm HEAT has more of a decisive tactical advantage and limits unnecessary deaths.

All tanks require two radios. Leaders need to be able to fight from any tank with dual-net capability. We have driven our tanks a fleet average of over 4,000 kilometers during this tour and maintenance is always

intensive. The mileage requirements during a year of combat operations in Iraq are eight times the average annual mileage allotment. Tanks will be down for maintenance at a higher rate than usual. The decentralized nature of combat in urban terrain requires several units to operate on the battalion command net. Tanks need the ability to have one radio on the most relevant command net for combat action and one for internal coordination. This would not be expensive and would facilitate command and control.

Air ground integration (AGI) during company-level attacks is critical. Lancer Battalion (and particularly Lancer 3B) did a great job with AGI. Comanche Red was isolated, had casualties, and insufficient vehicles to exfiltrate. The intelligence received from the aero scouts on the battalion command net was essential for gauging whether we could remain force oriented in our attack northeast up DELTA. If it appeared that Comanche Red was in danger of being overrun, we would have to bypass very stiff resistance at great risk to relieve them immediately. Although Comanche Red was unable to move from its position, it was very defensible, and the aero scouts told me they did not appear to be in danger of being overrun, despite continued contact at very close quarters.

Communications net selection in MOUT must remain flexible. We fought the entire attack on the company command net. This was necessary as the compartmentalized terrain caused us to change formations frequently, making it impossible to keep platoons in set piece formations without fragmenting the attack's tempo. Also, given the proximity of the enemy with RPGs, we all needed to hear crews calling out new threats, if we could not kill the enemy immediately. There was not time for relaying information from platoon net to company.

The company executive officer listened to one net at our command post and determined what we needed to continue combat. This allowed me to take consolidated reports on company command regarding battle damage, as well as make class V requests without having to stop fighting. Crews cannot crowd this net. Tank crews fought and reported, but always cleared the net, just in case I had something critical. The tempo of close quarters urban fighting is too fast to relay traffic from wing tanks to platoon leaders/platoon sergeants and then to the commander or XO.

The battalion staff must constantly update maneuver commanders on the fluid friendly situation in urban terrain. Lancer Battalion's staff gave us advanced warning of each of the three times we gained visual contact with friendly forces in Sadr City. Lancer 3B told me when a Bradley QRF would be visible in the vicinity of Route GOLD, which enabled me to warn my unit that we would have friendly vehicles and potentially dismounted infantry to our right flank as we attacked northeast up DELTA. Lancer told us precisely where Comanche Red was isolated so we could adjust our fire-control measures to mitigate the risk of friendly fire casualties. We inflicted no friendly fire casualties and sustained none despite the intensity of this three-hour fight.

Commanders must constantly update their crews on rules of engagement (ROE) as the fight develops. Many of the situations we faced demanded the subjective decision to fire or not to fire. There was a large volume of civilians in the battlespace as this combat zone was a densely populated urban area. It is not always intuitive when to shoot or not shoot, and commanders need to assume the responsibility of ordering which targets are engaged and which ones are not.

The commander must constantly update fire-control measures in urban terrain. Frequent formation changes, shaped by both the enemy and terrain, forced the commander to constantly reapportion fires to facilitate security. Tanks at the front of the march column must concentrate on the front, but threats from alleyways meant tanks had to handoff as they passed alleyways to ensure the enemy did not use them to assail our flanks. In these concealed locations, the enemy detected us as we passed, but usually did not engage lead tanks. The enemy moved to attack after our forward element passed, meaning the trailing tanks took the brunt of flank attacks. The enemy remained focused on approaching tanks and failed to realize the threat imposed by tanks that had already passed. The loaders and tank commanders on tanks that had already passed by the enemy took the enemy by fire as the enemy exposed their flanks to these tanks.

Commanders and platoon leaders should lead from the front of attack formation even when in file or column when fighting in urban terrain. Doctrine places leaders in the middle of the formation to facilitate command and control in most cases. But in urban terrain, where combat is all close quarters and only leader tanks have the ability to talk to higher headquarters, these tanks are the logical choices to lead from the front. This technique also inspires confidence in the men. This is especially the case during unplanned operations,

such as quick reaction force missions during which subordinates may have a limited understanding of the situation as it evolves. During six task force attacks in An Najaf and Kufa in subsequent months, this also facilitated better adjacent unit coordination with sister companies and troops, as leader tanks with two radios could drop to the adjacent unit net or contact the adjacent unit on battalion command to establish that we had gained visual contact with them or audio contact of their fight.

Combat in urban terrain is very fast. Besides, the enemy gets to vote much quicker and it is not often possible to fight in accordance with the plan. A unit can accomplish any mission if everyone understands the task, purpose, and desired end state. Flexibility is the key to success. Commanders must cultivate a command climate where the most junior enlisted soldiers feel comfortable reporting on the company net. Given the tempo of the close quarters fight, commanders must also trust subordinates and empower them to act within the constraints of the commander's intent even before reporting to the commander what actions the element is taking. A challenge for commanders and leaders in the urban armored fight is to develop innovative techniques and ensure that soldiers understand them. Commanders must explain the necessity for adaptation to subordinates so that they clearly understand how the commander wants to fight.

This article is dedicated to the heroic actions and memory of three Crusaders: Staff Sergeant Mike Mitchell, Specialist Nick Zimmer, and First Lieutenant Ken Ballard.

Editor: CPT Moore's conclusions are worth reading and contemplating. In addition, leaders in urban combat should anticipate a higher degree of intensity. In this instance, the first relief effort collapsed when platoon casualties forced the unit to secure and evacuate its casualties. The second attack with additional tanks ultimately proved successful due in part to the increased combat power available and the ability of all platforms to engage multiple targets simultaneously.

The comments regarding Mahdi militia ineffectiveness and inexperience with the RPG should not be applied universally to all such organizations. The skills and capabilities with the weapon set used by the Mahdis in 2004 have grown considerably throughout the Middle East and beyond. Paramilitary access to RPGs much more powerful than the familiar RPG7 requires increased caution in preparations to deal with militia-type opponents. Similarly, the growing use of snipers or sniper-like capabilities may limit open hatch operation in urban areas, either when snipers are used alone or with attacks on the tank from varied heights and angles.

The author correctly notes the intimidation effect of the 120mm upon the Mahdis, but the same effect has been observed among most light infantry organizations when subjected to direct fire engagement by the tank's main gun.

Leader placement in this type of operation should be an important planning consideration. There is probably no single correct answer. The rationale herein makes sense, but would it still make sense if either or both of the leader's tanks had been knocked out, possibly eliminating the leadership as well as the unit's ability to communicate with higher headquarters?

Operation Smackdown: An Armored Task Force in Kufa

Editor: In 2004, American and COalition forces found themselves engaged in a multi-faceted fight against both Sunni and Shiite militias. Combat actions became more frequent and often occurred in urban areas. The following article depicts the role of TF 2-37 Armor in the battle of Kufa. It first appeared as "The Fight for Kufa: Task Force 2-37 Armor Defeats al-Sadr's Militia," in the November-December 2004 issue *Armor.* The author, Maj. Todd E. Walsh, served on the command and staff of 2-37 Armor.

As coalition forces entered their second year of the war in Iraq, the 'Iron Dukes' from Task Force 2d Battalion, 37th Armor (TF 2-37), attached to the 2d Armored Cavalry Regiment (ACR), headed toward the holy city of Najaf and its smaller sister city, Kufa, to suppress the widespread April Mahdi militia uprisings. Najaf and Kufa had become a base of power and influence for Muqtada al-Sadr and his militia.

Al-Sadr, a radical Shi'a cleric who derives his legitimacy from his martyred father, was intent on driving a wedge between Iraq's interim governing council, coalition forces, and the large Iraqi Shi'ite population. His militia, or Mahdi army, had initiated the uprisings across Iraq during the first week of April 2004 to hinder coalition and Iraqi security efforts and jeopardize regional stability needed for the forthcoming transitional government. Al-Sadr's center of influence lay in the old town of Najaf, near the revered Imam Ali Shrine, and his militia had spread to Kufa in an attempt to control its inhabitants and key bridges to the two cities. Located roughly 150 kilometers south of Baghdad along the Euphrates River, the cities of Najaf and Kufa are separated by only a few kilometers of suburban sprawl and industrial park, the locale where Task Force 2-37 was positioned to protect coalition provisional authorities and to better strike the enemy.

On 22 April, in a brilliant feint by the 2d ACR, using the 3d ACR in a limited attack on the eastern bank of the Euphrates just east of Kufa, TF 2-37 moved under the cover of darkness, without incident from a distracted enemy, into forward operating bases (FOB) Hotel, Golf, and Baker to relieve exiting Spanish forces. That evening, the task force moved 29 M1A1 Abrams Integrated Management (AIM) tanks, 62 M966/1026-series gun trucks, 33 M1114 up-armored high-mobility, multipurpose wheeled vehicles (HMMWVs), 2 M1117 armored security vehicles, 6 M109 Paladins, 4 M1064 120mm mortar carriers, 2 towed 120mm mortars, and various combat support vehicles into the Najaf- Kufa city limits. Before the enemy could react to the infiltration of forces between the two cities, the Iron Dukes had forward positioned the task force in a lodgement that would eventually bring about the defeat of al-Sadr's militia — five bloody weeks later.

Over the next several weeks, the task force, composed of two tank companies, two light-wheeled ground cavalry troops, one up-armored military police company, one motorized combat engineer company, and a Paladin battery, deliberately expanded its zone of influence in Najaf and Kufa. The two tank companies and two light-wheeled ground cavalry troops were all task organized into tank and cavalry teams on arrival, giving the task force commander numerous tactical options for future missions.

Initially, it was tough going, with every patrol or logistics convoy subject to ambush whenever they left a FOB. Quick reaction forces, composed of a tank section or platoon, were released when contact was made, to further develop the situation. It became readily apparent that the enemy favored certain areas in the city to initiate attacks, and after identifying enemy-oriented named areas of interest, the task force took steps to target enemy cells.

Patrols did not continue movement after an ambush; the ambushed patrol or convoy had to get out of the kill zone and establish a base of fire, while maintaining contact with the enemy until a reaction force arrived to hunt down and destroy remnants. Sometimes this would take hours and would develop into a sustained firefight once the ambushers were either reinforced or cornered. The Iron Dukes had the time and tactical patience for a systematic and deliberate approach in dealing with the enemy after every ambush. This finally brought the task force freedom of movement along main supply routes into and out of the city, as the enemy's outlying forces were attrited.

As the task force expanded its battlespace, a number of operations were undertaken to apply continued pressure to al-Sadr's militia and political organizations. These operations were designed as limited attacks to gain intelligence, draw out enemy forces, and attrit as much of the enemy as possible.

A number of company- and task force-level operations were conducted throughout May in a successful effort to disrupt Mahdi militia command and control, isolate his remaining forces, and prevent his ability to reinforce and resupply. Attempts were also made to target several key lieutenants in al-Sadr's organization; some of these attempts were very successful. Elements of the task force captured al-Sadr's deputy and his chief political advisor in two separate raids, further limiting al-Sadr's control over his forces and his ability to make direct coordination with followers spread throughout Najaf and Kufa. Intelligence sources reported confusion among al-Sadr's inner circle of lieutenants, many of which had fled the area or had gone to ground. This set the conditions for the task force to fully isolate Kufa and any Mahdi militia therein from the rest of al-Sadr's army. Kufa operations were deemed less sensitive than conducting offensive operations in old-town Najaf, near the Imam Ali Shrine.

By the end of May, al-Sadr's remaining forces were split and isolated in the old town of Najaf and in a loose defensive perimeter around the Kufa Mosque. During the last week in May, rumors of talks between al-Sadr, Ayatollah Sistani, and local tribal leaders were ongoing in an effort to bring about a peaceful solution to the Mahdi militia problem. The constant pressure was working. Intelligence sources also confirmed that much of Najaf and Kufa's 750,000 inhabitants were fed up with the fighting and wanted an end to hostilities and called for the departure of the Mahdi army. With this backdrop, the task force began planning and executing a series of final attacks into the heart of Kufa to destroy remaining militia and seize weapons caches, keeping constant pressure on al-Sadr's organization to force a favorable political solution.

At 2200 hours on 30 May, TF 2-37 initiated Operation Smackdown, the first in a series of attacks into Kufa that would take place over the next 96 hours. The initial attack, which included Team Apache, A Company, 1st Battalion, 2d ACR; Team Iron, I Company, 3d Battalion, 2d ACR; and Team Crusader, C Company, 2-37 Armor, was a limited attack or probe to gauge Mahdi militia defensive positions around the Kufa Mosque.

The task force conducted the near-simultaneous and coordinated maneuver of its teams in a force-oriented zone reconnaissance directed toward the Kufa Mosque from the north, west, and south. Limits of advance were established 500 to 800 meters from the mosque, along the enemy's suspected perimeter defensive positions. Company/teams had to maintain full situational awareness of adjacent-unit progress and location during the reconnaissance to mitigate the risk of fratricide and prevent enemy infiltration in between and behind friendly units.

Crusader made contact as they entered the western side of Kufa, and Iron made contact as they conducted reconnaissance from the south along a more rural approach. Fighting continued for over an hour with multiple rocket-propelled grenade (RPG) and small arms engagements from alleyways and overgrown palm groves. Shortly before midnight on the eve of Memorial Day and just before elements of the task force were to withdraw from contact, two M1A1 Iron Duke crewmen were killed in action. A tank platoon leader from Team Crusader, and the other, a tank loader in Team Iron, died courageously while engaging the enemy and gaining vital intelligence for the task force. This intelligence would be used to take the fight to the enemy deeper into Kufa in the upcoming operations. The Iron Dukes confirmed 22 enemy fighters killed in action, as well as the composition and disposition of the Mahdi militia's outlying defenses and observation posts.

At 1800 hours on 1 June, the Iron Dukes initiated the second Kufa force-oriented zone reconnaissance of Operation Smackdown. The purpose of this follow-on operation was to further reduce the offensive capabilities of al-Sadr's militia within Kufa. Key tasks were to destroy enemy fighting positions that made up the enemy's perimeter defense around the Kufa Mosque and destroy al-Sadr's militia within western Kufa. In addition, the task force planned an information operation to mitigate any hostile reaction to the attack. This second attack, conducted in the late afternoon and timed to take advantage of daylight, included Team Aggressor, A Company, 2-37 Armor; Team Iron, I Company, 3d Battalion, 2d ACR; and Team Crusader, C Company, 2-37 Armor. This was another limited action designed to penetrate farther into the Mahdi militia defensive positions around the Kufa Mosque — with limits of advance as close as 350 meters from the mosque compound. This time, however, the task force offset the attacks, but still coordinated the maneuver of its teams to achieve a desired effect on the enemy.

Both Aggressor and Iron attacked from the south, covering the rural farmland and palm grove expanse south of Kufa, with Aggressor in the west and Iron in the east. The intent was to draw the enemy south away from Crusader's axis of advance through zone five, allowing Crusader the element of surprise and unimpeded movement to Phase Line (PL) Ginger.

Movement for Aggressor and Iron was canalized and slow, and all vehicles, including tanks, had to restrict maneuver to the roads. Aggressor had sporadic contact as they maneuvered to their support-by-fire position, and Iron's advance went unopposed. As the two teams approached their limits of advance, Crusader was launched into the attack. Heavy fighting ensued when Crusader reached PL Ginger, with the enemy resisting from positions around an abandoned police station and cemetery in the vicinity of target reference point (TRP) 003. Crusader tanks received machine gun and RPG fire from the Kufa Mosque outer wall, but continued their attack to limit of advance (LOA) Janie. The enemy also made several desperate attempts to reinforce his cemetery position, but was met with lethal precision tank fires, which quickly eliminated any elements that closed on the position in the crossfire.

The Iron Dukes confirmed another 40 enemy fighters killed in action, as well as the composition and disposition of the Mahdi militia's inner defenses around the Kufa Mosque. Within 36 hours, the task force would launch the culminating attack of Operation Smackdown, while maintaining the initiative and keeping pressure on al-Sadr's organization. If effective, the continued destruction of the enemy would allow coalition-backed mediators to meet any al-Sadr peace gesture from a position of power.

At 0630 hours on 3 June, the Iron Dukes initiated the final Kufa attack of Operation Smackdown. The purpose of this follow-on operation was to completely reduce the offensive capabilities of al-Sadr's militia within Kufa. Key tasks included destroying reinforced enemy fighting positions that made up the enemy's perimeter defense around the Kufa Mosque and destroying militia mortar positions in an occupied schoolyard just 300 meters northwest of the mosque.

For several days, forward operating bases Golf and Baker had been on the receiving end of enemy heavy mortar (120mm), but could not respond with counterfire due to the proximity of noncombatants to the enemy mortar firing positions. The task of eliminating the enemy's indirect threat in Objective Oakland was given to Iron Troop. Due to restricted urban terrain around the schoolyard and the need for Iron to get quickly onto the objective with surprise, the task force commander decided to have only two teams participate in the attack with the remaining combat power left available in reserve. Unlike the preceding operation, Crusader Troop would attack first along its axis of advance through zone five up to LOA Janie. This would put Crusader in a support-by-fire position (the anvil) to draw the enemy away from Objective Oakland and allow Iron Troop (the hammer) to attack from the north and seize its objective before the enemy had time to react and reposition.

Crusader started its attack shortly after 0630 hours and proceeded 500 meters into western Kufa before it made contact with the enemy. Contact was light and Crusader continued the attack to PL Ginger without losing momentum. At 0645 hours, Iron Troop began its attack from checkpoint (CP) 54 to 60 to 40. Iron Troop led with a tank platoon along this axis of attack followed closely by its organic cavalry. As the lead tanks approached CP 40, six subsurface daisy chain mines were detonated in the road, followed by enfilading small-arms fire from several large buildings to the southeast. Undeterred, Iron's tanks continued the attack toward Objective Oakland to set the outer cordon and provide the scouts needed security outside the schoolyard. As the tanks rolled up to and around the schoolyard complex, Iron's cavalry and mortar section attacked to seize the three large school buildings inside the compound.

Fighting broke out immediately within the school and room-to-room clearing became necessary. With mounted inner cordon scouts fixing and suppressing enemy on the second floor of the largest building, the clearing team closed in on the remaining enemy. Ten Mahdi militiamen died where they fought inside the schoolyard, leaving one 120mm and two 82mm mortars open for capture with a large stockpile of rounds. The enemy heavy mortar threat had been eliminated.

As Iron cleared the objective, Crusader reported movement of a platoon of militia toward the schoolyard from the south. Furthermore, the enemy, as reported by Iron's tanks, attempted another envelopment from the north with an additional platoon of dismounts.

As captured equipment was loaded from the schoolyard onto Iron Troop's trucks, the outer cordon of tanks and cavalry began contact with the enveloping enemy dismount force. The outer cordon had set deliberate positions at key inner city road intersections covering most dismounted avenues of approach into the schoolyard. Crusader disrupted the enemy's ability to effectively reposition forces in mass with precision tank fires, allowing Iron's outer cordon to destroy enemy counterattacking forces as they were piecemealed into the fight. This fight continued for about 45 minutes until enemy action had tapered off to just a couple of small groups of dismounts attempting to work the periphery, but were unwilling to make any concerted attack.

Once Iron's clearing team had loaded up their trucks with captured ammo and equipment, the task force commander gave the order to withdraw starting with Iron and then Crusader. The Iron Dukes confirmed another 41 enemy fighters killed in action, as well as the destruction of all Mahdi militia inner defenses outside of the Kufa Mosque.

Within 24 hours, the task force received word that the governor of Najaf had entered into serious deliberations with al-Sadr representatives over the terms of ceasefire and conditions for standing down the Mahdi army. Different sources speculate that the Mahdi army had been severely attrited in Najaf and Kufa during the preceding weeks with estimated casualties as high as 1,000 enemy fighters killed in action. There is no doubt that the constant pressure applied to the enemy by Task Force 2-37 Armor's force of arms, the discipline of its troopers in battle, and the ultimate sacrifice of those Iron Dukes who fell fighting the enemy, singularly contributed to the defeat of al-Sadr's militia in Najaf and Kufa. This measure of force led directly to the current stability enjoyed by the Najaf and Kufa inhabitants today. This article is dedicated to the lasting memory of Lieutenant Ken Ballard and Specialist Nicholaus Zimmer — Iron Dukes to the end.

Editor: The fighting in Kufa exemplified the effective employment of an armored task force. The tactics employed played to TF 2-37 Armor's strengths, particularly in terms of survivability and mobile firepower. The urban areas posed a challenge and restricted but did not stop the maneuver of tanks. In this case, Mahdi efforts to further constrain movement through the use of mines failed entirely. Nevertheless, any action in an urban area requires careful planning in the routes to be followed by the tanks, the careful integration of dismounted operations, and fire control measures to prevent fratricide among units attacking on converging routes. In this instance, the task force first established a lodgment in Kufa and then proceeded to isolate the town. Through a series of combat actions, described here as force oriented reconnaissance, the task force aimed at either locating and destroying militia elements or encouraging them into attacks. In either case, the superior combined arms combat power of the task force generally ensured such engagements ended with heavy Mahdi casualties. The task force was not obligated to hold terrain, and thus could maneuver, engage, and depart after inflicting the most destruction. The rapid attrition of militia forces, coupled with the task force's deliberate efforts to force the survivors into a steadily shrinking perimeter finally led the Mahdi leadership to seek a negotiated settlement.

Armor Battalion Full Spectrum Operations

Editor: This article highlights the adaptability of the combined arms battalion. It shows how one unit reorganized into combined arms platoons to perform a broad mission set suited to the counterinsurgency and stability operations required. Written by John P.J. DeRosa, it first appeared as "Platoons of Action: An Armor Task Force's Response to Full-Spectrum Operations in Iraq," in the November-December 2005 issue of *Armor*.

For decades, warfare experts have predicted that the nature of warfare will change in the 21st century. The nature of warfare has already changed dramatically. As the U.S. Army continues to move toward changes that will conceive, shape, test, and field an army prepared to meet the challenges of full-spectrum operations, Chief of Staff, Army (CSA) General Schoomaker asked, "I want to know if he [the division commander] can turn his three brigades into five maneuver brigades, and if I provide the right equipment, could they be one and a half more lethal than before…" (1) Specifically, CSA Schoomaker asked for the best war tested concepts of deploying and fighting, adding that proposals must be lethal, balanced, and modular. As the armor force is steeped in innovation and transformation, a parallel debate in *Armor*, raised the question, "Why not start with a combined arms team at the platoon level and only scramble when necessary, rather than continually re-task organize? What follows are four different answers to the challenges of full-spectrum operations centered on platoon level "units of action." (2)

Intelligence Preparation of the Battlefield

On receipt of the mission, the S2 began a detailed terrain analysis of our proposed area of operation. Initial analysis showed a diverse mixture of terrain that would have varying impacts on maneuver operations. Task Force (TF) 1st Battalion, 77th (1-77) Armor, "Steel Tigers," was assigned a total area of over 1,000 square kilometers, and it was immediately apparent that company sectors would each require their own unique approach to task organization based on terrain. From the open desert area south of Highway 1, to the jungle-like vegetation of Al Zourr, and the confined streets of Balad, each company would have unique terrain challenges.

The one terrain feature that would have the most impact, regardless of company sector, was the canal system. The Balad area is very agrarian and an endless system of canals crisscross the entire region. These canals vary widely in depth and width but are not fordable and can only be crossed at existing bridge sites. The small canal roads present an additional challenge to the maneuverability of armored vehicles. In most cases, they cannot support the weight or width of the M1 Abrams. The M2 is also constrained by these canal roads, although it does enjoy slightly more freedom of movement than the Abrams. Based on this analysis, the commander decided to weight his tracked assets onto the main supply routes/alternate supply routes and the open terrain south of Highway 1.

Operationally, Iraq is a complex environment of low-intensity conflict and political and economic reconstruction. Anti-Iraqi forces (AIF) tactics are low-level and fairly unsophisticated. (3) Their actions are usually limited to a single strike followed by an immediate withdrawal to avoid decisive engagements. The fights in Iraq are movements to contact against a relatively disorganized enemy force. Small ambushes against patrols and convoys are the preferred enemy tactic. Attacks occur in restrictive urban terrain in close proximity to businesses and homes; ambushes are initiated from orchards or dense agricultural terrain; improvised explosive devices (IED) are triggered along expanses of highways; and mortar or rocket attacks are constant.

The current operating environment (COE) requires tactical agility with emphasis on small-scale operations by infantry squads or tank sections. The porous nature of the COE allows AIF to become expert "exfiltrators," avoiding death or capture. Therefore, instant transition to pursuit is a necessity. More often than not, the pursuit is preceded by a transition from mounted to dismounted elements.

During operations in Iraq, it is also critical that all of a task force's elements perform reconnaissance. Operation Iraqi Freedom has accelerated the transition of the concept of the battlespace in replacing the concept of the battlefield. The COE produces critical requirements that demand commanders know their battlespace. The concept of battlespace requires commanders to navigate under limited visibility conditions, to move rapidly over great distances and synchronize their movement and communicate both vertically and

horizontally. In this brief review of required capabilities, the experiences in Iraq demand an internal capability to perform dismounted operations and extensive reconnaissance.

Task/Location	Reqts (Sqd/Plt)*	Freq (Day/Wk)	Pri
Combat patrol--LSAA Zone A--consisting of: route clearance, NAI overwatch, observation posts, react to indirect fire (as necessary), R&S vic LSA Anaconda	4 Plt	Daily	High
Countermortar patrol--N. Balad--consisting of: route clearance, NAI overwatch, observation posts, traffic control points, react to point of origin (POO) (as necessary)	2 Plt	Daily	High
Countermortar patrol--S. Balad--consisting of: route clearance--ASRs Linda and Amy, NAI overwatch, observation posts, traffic control points, react to point of origin (POO) (as necessary)	2 Plt	Daily	High
Route clearance--MSR Tampa-ASR Linda-ASR Amy--ASR Peggy including: observation posts, traffic control points	3 Plt	Daily	High
Combat logistics patrol, consisting of route clearance	1 Plt	1-2/Day	High
QRF--FOB PALIWODA	1 Plt	Daily	High
QRF--LSA ANACONDA	1 Plt	Daily	High
EOD Escort	1 Plt	As nec	Med
Force protection--FOB PALIWODA	1 Plt	Daily	High
Iraqi National Guard (ING) Training	3 Plt	2-3/Wk	High
Detainee transfer to FOB Remagen	1 Plt	1-2/Wk	High
SOI engagements including: city council Meetings--Balad & Yethrib, police station visits	1 Plt	3-4/Wk	High
Iraqi Police Service (IPS) training	1 Sqd	2-3/Wk	High
Fuel Escort to FOB Tinderbox	1 Plt	1/Wk	High
Detention center Ops	1 FT	Daily	Med
Mayoral cell: FOB maintenance, Iraqi civilian/contractor escorts	1 Sqd	Daily	High
Security/JCC (HHC-Balad)	1 Sqd	Daily	High
Crater analysis	1 Sqd	As nec	Med
Civil-Military Operations Center (CMOC) ops: CMO (S-5/CA), ING LNOs, IPS LNOs	1 Sqd	Daily	High
TF mortars	1 Plt	Daily	High
TF TAC personnel security detachment (PSD): T6 PSD: 1s SCT SEC, HQ66 crew; T3 PSD: 2x mortar squad, HQ63 crew; T7 PSD	1 Plt	Daily	High
TF M109A6 platoon: firing platoon, headquarters platoon	2 Plt	Daily	High
10 platoons on hand--23 platoons required * Annotate requirement in terms of a 24-hour period of time	Plt platoon Pri priority	Sqd squad FT firing team	Wk week

Figure 1. TF 1-77 Steel Tigers Troop to Task (as of 24 Aug 04).

Mission

The Steel Tigers' mission presented a non-traditional role for an armor battalion. Route clearance, counter-mortar/IED patrols, reconnaissance and surveillance, traffic control points, and raids constituted the bulk of operations. Everyday missions remained small in scale, notably by paired down platoons. The Steel Tigers' mission set included: route clearance; counter-mortar patrols; observation posts; traffic control points; quick reaction force (QRF) for Logistics Support Area (LSA) Anaconda; civil affairs, psychological operations (PSYOPS) and human intelligence (HUMINT) escorts; TF indirect fires; explosive ordnance disposal (EOD) escort; forward operating base (FOB) protection; named areas of interest (NAI) overwatch; counter-IED patrols; react to indirect fire; convoy security; QRF for FOB Paliwoda; spheres of influence engagements; TF tactical command post (TAC); detainee transfers; and FOB mayor requirements.

FOB Paliwoda

B/1-77 AR (Regulator)	
2/C/9 EN (Red)	3x M113, 1x M1114
2/C/1-18 IN (White)	4x M1114
3/D/2-108 IN (Blue)	4x M1114
HQ/B/1-77 (Black)	2x M1A1
C/1-26 IN (Rock)	
1/C/1-26 IN (Red)	4x M2A2
3/C/1-26 IN (Blue)	4x M2A2
1/C/1-77 AR (Green)	4x M1114
HQ 1-77 AR (Tiger)	2x M1A1
MTR 1-77 AR (Thunder)	4x 1025/1026
1/B/1-7 FA (Bull)	3x M109A6
S-3 PSD	4x M1114
CDR PSD	4x M1114
TAC	

LSA Anaconda

C/1-77 AR (Pain)	
3/C/1-77 AR (Blue)	4x M1114
2/C/1-26 IN (Red)	4x M2A2
HQ/C/1-77 (Black)	2x M1A1
HHC 1-77 AR (Hellcat)	
SCTS/1-77 AR (Saber)	8x M1025/1026
1/B/2-108 (Hammer)	4x M1114
Field Trains	
TOC	

Figure 2: Task Organization

As shown in Figure 1, TF 1-77 Armor required 23 platoons to meet mission requirements. However, the current TF task organization only afforded 10 platoons, as shown in Figure 2.

The Steel Tigers' combat power was a mixture of armor (M1A1), motorized tank platoons (M1114), mechanized infantry (M2A2), light infantry (M1114), engineers (M113), and field artillery (M109A6). Specific mission requirements also required the additional task organization of civil affairs, tactical PSYOPs teams (TPT), tactical HUMINT teams (THT), and aviation assets (AH-64/OH-58). In sum, the task organization of TF 1-77 Armor created severe tactical problems, which were outside the Legacy Force structure.

Team Pain — C Company, 1-77 Armor

At task organization, Team Pain deployed with two motorized tank platoons of four M1114s each and one mechanized platoon of four M2A2s. Following the initial deployment, the division deployed two

additional companies of M1A1s of which Team Pain received two platoons. One of Team Pain's tank platoons would subsequently be task organized elsewhere in support of the brigade combat team (BCT). Therefore, Team Pain's final task organization was a mechanized infantry platoon of four M2A2s and two M1114s (Red), a tank platoon of two M1A1s and four M1114s (Blue), and a headquarters platoon of two M1114s, two up-armored M998s, and two M113s (Black). To increase the manning capabilities of Blue, Pain 6 attached an infantry fire team from Red.

Some examples of common missions and how Team Pain's platoon of action (POA) was organized are shown in Figure 3.

Team Pain's M1A1s initially were used for armored protection during their Main Supply Route (MSR) Tampa clearing mission. The M1A1's superior optics and armament made it ideal for scouring the road for suspicious activity or objects. Additionally, the added armor protection was a valued deterrent against the enemy; not too many AIF are willing to taunt a 120-mm gun. The deterrent value of the M1A1 also allowed a patrol to slow its movement through dense IED locations, thus clearing the routes properly while minimizing risk. Team Pain's M1s were also very effective at traffic control points to demonstrate an overwhelming presence. The thermal sights were great for standoff against AIF, who often used the wood line to conduct ambushes.

Route Clearance	4x M1114 (BLUE or BLACK) 2x M2A2 and 2x M1114 (RED)] 2x M1A1 and 2x M1114 (BLUE)
Reconnaissance and Surveillance (Terrain Dependent)	Open Desert or Agricultural Fields: 4x M2A2 (RED) 2x M2A2 and 2x M1114 (RED) Or 2x M1A1 and 2x M1114 (BLUE)
	MSR and ASRs 2x M1A1 and 2x M1114 2x M2A2 and 2x M1114
	Urban Terrain 4x M1114 (BLUE) 2x M1114 (RED) and 2x M1114 (BLACK)
Convoy Escort	4x M1114 (BLUE) 2x M1114 (RED) and 2x M1114 (BLACK)
Cordon and Knock (One to Two Houses)	4x M1114 (BLUE) 2x M2A2 and 2x M1114 (RED) 2x M1A1 and 2x M1114 (BLUE)

Figure 3: TEAM PAIN: Missions vs POA Organization

Distinct tactical problems arose with Team Pain's tank platoon. Primarily, tank platoons, given their modified table of organization and equipment (MTOE), do not have the equipment to perform dismounted missions, even with M1114s. The MTOE authorizes a tank platoon eight rifles, no M203s, no manpack radios, and no crew-served weapons. Through the initiative of several company armorers and executive officers, the

task force converted several of its M240s into improvised M240Bs, and leader vehicles were stripped of their second radios that were used as manpacks for dismounted operations.

To satisfy requirements of dismounted operations, Team Pain placed challenges on its mounted elements. Dismounting M240s reduced the mounted elements' overwatch firepower. Stripping radios reduced leaders' dual net capability. Moreover, Pain 6 realized that initially, his tank platoon leaders were at a disadvantage because they now had to maneuver both a mounted and dismounted element. However, the POA had several benefits: each platoon could conduct multiple missions, which gave the company greater flexibility; platoons were not forced to concentrate on one specific operation based on weapons platforms; platoons could maneuver on a variety of terrain; platoon leaders could task organize at the platoon level for varied mission requirements; the POA ensured platoon integrity throughout the deployment; and the commander was not required to rearrange the company for every operation.

Team Rock — C Company, 1st Battalion, 26th (1-26) Infantry

One of the more innovative solutions to the challenges of task organization belonged to Team Rock. As the deployment was viewed as a marathon and not a sprint, Rock 6 did not believe that the standard 16-man tank platoon could withstand exhaustive patrol cycles, support FOB force protection requirements, or conduct independent raids. (4)

Therefore, to create parity within the task organization, Rock 6 detached one M2A2 and one fire team from each of his organic M2A2 platoons and attached them to his motorized armor platoon (M1114). In turn, he detached an M1114 and its assigned tank crew to each of his organic M2A2 platoons. This increased the personnel strength of his motorized armor platoon from 16 personnel to 30. Each platoon was then able to conduct balanced patrol cycles, cycle through FOB force protection, and conduct independent raids.

Team Rock took this integration a step further by implementing an M2A2 Bradley certification program for his 19-series soldiers. Through an intensive train-up, Team Rock executed a modified Bradley Table VIII to certify tankers as M2A2 drivers, gunners, and Bradley commanders. The motorized armor platoon leader, equipped with cross-trained soldiers, could then accommodate the company's mission set.

A highlight for armor leaders is the new skill set developed by the armor platoon leader. Trained at Fort Knox, Kentucky, to command a tank platoon, these lieutenants are now proficient at integrating mounted and dismounted tactics in reconnaissance, raids, and convoy security. The POA platoon leader has a deeper appreciation for full-spectrum operations. He was also given the challenge of leading twice the number of soldiers than a tank platoon.

The mixture of vehicles in the Team Rock POA highlights the advantages of each weapons system. Initially, Team Rock conducted route clearance of Highway 1 with a full M2A2 Bradley platoon. The intensive maintenance requirements of such employment were a serious maintenance and service burden on the M2A2s. Deploying a platoon of two M2A2s and two M1114s on route clearance reduced the overall company M2A2 mileage, minimizing the wear and tear on a high-tempo weapons system.

The M2A2 is best suited for operations in Iraq, offering firepower, maneuverability/agility, crew protection, and a dismounted infantry-carrying capacity. However, its shortcoming for not accommodating for the high mileage in the route clearance of MSR Tampa (Highway 1) was complemented by a section of M1114s. The M1114 enabled the POA platoon leader the ability to maneuver in restrictive urban terrain and continued to provide crew protection. Moreover, Team Rock integrated the company's M113s, giving the POA platoon leader the freedom of maneuver that lighter personnel carriers offer for bridge crossings. The M113 offers the maneuverability/agility and troop-carrying capacity of the M2A2 with a decreased height and width profile required in urban operations. *[**Note:** As combat operations continued and insurgent activity became better organized and lethal, the M113 became increasingly vulnerable and largely relegated to FOB security or related missions that reduced its exposure to hostile contact.]*

Team Regulator — B Company, 1-77 Armor

Team Regulator conducted a relief in place with a fully manned M2A2 Bradley company from 3d BCT, 4th Infantry Division. The terrain of Team Regulator's new sector demanded the extensive use of dismounts (to which its predecessor had adequate access) to clear orchards, buildings, and to man observation posts. Therefore, the dismount requirement dictated the vehicle set of Team Regulator's platoons.

For Team Regulator, the POA changes occurred during task organization. Team Regulator lost its three organic M1A1 tank platoons to support the BCT. (5) Team Regulator would receive an engineer platoon of three M113s, one M998, and one M1114 (Red), a motorized infantry platoon of five M1114s (White), and a light infantry anti-tank platoon of four M1114s (Blue). The headquarters platoon of two M1A1s, two M998s, and two M113s would remain and be supplemented with two M1114s.

One of Team Regulator's enduring challenges was a sector of distinctly varied terrain — the urban streets of Balad. This Shi'a enclave of 75,000 is set along the Tigris River. Manmade structures of walls, canals, and dikes, and thick vegetation of orchards, foliage, and agriculture fields limited their maneuver space. Operations in urban Balad were decentralized and avenues of approach limited the use of Team Regulator's M1A1s. Compounding maneuver limitations was the transition from the urban alleys and streets of Balad, to the jungle-like terrain paralleling the Tigris, to the expanse of arid land along side of MSR Tampa.

To increase White's dismounted infantry-carrying capabilities, the company modified its two ambulance M113s into troop carriers and added company headquarters' and maintenance M113s into the patrol cycle. (6) Green carried with the same constraints as discussed above with the motorized tank platoon; therefore, Regulator 6 regularly supplemented Green platoon with M113, M1114, or M1A1s from headquarters platoon. Red alone operated within its normal platoon capabilities.

Due to the varying vehicle capabilities and soldier skill sets, each platoon had regular patrol requirements. Red, with its inherent EOD capability, primarily conducted counter-IED patrols and route clearance. White, with its dismount capabilities, focused on NAI overwatch to maximize the use of dismounted observation posts. Finally, Green, supplemented with either the headquarters tank section or M113s, conducted route clearance of the MSR and alternate supply routes (ASRs).

In reflection of the use of his headquarters tank section, Regulator 6 relied on the M1A1 to provide lethal direct fire overwatch, thermal optic capability, and act as a show of force. The restrictive terrain of Team Regulator's sector and the exhaustive requirement for dismounts limited his tank section to lethal direct fire in larger company raids or TF missions (movement to contact).

Tiger TAC — B Battery, 1st Battalion, 7th Field Artillery

The addition of an M109A6 Paladin platoon to the task force allowed the TF commander to use the TF mortar platoon (Thunder) as an additional motorized infantry platoon. Attaching a mortar section to the TAC was originally planned to offer indirect fires capability to the TAC while in sector. However, the limitations of Thunder's M1064s, most notably speed, forced the increased use of M1114s and up-armored M998s. Moreover, the risk inherent of rolling a section of M1064s loaded with their high explosive basic load in a sector of IEDs, mines, and rocket-propelled grenades reduced their deployment in sector.

Therefore, to increase the number of TF platoons, Thunder was required to revert back to its infantry roots. With its MTOE M998s given add-on armor and the addition of two M1114s, Thunder took on missions such as convoy escort, crater analysis, traffic control points, counter-IED/counter-mortar patrols, reconnaissance, QRF, and TAC personal security detachment. Moreover, Thunder provided two sections of mortars and its fire direction center (FDC) to support the TF fires mission.

The greatest challenge to Thunder 6 was to manage the troops-to-task issue. Over a 24-hour period, the mortar platoon provided a gun crew for indirect fires, fire direction control/platoon command post operations, QRF, FOB force protection, and personal security detachment for the TAC. To effectively manage his platoon and to keep his soldiers' skills sharp, Thunder 6 rotated his personnel through duties. Due to the troops-to-task, the TAC, for the most part, had to remain mounted.

In review of operations in Iraq, Thunder 6 recalls his soldiers definitely spent more time behind their M4s than behind their 120mm mortar tubes. He attributes their success here in Iraq to the mission focused training program conducted prior to deployment; it allowed the platoon to refine already present infantry skill sets.

Task Force 1-77 Armor's task was to shape its warfighting capabilities to changing circumstances. The old warfighting paradigm, which focused primarily on the military capabilities of a small set of potential adversary states no longer addressed the entire threat spectrum. In this COE, traditional concepts of mass, speed, firepower, and maneuver were inadequate. The TF adapted in response to these new conditions just as our enemies pursued new ways to diminish our overwhelming power, as experienced AIF seldom presented a

target set that an M1A1 tank platoon could fully exploit to influence the tactical fight. The tank platoon was designed for a different war on different terrain. Retired Israeli army General Yehuda Admon said of the use of Israeli armor in the urban fight, "This is not a normal way of using the tank for a low-intensive conflict. If we had something else to use, we would use it. Tanks are for mass fights." (7) The tank continues to make a presence on the urban battlefields of Iraq.

AIF tactics, coupled with its task organization, created severe tactical problems, which were outside the Legacy Force structure. As tactical innovation occurs only where tactical innovation is required, four different commanders of TF 1-77 Armor applied innovation to distinct tactical problems. Where tactical innovation was not required, the commanders stayed with the tried-and-true applications of the armor platoon. In sum, the tactical problems spawned a tank platoon fighting split section with two M1A1s and two M1114s; a tank platoon fighting cross trained as M2A2 Bradley crewman fought split section with two M2A2s and two M1114s; a headquarters tank section cross attached with a light infantry anti-tank platoon forming a platoon of two M1A1s and two M1114s, or two M113s and two M1114s; and the creation of two additional platoons to resolve the TF troops-to-task of two headquarters tanks, a scout section, and two mortar squads operating in M1114s.

The POA, in reflection, allowed the platoons to break down into combat effective sections that could both move over narrow ground, yet maintain lethal standoff with an effective weapons system (either the M2A2's 25mm or the M1A1's 120mm). Setting the heavy tracks stationary, the lighter vehicle could maneuver under the watchful cover of the upgraded sights on both the M1A1 and M2A2. Bottom line: the POA provided commanders flexibility to accomplish mission sets.

The leaders of the POA faced varied challenges outside of those presented by the enemy. The POA platoon leader faced the challenge of knowing and understanding mounted and dismounted operations and the employment of his equipment to suit each operation. For the armor POA platoon leaders, they were forced to operate without M1A1s and introduced to M2A2s, M113s, and M1114s. Thus, tank crews must heavily train on their new equipment to be proficient.

No system to date has risen to become a war winner. However, innovative commanders routinely win battles by employing highly skilled soldiers in nontraditional formations. Reflecting on the 1973 Arab-Israeli War, General William E. DePuy noted that the Israeli tank crews (often using the same equipment their opponents used) were between three to six times more effective, "during the next 10 years, battlefield outcome will depend upon the quality of the troops rather than the quality of the tanks." (8) True to form, the gauntlet was thrown, and the soldiers and commanders of TF Steel Tigers answered the call to arms.

Editor: The operations of TF 1-77 AR illustrate how internal restructuring and careful allocation of organic assets permitted a combined arms battalion to accomplish its mission set. The structural changes also reflected a deliberate effort to match the strengths of the battalion against perceived vulnerabilities of the threat. The troop-to-task analysis proved critical to this arrangement and provided a quantitative assessment of the mission requirements. The focus of the restructuring lay in the creation of more versatile, combined arms platoons. This shift in the unit's center of gravity from battalion-centric to a platoon focus increased the command burden of the platoon leader, but made the battalion more responsive to the varied challenges of its operational environment. The particular changes enacted may not have been as successful against a more robust threat, but at that time, the Iraqi insurgents were still in a formative stage, lacking the more effective organization and lethality of subsequent years. Note also the careful mix of motorized, armored, mounted, and dismounted capabilities inherent to the battalion—these capabilities provided the unit the versatility necessary to implement the changes necessitated by mission and operational environment. They also underscored the more general adaptability of armored organizations—a trait with a strong historical precedent.

Notes

1) Speech by Army Chief of Staff General Peter J. Schoomaker at the annual Association of the U.S. Army Convention, Washington, D.C., October 2003.

2) Colonel Bruce B.G. Clarke, "The Stryker Company and the Multifunctional Cavalry Platoon," *Armor (*July-August 2004), pp. 24-28.

3) During the task force deployment, designation of enemy forces morphed from insurgents to anti-coalition forces to anti-Iraqi forces, signifying shifts in authority from coalition forces to the interim Iraqi government.

4) The current operating environment often required the TF's platoon to transition from their preplanned missions of reconnaissance and surveillance into hasty raids. The standard "motorized" tank platoon cannot support both a mounted security element and a dismounted assault element as required of urban operations.

5) The 2d Brigade Combat Team, 1st Infantry Division originally deployed with one M1A1 tank company, which was parceled across six task forces. The division would later deploy two additional tank companies of which TF 1-77 Armor would ultimately receive a platoon.

6) Modifying the medic M113s included painting over the red crosses or using "flip-style" Red Cross designations that could be lifted up or down to display or not display the crosses. Brigade and division legal advisors confirmed that all modifications were compliant with the Law of Land Warfare.

7) John Brosky, "Tank Still Has Role, But Future Uncertain," *Defense News*, 24 June 2002, p. 6.

8) Richard Swain (ed.), *Selected Papers of General William E. DePuy* (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994), p. 71.

Conversion of an Armor Company into a Light, Dismounted Unit

Editor: Operation Iraqi Freedom demonstrated the repeated use of Armor units in nonstandard roles, including their employment as a light dismounted elements. This usage reflected the large manpower requirements associated with counterinsurgency operations. The following excerpted article outlines how one unit made this transformation. These pages also provide considerations for future armor commanders whose unit is similarly thrust into the realm of dismounted operations. Authored by Capt. Michael Taylor and 1st Sgt. Stephen Krivitsky, the article appeared as "Death Before Dismount: Transforming an Armor Company," in the March April 2005 issue of *Armor*.

Cobra Company, 1st Battalion, 34th Armor Regiment, in the spring of 2004 was no longer an outfit full of typical 19Ks. It had been transformed over the past nine months from a tank company of 74 soldiers manning 14 M1A1s, conducting armor-only missions, into a new organization that adapted to its environment. Today's Cobra Company has 85 soldiers in three line platoons manning one M1A1 tank and 15 HMMWVs (a mix of M1114 and M1025). These soldiers conduct armor, cavalry, and infantry missions and fight mounted and dismounted, similar to the dragoons of the 16th century, who fought as light cavalrymen on attack and as dismounted infantrymen in defense.

Cobra Company was alerted in July 2003 to deploy in support of Operation Iraqi Freedom. Cobra Company turned in its 14 M1A1 tanks at Fort Riley, Kansas, and quickly trained on M1025 HMMWVs, along with a company from the Bounty Hunters of 1st Battalion, 34th Armor, and one company from the Iron Rangers of 1st Battalion, 16th Infantry. The company then deployed in early September 2003.

Once on the ground in Kuwait, the soldiers drew their new mounts, the M1025 and M1114 vehicles, and began movement into the task force's area of responsibility, only a short six weeks after notification of the deployment. On the first day outside the base camp, during a right-seat ride in mid-September, Cobra Company made contact with an insurgent complex ambush—improvised explosive devices (IEDs), RPGs, and small-arms fire. The fight began.

The company's training, personnel, equipment, and tactics, techniques and procedures (TTP) continually evolved over the next nine months as missions and the enemy changed. The company served as the task force's light wheeled force, conducting missions, such as quick reaction force (QRF), convoy escort, cordons, and route reconnaissance. As the battlefield changed, additional missions of raids, searches, route clearance, key terrain security, counterreconnaissance/area denial, counter-mortar operations, company forward operating base (FOB), sniper/OP operations, and dismounted patrols were added. The lessons learned throughout these nine months were invaluable.

Training

In an environment with zero defect and no chance to "re-key," we quickly began training soldiers to accomplish new missions — all requiring additional skill sets unfamiliar to armor crewmen. As missions were added, the company turned to subject matter experts, doctrine, Center for Army Lessons Learned (CALL), fellow infantry companies, and local Special Forces soldiers for TTP and training.

We immediately identified the need for all soldiers to operate on the ground as part of a dismounted element. Combined arms is key, and creating and developing this dismounted element and ensuring all soldiers were trained to fill this role, were critical to the company's success. During this transformation, we identified that most 19Ks needed additional basic infantry training to operate with confidence as a dismount in a fire team and squad. The requirement for additional individual soldier training was evident when we began to train platoons to conduct dismounted operations.

Every soldier receives limited basic infantry training during initial entry training; the amount of training must be increased to ensure soldiers are confident riflemen. This training deficiency is an Army-wide issue and the effects are seen and felt in Iraq, where every soldier is a potential dismount. Soldiers must be provided the basic skills to operate as riflemen during initial entry training, with focus on rifle marksmanship and fire and maneuver at team and squad levels. Leaders are obligated to ensure soldiers build these basic skills during home station and institutional training to ensure they are always ready to fight.

The company focused on dismounted infantry operations, room clearing procedures, and sniper operations. We began repetitive training to create confidence in weapons, tactics, fellow soldiers, and leaders. Training lanes were created on the FOB by platoons to execute dismounted formations, movement techniques, and battle drills, along with dismounted cordon, room-clearing (tape house) procedures, and search techniques. Leaders conducted classes, developed standard operating procedures (SOPs), wargamed, rehearsed, rehearsed, and rehearsed. Four-man stack room-clearing rehearsals were conducted several times prior to raids and searches. Training continued as we added additional equipment and soldiers. We developed TTP and SOPs for new tools, such as manpack radios, squad radios with headsets, small arms optics, and metal detectors. Soldiers also focused on individual weapons training to include day and night fire, using new optics to gain and maintain confidence.

Personnel

Unit manning was the second challenge the company had to manage. Three weaknesses were identified in the typical tank, now truck, platoon: no medic, no forward observer, and no dedicated dismounted element.

Medic. We addressed the medic issue first. Separate platoon level operations increased and each platoon was widely dispersed within the task force's area of operations. This fact drove the need to attach a medic to each line platoon to provide immediate medical support. The company medic team was task organized. One medic was attached to each line platoon to provide on-site medical support and create a team by working closely with their platoon. The medics also provided a readily available subject matter expertise to maintain soldier proficiency. Integrating medics into each platoon ultimately saved lives over the past nine months.

Forward observers. We task organized the fire support team as forward observers (FOs) within the three line platoons. This improved fire support at the platoon level by allowing the platoon leader and platoon sergeant to focus solely on C2 and maneuver while FOs executed the call for fire. The attached FOs worked closely with their platoons, integrating fire support into the platoon leaders' maneuver, and providing a ready subject matter expert to maintain soldier proficiency. If fires were needed, FOs could switch the truck's second radio to the task force fires net, leaving platoon leaders free to maneuver platoons.

Dismounts: Finally, each platoon required a dismounted element not organic to a tank platoon. An armor platoon consists of 16 soldiers. The minimum crew requirement to maneuver four gun trucks is 12 soldiers, eight if the trucks are stationary, maintaining security, and only move during an emergency. This allows for one dedicated four-man dismounted team if the platoon is maneuvering. Using only one team assumed too much risk, so the goal became to create one squad-sized organic element per platoon. We built this squad by adding one more soldier to each platoon, in addition to the medic and forward observer. Our goal remains to add an additional soldier per platoon to increase the line platoon's strength to a total of 20 soldiers. Each platoon then identified a truck commander to lead the squad. The platoon leader typically led the squad on all planned patrols and raids. This squad enabled each platoon to conduct patrols, OPs, room clearing, and then maneuver with both mounted and dismounted elements if contact was made.

Additional challenges became apparent while conducting company-level missions when the medics and fire support team were task organized and we began using snipers from the headquarters platoon. The medics remained with the platoons to provide immediate aid. If only two platoons were needed during a company mission, the third platoon medic accompanied the first sergeant to conduct aid and casualty evacuation (CASEVAC). If three platoons were required, a fourth medic from the medical platoon was added under the operational control (OPCON) of the company first sergeant.

The fire support officer (FSO) was added to the commander's vehicle to integrate fires. The FSO used the task force net to call for fire while the commander fought on the company net. When missions required the maneuver of the entire company and close air support (CAS) was likely, the FIST was consolidated to man its gun truck and accompany the commander.

Sniper operations were conducted by using headquarters personnel to create two teams. Simultaneous company-level and sniper operations were accomplished by using mechanics to fill in for the command crews (drivers and loaders) and company trains.

To alleviate all three manpower shortages in the future, the headquarters platoon should include seven additional soldiers — four to serve as dedicated sniper teams, one to serve as a headquarters medic to assist the

first sergeant, and two additional soldiers to man the FIST truck with the fire support officer, allowing FOs to remain with their platoons.

Equipment

Equipment was the third challenge. Most of the tools required and provided by a typical infantry or cavalry modified table of organization and equipment (MTOE) were not readily available in the tank company's MTOE. These infantry/cavalry tools include M68 close combat optics (red dot sights), backup iron sights, M4/M16 rail systems, IR lasers and spotlights (PAQ4Cs and PEQ2As), additional night vision goggles (NVGs), SureFire spotlights, M203s, and M16 rifles. All of these tools provide precision fire during both day and night.

Prior to deployment, the company was issued additional M16A2 rifles, shotguns, M240B machine guns, .50-caliber machine guns, and PAS13s. Upon arrival in Kuwait, the company was issued 12 M1114 trucks prior to movement into Iraq. Through months of hard work and persistence, the company, task force, and brigade filled most equipment requirements such as additional radios, gun shields, HMMWV kevlar blankets, M203s, rail systems, and personal weapons optics.

Vehicles: Currently, the company is equipped with 15 gun trucks (M1025/1114) and now only one M1A1 tank. The three line platoons use the M1114 uparmored HMMWVs, which have proven to be more survivable than the typical M998/1025 trucks due to their improved armor package. Each line platoon has four gun trucks and the headquarters has three trucks (commander, XO, and FIST). The FIST truck is used only on company missions due to FOs being task organized with line platoons. The tank sees occasional use at the company FOB or on security missions.

The company trains consist of three M113A2s, two M998 HMMWVs, and three M923 trucks. The M113s transport the first sergeant, maintenance team, and medics when armor is needed. Through experience, we have identified that M113s have limited use due to their reduced top speed, weight (pontoon bridges), and our current task organization of personnel. The three 5-ton trucks are used by supply and maintenance. During a typical company mission, the trains will consist of one M998 cargo HMMWV prepared to carry casualties or enemy prisoners of war (EPWs) and may include an M923 to carry additional class I and V, seized weapons, equipment, and EPWs. The maintenance team is prepared to move with the first sergeant in the second M998 HMMWV.

Weapons: Line platoon crew served weapons consist of M2HB .50-caliber flexes and M240B machine guns. Each platoon is equipped with four .50-caliber machine guns mounted on MK93 heavy machine gun mounting systems and four M240Bs that are used mainly by the dismounts. The headquarters carries two .50-calibers and two M240Bs, with one mounted on an M6 pintle mount in the first sergeant's M998 truck. The first sergeant and maintenance M113s also carry a .50-caliber, along with the supply and maintenance M923 five-ton trucks.

The optimal organization would have each line platoon mounting two M240Bs, one .50-caliber, and one MK19 machine gun on the four gun trucks. The MK19 40mm grenade launcher is very effective in open terrain, as well as behind berms or on rooftops, as we have seen with the task force scouts and fellow motorized infantry company. The M249 squad automatic weapon (SAW) would also fit well in place of the dismount M240B machine guns.

Personal weapons consist of M4 carbines and M16A2 rifles. Prior to deployment, the company fielded 14 M16A2s (including headquarters and headquarters company weapons) and 33 M4 carbines for a total of 47 weapons spread over 81 MTOE soldiers. In this environment, every soldier must be equipped to fight dismounted and must have a rifle or carbine to be effective. Currently, the company has 76 weapons for 85 soldiers with the goal of every soldier carrying a rifle or carbine. Each M4 is equipped with the M4 rail adapter system, which allows soldiers to mount IR lasers and spotlights. We currently have one for each of the 32 M4s. There are no rail systems available for the M16A2. In the future, every M4 and M16 should have a rail system to mount equipment.

Additional personal weapons include the M500 shotgun, M9 pistol, M203 grenade launcher, and the M14 sniper rifle. The M500 shotgun is carried on dismounted patrols and each platoon is equipped with one or two. The M9 pistol has seen little use, but is carried by all gunners and truck commanders. Two M203 40mm grenade launchers have been added to the company to equip each platoon with one system. An additional

M203 per platoon and per sniper team is the goal. The M14 sniper rifle is used by the two sniper teams in conjunction with a 10-power daylight Leopold scope or a heavy thermal PAS13, and is paired with a 32-power spotting scope.

In the future, the M249 SAW should replace the two dismount M240Bs. The M249 SAW provides a lightweight automatic weapon with small-arms capability, rather than the medium caliber M240B, and is best used in the military operations in urban terrain (MOUT) environment to mitigate effects of larger caliber machine gun fires. The SAW is easy to carry and can also be mounted on the weapons station of the gun trucks.

Optics for rifles, carbines, and machine guns make soldiers lethal during both day and night. Almost every soldier in the company who carries a rifle or carbine is equipped with either the PAQ4C or PEQ2A IR laser, which is mounted on the M4 rail system or to the top of the M16A2 rifle. These IR lasers allow soldiers to target, illuminate, and accurately hit a target while using night vision goggles. The PEQ2A also has an IR spotlight, which can assist in illuminating rooms and areas during low illumination. The PEQ2A should also be mounted on all dismount M240Bs (at least two per platoon).

All M4 carbines mount the M68 close combat optic (CCO), a backup iron sight, and a SureFire spotlight. The M68 allows soldiers to scan with both eyes open and then accurately fire during close combat by placing the red dot on the target. When the CCO fails, the backup iron sight is available for use. The M68 can also be mounted in place of the handle on the M16A4 or on the rail system of an M16A2. SureFire spotlights have proven to be effective during house and vehicle searches. Every line platoon soldier should be equipped with one. SureFires can also be mounted on the M16 with tape or straps if a rail system is not available.

Additional daylight optics that have proven useful include the AN/PVS6 mini eye-safe laser infrared observation set (MELIOS) for the fire support team. The company has one MELIOS, which is currently rotated by the three platoon FOs, depending on who is more likely to call for fire during a platoon mission. All three line platoon FOs must be provided with one AN/PVS6 MELIOS to assist with fire support. Also, in the future, each M240B or M249SAW should be equipped with a 3-power machine gun optic (MGO), which provides more accurate fire during daylight.

Night vision: Night vision is critical to mission success and each soldier and platoon must be properly equipped to operate in limited visibility. The company currently fields 51 sets of PVS7B/D for 85 soldiers. Each platoon fields up to 14 sets of PVS7s for 19 soldiers, with the goal of one set per line soldier. AN/PVS14s are every soldier's choice because they provide monocular vision and an increased depth perception. In the future, each truck commander, driver, and gunner should be provided with PVS14s and every line platoon soldier must have a set of NVGs.

Thermal sights combined with NVGs have proven extremely effective during limited visibility. Each truck mounts one AN/PAS13 heavy sight on its M2HB or M240B, which provides a 3.3-power and 10-power narrow field of view (NFOV) thermal image. Line platoons also have two medium thermal sights, which are a wider field of view at 2-power and 3.3-power. They can be mounted on the dismount M240Bs, used in OPs, or carried during dismounted patrol missions. Gunners wear PVS7s and switch to thermals during operations. This allows gunners to identify friendly forces marked by IR Budd lights, chem lights, or strobes. Each platoon is also equipped with a 1-power handheld thermal viewer. This small thermal viewer is useful during dismounted patrols only. It provides a thermal capability of 75 to 100 meters on the move. When stationary, the patrol switches to the PAS13 to increase thermal range and magnification. Currently, the company sniper teams use a daylight scope with a PAS13 during the night. The PAS13 can be mounted on the M14 rifle, but the rail system initially provided with the M14 did not support the weight properly. The preferred sight for the M14 is the 8.5-power AN/PVS10. This sight is a must for any sniper team and is critical to ensure the sniper can place accurate fires during limited visibility.

Communications: Building the communications architecture for the company created its own challenges. The company deployed with the radios and systems required to operate the MTOE assigned vehicles. The dismounted requirements were not taken into account until later. Currently, each platoon is equipped with two AN/PRC-119 manpack systems with one dedicated 1523E model all-source imagery processor (ASIP) radio for each dismounted squad. The ASIP radios are perfect for dismounted patrols due to their small size and weight. One 1523D radio can be pulled from a truck as needed to create a second manpack system for multiple OPs or elements. The line platoons also carry five ICOM squad radios with two boom microphone headsets

and three locally purchased walkman-type earpieces. The ICOM is the primary radio used during patrols and the headsets allow for noise discipline during OPs and raids. The commander and executive officer each carry one to monitor dismounts during raids, route clearance, patrols, and contact. Nine ICOMs with headsets is the goal for a platoon, allocating one per truck (four), team leader (two), patrol leader, point man, and trail man.

Miscellaneous equipment: Additional useful equipment includes PAS13 and ICOM battery recharging stations, HMMWV towbars, HMMWV towropes, AN/PSS11 metal detectors, 12-ton hydraulic jacks, tire ramps, and picket pounders. HMMWV towbars and towropes are carried by all platoons to conduct self recovery and the ropes are used when time is critical or when under fire. The metal detector is used to locate caches during raids, cordons, and searches. The 12-ton hydraulic jack was used in place of heavy scissor jacks until they began to arrive through the supply system. The jacks are used in combination with the tire ramp, which was made to elevate the truck. The crew drives the flat tire onto the ramp, which lifts the truck just high enough to place the jack and jack plate beneath.

Picket pounders are used to breach during raids and bolt cutters assist with entry. All trucks carry a litter to facilitate platoon extraction of wounded personnel. Every soldier carries Budd lights to mark their positions during limited visibility. The IR strobe is also used to mark OP positions for friendly ground and air units.

If possible, obtain the SINCGARS ear bud system, which facilitates gunner and truck commanders monitoring the C2 nets during offensive operations. The ear bud system also allows the dismounted radio operator to move hands free. Each platoon should be provided with two per truck and two for the dismounted radio operator for a total of 40 for the company. Creating an intercom system for the M1025/1114 truck may be a solution to this communications challenge.

Platoon and company leaders should be equipped with the blue force tracker (BFT) to increase situational awareness with real time operational information. Typically, a platoon operates as an independent task force asset, rather than under company control, so the BFT better facilitates C2 at the task-force level for clearing fires, deconflicting direct fire, and rapid response of the QRF. Each platoon should be permanently outfitted with one countermeasures system as a force protection measure. This device is used for route clearance and convoy escort, protecting dismounted as well as mounted soldiers.

Tactics, Techniques, and Procedures

TTP also evolved as the fight continued. Every mission was a learning experience as we continued to develop TTP.

Intelligence: Enemy pattern analysis and dissemination at the company level is based on products provided by the battalion S2. The battalion S2 disseminates recent enemy actions down to the company level, weekly and monthly, through the event matrix and a map, diagramming the locations of enemy events. By using these two documents, company leaders develop intelligence preparation of the battlefield (IPB) at the company level. Having a complete picture of enemy activities along main supply routes (MSRs) and in the areas of operation (AO) enables company leaders to identify or template areas that the enemy is using for ambushes and IED emplacement. Leaders can then plan movement techniques or formations to defeat the templated enemy. Producing both documents monthly allows company leaders to better see trends and identify where and when enemy activity has occurred.

Satellite imagery has improved our ability to visualize the battlefield and plan operations. Conducting IPB and executing missions using imagery has made C2 and maneuver easier for every leader who has a copy. Using satellite imagery for maneuver does assume some risk, depending on the age of the data. Buildings may have been constructed or canals built that block routes to an objective. Unmanned aerial vehicle (UAV) imagery can counter the risks of using outdated imagery.

Knowing the people, the enemy, and terrain is a must. A typical battalion's AO is so large that it necessitates breaking up the task force AO into company AOs. If executed, this allows each company to become more effective by gaining knowledge of the area and becoming familiar with specific areas, the terrain, people, leaders, police, public facilities, businesses, and culture. Over the course of three months, the company conducted a counterreconnaissance mission to secure a highway. The soldiers met with local families, highway police, and vendors in the area the road passed through, which improved the soldiers' ability to identify who did not belong and facilitate information flow. The company used countless dismounted patrols to gain intimate knowledge of the area, which was passed on to the task force. This familiarity enabled soldiers

to pick up on details that an unfamiliar unit might overlook. Our regular presence also encouraged people to talk and provide information.

Aviation: Using aviation during ground operations creates a combination that the enemy is not well prepared to counter. FM communications and marking techniques are a must for air-ground operations. Dropping aviation to the company frequency during contact or operations allows the company commander to directly communicate and coordinate efforts. Aviation, in conjunction with a mounted reconnaissance, adds a new dimension that the enemy must face and increases the task force's ability to detect possible ambushes and IEDs. Aviation can also be used as an air reconnaissance and QRF element to escort convoys. Combined-arms operations work — air and ground forces are a powerful combination. In the future, a task force should have a close relationship with an aviation unit to provide dedicated air support.

Signals: Each platoon requires a set of pyrotechnics and visual signals. We have developed a company SOP for signals to use in the event FM and squad radios fail. Soldiers are marked with an IR chem light, Budd light, or glint tape to mitigate fratricide during limited visibility.

Vehicle missions and load plans: Each truck platoon must always be prepared to execute any mission while in sector including traffic control points (TCPs), cache searches, house searches, EPW processing, limited visibility operations, and medical evacuation (MEDEVAC). Each vehicle in the platoon is assigned specific missions and carries required equipment.

Equipment and supplies that a truck platoon carries include slave cables; spare tires on frames, mounted at the rear of the truck commander's side of the truck; batteries; petroleum, oil, and lubricant (POL) products; ice chests; a fifth VS17 panel for marking landing zones; a digital camera for capturing images of EPWs, IEDs, and caches; two lensatic compasses per truck; a class V basic load; and a class VIII medical load.

React to contact: Actions on contact have evolved to meet enemy TTPs for IEDs, direct fire, or a complex ambush, which includes an IED and a direct-fire attack. During direct fire contact, the platoon returns fire, moves out of the kill sack, sets a base of fire, and maneuvers on a flank to destroy the enemy. The FOs are prepared to call for fire or CAS. Each section is prepared to dismount and maneuver in restricted terrain.

When a platoon makes contact with an IED, the section outside the kill sack stops and sets security. If the platoon identifies the triggerman, they engage. All trucks scan for additional IEDs before moving through the area. A section maneuvers to a flank and dismounts a team to search for trigger devices, wires, and residue from the IED. The platoon is prepared to search houses for the triggerman, gain intelligence on enemy activity, or use metal detectors to search for nearby caches. If the IED was discovered before detonation, the platoon then secures the area around the IED and searches for a potential triggerman until an explosive ordnance disposal unit arrives. All personnel maintain 360-degree security during the battle drill while searching for secondary IEDs or a possible ambush.

Complex ambushes force a platoon to fight in two directions. A typical ambush includes IEDs and small-arms and RPG fire from one or both sides of the road. The enemy also places a second IED further down the road in the direction of travel where a convoy may stop, following the ambush in an effort to hit a stationary target. The platoon reacts to contact with fire, maneuvers to flank, and destroys the enemy. The enemy prefers to hit and run and rarely stands and fights, so the platoon has to quickly react, fix the enemy, then complete their destruction.

Route clearance: IED detection and route clearance are best conducted off route and looking in from a flank to avoid an ambush or kill zone. Route clearance can be conducted with dismounted elements or a combination of dismounted and mounted elements, based on mission, enemy, terrain, troops, time, and civilians to increase security and the likelihood of IED detection. Both techniques use vehicle or handheld optics to observe from a distance, while searching for signs of an IED.

Dismounts have the ability to detect telltale signs of a camouflaged IED better than mounted elements. Mounted elements may bypass a dug-in IED on a route multiple times due to the enemy's ability to camouflage the position and speed of mounted elements. Dismounts can also maneuver in restricted terrain along the flanks of a route, ensuring standoff and concealment from enemy observation to minimize an IED ambush. Dismounts in open terrain require additional security on the flanks to prevent detonating an IED. Using binoculars and an overwatch element increases the ability of the reconnaissance patrol to detect

potential IEDs and/or triggermen. Employing snipers, M1s or M2s with optics, or a truck-mounted element with binoculars, are options to overwatch a patrol and mitigate the use of a triggerman.

Employing HMMWV gun trucks as overwatch and flank security, in concert with the dismounted reconnaissance element, is a technique that has been very effective. Using a vee-platoon or company formation to clear an entire route has proven extremely successful. The platoon uses two trucks at the base of the vee, providing overwatch for dismounted teams, and two trucks forward on the flanks, searching for triggermen. The dismounted teams move off road on the flanks, clearing the danger areas. Maneuvering the reconnaissance off road is highly recommended to create standoff from the actual IED. Another technique is to conduct route clearance only along routes or danger zones where IEDs are most likely, such as culverts, bridges, canals, guard rails, road signs, and soft sand or dirt in the median or along the roadside. The route clearance unit must continuously change time and composition of the force, such as mounted, fire teams, snipers, and armor, to prevent creating a pattern. Adding a countermeasures system (one per line platoon) to the reconnaissance may mitigate the use of remote-detonated IEDs. Once an IED is discovered, the platoon executes the IED contact SOP.

Cordon and search: Due to our unique organization, we have developed a battle drill to conduct a company cordon and search. One line platoon of 19 personnel with an interpreter (with or without M1114s) moves to the objective, establishes the inner cordon, and then conducts the house search. A second truck platoon sets the external cordon to protect the search platoon. The goal is to simultaneously set the outer and inner cordons to prevent the target from escaping. The headquarters element supports the mission and consists of the commander's truck, FIST truck (optional), the XO's truck, and the first sergeant's M998 truck, which is used for EPW and CASEVAC. Speed and surprise is of the essence — more vehicles are not necessarily better. Platoons rehearse these drills to ensure every soldier knows his task and purpose.

IPB for this type of mission must identify routes and enemy dismounted avenues of approach out of the target area. The key to success is to set the cordon and deny the targets an escape route. Use HMMWVs to provide speed and ease of maneuver in city streets. Limit the number of vehicles to minimize congestion at the objective area. Only take transport for inner cordon teams and gun trucks for the external cordon and headquarters. For each raid or search, assign an interrogation team to assist the company. Designate an EPW collection and interrogation point. This allows the search platoon to focus on security and search.

The inner cordon and search platoon moves, mounted or dismounted, to the objective, sets at an objective rally point, dismounts, and moves the platoon to cordon the house. One three- to four-man team sets the inner cordon, a second four-man team serves as an assault team, and a third three- to four-man team, accompanied by an interpreter, serves as the security element. The assault team executes the four-man stack once the house is isolated and the outer cordon is set. Once the first room is cleared, the security team, with the interpreter, follows the assault team into the house to secure EPWs and rooms and begin questioning. The platoon's trucks move as necessary to improve security.

The outer cordon platoon establishes positions to block movement in and out of the search area and protects the search platoon — nothing moves in or out without approval. Weapons orientation, control status, observation, and discipline are critical. The commander is in the vicinity with the search platoon and the XO and first sergeant are near the cordon platoon. The commander can dismount and use a manpack with his loader as security and a radio operator. The first sergeant is prepared to move to conduct CASEVAC or set at the EPW collection point to load detainees and weapons from any caches. Once the search is complete, the company collapses with the search platoon moving first, followed by the cordon platoon.

Traffic control points: All platoons are prepared to establish a TCP during day or night. The preferred method is to create the TCP with wire and spike strips. The platoon TCP kit contains four spotlights, two small TCP signs, four rolls of wire, four reflective triangles or orange cones, and a minimum of one spike strip. Spike strips provide the ability to slow vehicles if they cross the wire barrier. The platoon establishes an overwatch element to chase down vehicles and provide additional security, and remaining trucks establish the search area. Personnel are dispersed to minimize damage from vehicle-borne IEDs. The TCP is marked with signs, reflective triangles, and strobe lights or chemlights; wire or spike strips protect the soldiers. Six soldiers conduct vehicle and personnel searches with the section leader commanding and controlling the TCP. Two soldiers man the crew served weapons and provide security, while the final soldier guides traffic.

The soldiers of Cobra Company have completed transformation during the crucible of combat and can fight and win in any situation. Throughout this deployment, the company's training, personnel, equipment, and TTP have continued to evolve. The soldiers have continued to learn under combat conditions and have become proficient in the skills required to accomplish their missions. The transformation of Cobra from a tank company to a light and highly mobile motorized armor company would have been impossible without the unwavering courage of its soldiers and their refusal to let down their comrades in the face of the enemy. A soldier's courage to fight day after day in the face of mounting casualties is the essence of the American soldier and the stuff of legends. The American soldier will accomplish any mission, no matter the challenges, and will always find a way to win.

Editor: This article reflects conditions in Iraq by early 2004, when counterinsurgency missions had become the norm. However, the potential requirement for armor units to operate in a dismounted or light capacity gives this article a timeless quality. It provides useful considerations for officers and NCOs charged with making a similar conversion in a future conflict. While specific equipment items, particularly communications devices, will change over time, the rationale behind securing and using the items referenced above remains valid. Moreover, there is value in all armor units including dismounted exercises in their annual training plan. Such training will at least provide some familiarization with the challenges of transitioning to a dismounted mode. This training will also alert leaders and soldiers to the types of considerations they need to address should such a transformation become a requirement. It will also identify deficiencies in basic Soldier skills that need to be fixed. In an operational environment where combat operations rapidly change to stability/support and/or counterinsurgency, the ability of armor units to dismount gives commanders another capability to employ.

Employment of a Tank Platoon as a Light Motorized Unit

Editor: The versatility of armored organizations is illustrated by their ability to function in capacities beyond pure tankers. In this case, the article below describes the experiences of a tank platoon converted into a motorized platoon to conduct counterinsurgency operations. The author, Capt. Gavin D. Schwan, commanded a tank platoon in the 3d Armored Cavalry Regiment, and his article first appeared as "An Ad Hoc Motorized Platoon in Tal Afar," in the May-June 2007 issue of *Armor.*

On 20 December 2005, our platoon parked four fully mission capable M1A2 Abrams main battle tanks and began patrolling the Sarai and Hassan Qoi neighborhoods of Tal Afar in up-armored high mobility, multipurpose wheeled vehicles (HMMWVs). We went from having more firepower than an infantry company to swinging unstabilized .50-caliber machine guns on rolling boxes of dubious survivability. The last time we conducted missions in these neighborhoods was during Operation Restoring Rights when Sabre Squadron, 3d Armored Cavalry Regiment, in conjunction with a battalion from the Iraqi army, cleared the insurgent stronghold during a house-to-house mission.

While much changed in the three months since that major operation, resulting in a far more stable and far less hostile environment, our platoon did not forget the improvised explosive device (IED) attacks or the hours-long firefights of earlier months. Following Operation Restoring Rights, Grim Troop handed over control of the worst Sunni neighborhoods to a battalion assigned to the 82d Airborne Division and began operating exclusively in the Shia communities further south. Over 800 light infantry soldiers were regularly patrolling an area, approximately 2 kilometers in size, and were unable to completely pacify the area's neighborhoods.

When the 82d Airborne Division redeployed and we resumed control of Sarai and Hassan Qoi on 17 December with only 110 cavalry troopers, it did not take long to understand that we were not going to achieve the same level of coverage as our light brothers.

The Sarai and Hassan Qoi neighborhoods are part of the old city, marked by an irregular network of narrow roads, which are very difficult to navigate for armored vehicles in most places and impassable in some. HMMWVs, despite the lack of firepower and armor protection, as compared to other weapons platforms, were actually preferable as a result, and provided the advantage of dismounts. We quickly became the commander's favorite new toy because of our speed and mobility and we were equally as quick to recognize our permanent status as the quick reaction force, though our principle mission was area reconnaissance to protect friendly forces and allow freedom of maneuver.

The tankers of Grim had already shared ideas and worked out crew sectors of observation to fit the urban counterinsurgency (COIN) environment and we quickly modified these for the HMMWV. The drivers studied the roads, memorizing every turn and every length, knowing when "that pile of trash over there has been disturbed," or "that hole was not there last time." Gunners covered the rooftops dominating the roads, truck commanders (TCs) scanned to the front, and rear passengers watched the flanks and alleys, each studying the people intently, wondering "what is in that guy's hands," or "why is that man on the roof?"

Of course, the world goes by pretty fast, even at 10 to 15 miles per hour, and it does not take long to drop a grenade onto a gunner from a rooftop, fire a rocket propelled grenade (RPG) at a passing HMMWV from an alley, or signal a triggerman to detonate an IED. We felt comfortable with our sectors of observation and were confident that they achieved the kind of situational awareness we wanted to achieve for the crews and the platoon. It was our reaction time that we wondered about because the urban COIN environment negated the see first-shoot first paradigm since the enemy always had us under observation. Fortunately, our HMMWVs provided us the ability to dismount quickly, allowing us to talk with the only people who were regularly (and knowingly) observing the enemy — the local population.

Given the HMMWVs and an entirely built-up area of operations (AO), I initially and incorrectly interpreted my platoon's mission as reconnaissance of all roads within Grim's AO, or more simply as a route reconnaissance or route clearance mission. Understanding that interacting with the locals to obtain intelligence on enemy activity was the only way we were going to "observe" the enemy quickly led me to two realizations. Number one, I had been thinking like a tanker. Our mission was definitely not route reconnaissance. It was, in

fact, area reconnaissance, but area reconnaissance via engagements with the local population, as opposed to the more traditional methods taught at the schoolhouse. Number two, I had no idea how to do that.

During our months in the Shia south, our platoon conducted numerous dismounted and motorized patrols and executed a number of humanitarian missions. While the platoon gained some experience interacting with the locals, I never had reason to practice my skills at tactical questioning and actually try to obtain information from the people. Up to this point, our interactions with the people had been largely limited to handing out claims cards immediately following Operation Restoring Rights, distributing information operation (IO) leaflets and pamphlets, and controlling crowds of people waiting to fill their water tanks.

The threat profile was wonderfully low — no one ever shot at us; there were no IEDs or even reports of IEDs; we never detained anyone; and we did not conduct any raids. Most of the time, we did not even have an interpreter as there were so few and priority went to the scouts in the troop. In December, searching for the knowledge necessary to accomplish my task, I turned to the scout platoon leaders and the regiment's common troop tactical SOP for tips and guidance. The SOP focused on which questions to ask, how to ask them, and came with a list of dos and don'ts. Easy enough; any old soldier can follow instructions. I went to work and immediately got into trouble.

Two weeks prior to the transfer of authority, an IED was detonated on an 82d Airborne Division convoy in the vicinity of a school. Since this was a common location for IEDs and the site of the most recent attack, I decided to focus my initial efforts there, but to no avail. My list of tactical questions was utterly useless. I could never follow up with anything because every local I talked to denied even the possibility of insurgent activity in his neighborhood, or responded aloofly to my questions. While distributing tip cards on a street opposite the school, I came across an elderly gentleman. He studied the card for a moment and put it down next to him on the steps where he was seated. The tip card was a business card with a phone number and an email address printed on it that locals could use to anonymously inform on insurgents. "I have many of these," he told me, "and I do not need even one of them. I do not know any terrorists."

"Well, perhaps you may see or hear something suspicious," I replied.

"Maybe, but I do not think so. There are no terrorists here," my interpreter translated for him. "We do not allow terrorists here in our homes or in our streets. They are not welcome here."

"Well, there must be terrorists here somewhere, because an IED exploded against an American convoy 2 weeks ago by the school just across the street," I retorted.

The man stood up, shouting and waving his arms around. The interpreter rapidly translated, but I did not need help to understand that challenging his neighborhood watch program was a bad idea. After apologizing profusely, I calmed the man down, thanked him for his support and cooperation and hurried away.

A few days later, following reports of anti-coalition messages coming from a mosque just down the street from the school, our platoon stopped a man in the area who claimed to be the mosque's caretaker. When asked about the messages, he grew angry as well, declaring in English, that "this mosque does not support terrorists. There are no anti-coalition messages that come from this mosque. Anyone who says this is a liar."

Clearly, my engagement techniques were not working. In fact, they were very likely working against the entire platoon. No one else in the troop seemed alarmed by these reactions, but offending the locals could not possibly improve the platoon's survivability. However, I had learned something important: broad, nonspecific discussions of enemy activity drew aloof responses from the people, and indications of specific instances of enemy activity offended the locals and induced emphatic, rage-filled denials from a people supposedly opposed to the word "no." In both cases, no intelligence on enemy activity was provided and the venue made no difference.

Whether talking to people on the streets or in the comfort and protection of their homes after being invited in for tea, the results were the same. I was reminded of a scenario presented during one of my college classes where a Westerner came to a stop at a traffic light in Riyadh, Saudi Arabia. An Arabic driver crashed into him while making a left turn and the Westerner was at fault because Westerners do not belong in Saudi Arabia. This scenario reminded me that no amount of tactical questioning was going to charm the people of Tal Afar into turning in insurgents who were likely their brothers, fathers, and uncles.

During Operation Iraqi Freedom I, Grim Troop patrolled Fallujah with virtual impunity. According to one of our section sergeants, the locals gave them thumbs up, declaring "G good," in reference to the large, black "G" painted on the sides of Grim Troop's vehicles. Eagle, Fox, and Heavy Troops were not so admired; the "E," "F," and "H" were detested and regularly targeted. Somehow Grim Troop had managed to establish a rapport with the people of Fallujah, and earned their respect and trust. Developing a similar relationship in the Sarai and Hassan Qoi neighborhoods of Tal Afar became my new goal.

Patrols were conducted as usual, stopping along routes to talk to small groups of men, but this time with the intent of simply having conversations instead of seeking actual answers. We began memorizing names and faces and sometimes stopped the patrol just to say hello to a familiar person or ask someone how his father was doing because I remembered he was sick in bed the last time we met. People waved and smiled smiles of recognition as we patrolled the shops on the main street. We spent our money at their shops, buying eggs, potatoes, and canned meats. We bought cigarettes and offered one to the men standing with us as we conversed (a very common custom among Iraqi men who smoke).

Arabic culture loves the café scene. Men love sitting and talking over tea and cigarettes and that is exactly what we did. I asked questions, only a few, and was no longer frustrated with the aloof responses. We talked about everything, including the forbidden topics of religion and politics, which the Iraqis typically brought up. We shared with them lessons from America's history regarding its struggles with disruptive local identities, and how we learned to overcome problems. I indicated the progressive nature of our military and compared it to the Iraqi army, bringing Sunni, Shiite, Arab, Kurd, and Turkoman together toward achieving a single united Iraq.

While I was not gaining intelligence, I found that I was countering enemy propaganda by influencing the discussion and acceptance of new and democratic ideas. The locals would not tell me where the insurgents lived, but they would challenge me with their ideas, and concede when I made a legitimate point. The locals also began coming to us with their problems, and while we rarely succeeded in solving them, our obvious interest and willingness to go to great lengths to resolve issues seemed to endear our platoon to them. According to the interpreter, I was becoming permanently red in the face because so many people were telling me what a good man I was.

Not everyone seemed to think so, however. On 3 January 2006, the enemy exploded an IED on an Iraqi police dismounted patrol just outside of our patrol base. Given its location at the very end of the wheeled route out of our patrol base, our platoon could not help but think that we were the intended target. As Grim Troop learned later that same day from an anonymous informant, the IED was emplaced by two individuals who had initially attempted to emplace it near the school, but were run off by a shop keeper. Evidently, our new methods were working. On the following day, we began focusing our efforts on developing relationships with the people in the vicinity of the new IED site to prevent future emplacements there. We also conducted intelligence preparation of the battlefield (IPB) based on the enemy's preferences for IED sites as we were able to understand them from earlier pattern-analysis work. This helped further focus our engagement efforts, and the 3 January IED was the last one emplaced in the Sarai and Hassan Qoi neighborhoods in the southern portion of Grim Troop's primary AO. Having unlocked the secrets behind engagements with the local population — a focus on developing relationships rather than getting answers to a list of tactical questions — did not resolve all our problems. On 20 January, the enemy fired mortar rounds into Grim Troop's patrol base.

Our platoon was already suiting up after the first hit, and when the call came for us to move, we were practically heading out the gate. We drove directly to an area already indicated by the 82d Airborne Division as a suspected enemy mortar firing point and began scratching together stack teams to raid a building. This was not our platoon's first hasty raid, but it does illustrate a recurring problem. A tank platoon usually has only 16 assigned soldiers; our platoon had only 15 to begin with. Subtract the two required for an ongoing guard requirement, leaving only 12 for any given mission. This means we can take only three HMMWVs total, and unless we take the drivers out of the vehicles, we have only six soldiers with which to conduct the actual raid — in an ideal situation. Now, throw in environmental mid-tour leave, sicknesses, or injuries; factor in a deadlined HMMWV; and leave a seat open for the interpreter in one of the remaining two vehicles. Under these circumstances, we will have to take the drivers out of the vehicles. What if a vehicle has to move; what about the sectors of observation; what about local security and crowd control? As an ad hoc motorized platoon leader, I had to accept weakness in my cordon or stack teams.

It was great having the ability to dismount and interact with the local population. Our platoon became so much more flexible and could, in many ways, more efficiently accomplish a wider array of missions as a result. For instance, gaining the support of the locals through contact resulted in preventing IED emplacement; whereas earlier, we had great difficulty in identifying IEDs prior to their exploding against our tanks. We were also more useful in a cordon because our ability to dismount assisted in crowd control and apprehension of people attempting to run the cordon. Initially very concerned about driving through the enemy's most notorious kill zones in nothing but an up-armored truck with only a single weapon system, the platoon came to love our new wheeled equipment. However, I never lost sight of the disadvantage of the HMMWV, and frustrated myself and my soldiers wondering how best to capitalize on the benefits of the vehicles — the dismounts — to reduce that disadvantage.

It is essential to understand that for the ad hoc motorized platoon — the tank platoon stripped of its tanks — there are really only enough dismounts for local security. Cleary, using these few dismounts for other tasks reduces the overall effectiveness of the platoon. Success in the urban COIN fight hinges on a unit's ability to act imaginatively and unconventionally, but too many times we fail to understand exactly how much risk we assume by our actions in this environment.

Security is always vital and is of twice the importance in the urban COIN fight. Where I assumed risk — foolishly — was in my security during hasty raids such as that conducted on 20 January. We tried to mitigate the risk during hasty raids by ordering the women and children into the courtyards and the men outside. Before entering, the men were searched and briefly questioned. The HMMWV drivers, even though I preferred to leave them inside the vehicles, were often guarding the men, leaving the vehicles outside, while the rest of us searched the building.

During the search, we occasionally questioned the children or elderly women before leaving. We always knocked first on our target buildings, explained the reason for the disturbance, and thanked them for their patience and cooperation before we left. Buildings that remained silent after our knocks (our AO was filled with several abandoned homes and shops) were subject to an actual raid, as opposed to a platoon-size cordon and search, in which case the drivers entered the buildings as well. The threat profile in the area allowed these tactics, techniques, and procedures (TTP), and our methods enabled us to retain the respect and trust of the people. We were never far from our patrol base and Grim Troop. Other units were also patrolling in the area, so we were never really alone. The search teams were generally able to quickly secure the rooftops of our target buildings and provide overwatch of the HMMWVs from dominating terrain. Still, I made a terrible decision in weakening my cordon — something could too easily have gone wrong.

On 20 January, we chose our target building based on the suspicions of my platoon sergeant after seeing various men lingering in the street in the vicinity of the area we were patrolling. When asked to clarify, he could not point to anything beyond certain movements and facial expressions of the people, but I knew that his suspicions came straight from the gut and could only have developed after patrolling the neighborhood and getting to know the people as we had. I trusted him and radioed for the platoon to halt. When the men responded in the typical aloof manner to our tactical questioning we began executing our raid/search TTP, separating the men from the women and children. We executed perfectly, but anticlimactically, found nothing. Later that day, however, an anonymous tipster directed Grim Troop to the mortar firing point, which was approximately 10 feet from the building we had searched, in an abandoned building sharing a wall with it. The mortar tube was hidden inside of partially buried PVC pipe. It is worth noting that we came very close to stumbling over it because we had accurately read the people, but I was wrong to order a search of the building. It would have been far smarter — and safer — to cordon off the area and await the arrival of the scouts who, with the proper manpower, could have more thoroughly searched the area.

The ultimate strength of the motorized platoon in the COIN environment is not its ability to conduct hard attacks. It is, in fact, extremely limited in this ability, and is far better suited to a supporting role during searches and raids. The key strength of the HMMWV in this environment is executing soft attacks via engagements with the people. Our platoon positively influenced Grim Troop's AO by using its newfound mobility and flexibility to reach the people in the irregularly built-up terrain off limits to armored tracked vehicles.

The limited combined arms capability afforded by the HMMWV allowed our platoon to establish security on the ground and manage crowds while conducting engagements. I violated the limitations of this combined

arms capability by conducting hard attacks, and lucked out only because of the low-threat profile achieved by Operation Restoring Rights.

The HMMWV also served as a reconnaissance vehicle in the COIN fight. Effectively engaging the local population allowed our troop to accurately read the human terrain, which should have enabled me to provide key information that would have allowed my commander to act on enemy locations with forces more suitable to the task of raiding and searching an objective. The HMMWV, despite limitations in lethality and survivability, is still an effective option in the urban COIN environment, but does not complete the combined arms equation.

Editor: The situation outlined above mandated an alternative to a pure tank unit. A need existed for broader mobility and a dismounted capability, which the motorized platoon in the urban environment provided, particularly given the relatively low threat level. Conversion to a motorized unit poses challenges in manpower, since a tank unit is already small in personnel and common losses (leave, wounds, sickness, etc.) make it more so. Without any augmentation, the platoon leader is forced to accept a degree of risk in duty and patrol assignments. The level of risk, however, can be mitigated to some extent by a simple risk assessment and careful planning. In the execution of basic tasks, the platoon was also able to apply principles associated with tank operations.

The account of the platoon leader's efforts to engage the local populace and secure intelligence exemplifies a common experience of US soldiers in sustained COIN operations—how to actually acquire useful information that generates actionable intelligence? In many cases, trial and error methods were used—as well as gaining a better understanding of the local people and culture. This understanding, coupled with sound tactical principles, began to generate results for this platoon leader—and for many other junior officers grappling with the same challenge. The ability of this tank unit to adjust to a new role as a light motorized unit executing both mounted and dismounted operations is testament to Armor's versatility. It can indeed "go light" when required.

Night Urban Raid by Reinforced Tank Platoon

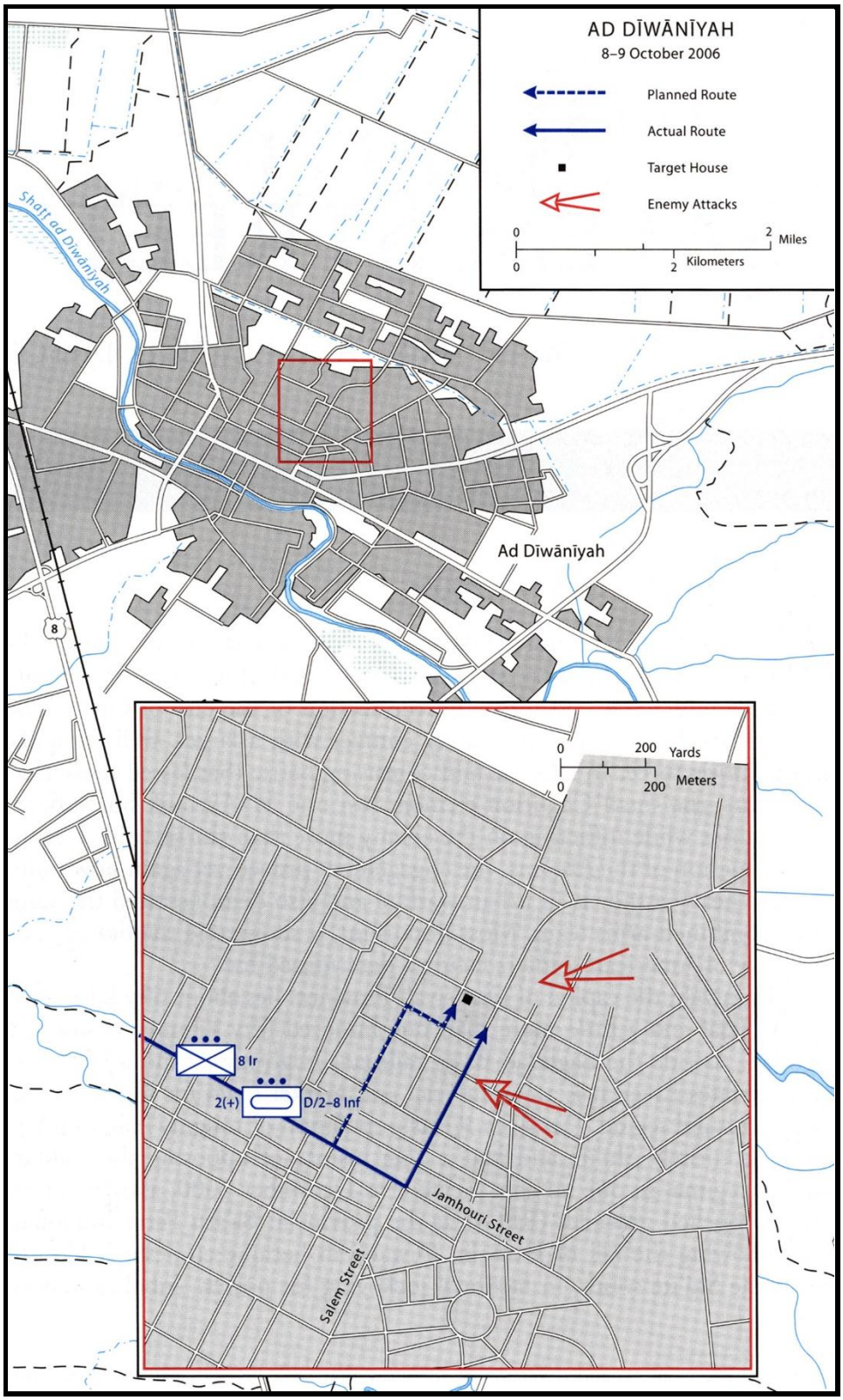
Editor: This article details a small unit action about a reinforced tank platoon sent into Diwaniyah to conduct a raid, which quickly became a hasty defense following the destruction of one of the tanks. Based upon interviews with the participants, this article was written by Ben R. Simms and Curtis D. Taylor, who also fought in this engagement. It first appeared as "The Battle for Salem Street," in Jon T. Hoffman (ed.), Tip of the Spear: U.S. Army Small-Unit Action Iraq, 2004-2007 (Washington, D.C.: U.S. Army Center of Military History, 2009).

In October 2006, a reinforced American tank platoon from Company D, 2d Battalion, 8th Infantry, supported by a handful of Iraqi Army infantrymen, conducted a raid into a hostile section of the city of Diwaniyah. The combined unit came into heavy contact with a larger, well-equipped Shi'ite militia force. In a hectic and confusing battle that lasted more than four hours, the small Coalition element lost one M1A2 tank but suffered no casualties while inflicting on the enemy more than thirty dead. Despite the destruction of the Abrams, the engagement proved yet again how indispensable heavy armor is in urban warfare and also demonstrated the value of the combined-arms team. Most important, it showcased the bravery and versatility of American soldiers facing a determined foe. (1)

Diwaniyah, the capital of Qadisiyah Province, lies about fifty kilometers east of Najaf and a little more than one hundred fifty kilometers south of Baghdad. Astride the Baghdad-Basra railroad, Highway 8, and a branch of the Euphrates River, it is a commercial and market town for the surrounding agricultural region. (*See map*.) Its population of roughly half a million is almost entirely Shi'ite and had a long history of opposing the Saddam Hussein regime. In one notable incident in December 2000, assailants fired rocket-propelled grenades (RPGs) at the provincial Ba'ath Party headquarters. Following the fall of Hussein, Diwaniyah became enmeshed, like the rest of the Shi'ite south, in factional jockeying for power. Tribal ties added another layer of complexity. Much of the population was from the Jabouri tribe, which generally did not back Moqtada al-Sadr, though some smaller tribes in the city did. For many people, party and tribe were less important than immediate safety—they avoided confrontation with whoever seemed most threatening at the moment. Two other emerging trends complicated the mix. One was the increasing tendency of some elements of Sadr's militia to operate independent of party control. The other was the appearance of the Iran-backed special groups. (2)

Since the fall of 2003, elements of the Polish-led Multi-National Division–Central South had overseen the area from Forward Operating Base (FOB) Echo, just to the southwest of Diwaniyah. The 8th Iraqi Army Division had a camp immediately adjacent to the Coalition facility. During 2006, insurgents, most likely Mahdi militia, mortared and rocketed the combined compound with growing frequency, destroying a warehouse, a mess hall, and other structures. Late on Saturday, 26 August, clashes broke out in the city between the Iraqi Army and insurgents, possibly instigated by the arrest of a senior Sadr supporter. Mahdi fighters rushed to Diwaniyah from other towns. (3) The battle resumed the next night and continued all through Monday, culminating in the militia overrunning an Iraqi Army platoon. The rebels publicly executed the seventeen survivors in front of a large crowd of onlookers. They further intimidated the security forces, nearly all locally recruited, by threatening the families of the policemen and soldiers. The police melted away, and the Iraqi Army elements withdrew from the urban area, effectively ceding control of the city to the militia.

Within hours of the outbreak of violence, the 2d Battalion, 8th Infantry, based eighty kilometers to the north at FOB Kalsu, received a warning order. On Sunday, units were on the move by road march and heavy equipment transporters, with the mission to restore order in Diwaniyah and enable the Iraqi Army to reassert control. Maj. David A. Segulin, the battalion executive officer, orchestrated the rapid repositioning. The battalion commander, Lt. Col. James A. Howard, deployed with a forward command post; Companies A and D; and Company A of the 1st Battalion, 67th Armor. The Americans began arriving in the city that night. The Iraqi Army also dispatched infantry companies from Najaf and Kut. (4)



Ad Diwaniyah OCT 2006

The 2d Battalion, an element of the 2d Brigade Combat Team, 4th Infantry Division, had deployed from Fort Hood ten months earlier. One of the first permanent combined-arms battalions, it had two mechanized infantry companies, two armor companies, an engineer company, and other support elements. The subordinate units were task organized as well. Company D, nicknamed the Dragoons, had two tank platoons and one mechanized infantry platoon. In addition, for this deployment the outfit was equipped with enough high mobility multipurpose wheeled vehicles (HMMWVs) to allow each of its Abrams or Bradley crews to shift to the lighter wheeled vehicle when the mission required it. Most of the slightly more than one hundred men in the company had been together for nearly two years, and nearly all had served a previous combat tour in Iraq or Afghanistan. The company commander, Capt. Benjamin R. Simms, was an armor officer who had deployed to Kosovo in 2001 and Iraq during 2003–2004.

Company D's Abrams had the system enhancement package (SEP), which included a global positioning system, digital terrain maps, improved thermal sights, air conditioning, and other upgrades. Each four-man crew consisted of a commander, gunner, and loader in the turret and a driver forward in the hull. Although this version of the M1A2 was ideal for operations in the buttoned-up mode, typically the crews worked with the hatches open. The tank commander not only had a better field of view standing with his head and upper body exposed, it was the only way he could employ his .50-caliber machine gun. Simms considered it one of his best weapons in an urban fight due to its power and ease of use. The loader had a pintle-mounted 7.62-mm. M240 machine gun at his hatch, while the gunner controlled another M240 mounted coaxially with the 120-mm. main gun.

When the American heavy armor arrived at Echo in late August, the militiamen disappeared from the streets. Based in part on that turn of events, Maj. Gen. Ali Salih Farhood Othman, commander of the 8th Iraqi Army Division, asked the 2d Battalion to remain outside the city while his own troops tried to reassert control. His forces initially seemed successful, but insurgent elements used the respite from American operations to gather reinforcements and bring in new weapons. These included Iranian-provided explosively formed penetrators (EFPs)—a deadlier form of improvised explosive device (IED)—as well as more modern and powerful RPGs. The 2d Battalion used the time to acquire intelligence on Diwaniyah from an American special operations team in the area and to assist the Poles with civil affairs and other noncombat activities. The neighborhoods around Salem Street (pronounced with a soft "a") appeared to be the strongholds of antigovernment elements.

Within days, the strengthened insurgents attacked an Iraqi police unit. General Othman, acknowledging the failure of his first approach, authorized a large-scale operation to root out the enemy. The 2d Battalion, seven Iraqi companies, and two platoons from Coalition nations began clearing the city sector by sector, focusing on those areas that supported Sadr's militia. Government forces searched every house, and U.S. units conducted raids targeted against local Mahdi leaders and suspected weapons caches. The rebels avoided combat, but Sadr's supporters brought political pressure to bear on the Iraqi Ministry of Defense, falsely claiming that American forces were using heavy-handed tactics. After a single day of operations, an order came down to General Othman to pull Coalition units out of the city. The insurgents did not repeat their mistake; for the time being, they kept a low profile to avoid triggering a renewed, full-scale offensive against them. In contrast, citizens, especially those from the Jabouri tribe—it was their clansmen who had been executed in the August battle—had welcomed the presence of Americans and the order they promised to bring to Diwaniyah.

During the balance of September, the city generally remained peaceful. The 2d Battalion continued to assist the 8th Iraqi Army Division, conducting occasional joint raids and patrols and providing training. The military operations supported the work of Iraqi national police units, which set up and manned around-the-clock checkpoints throughout Diwaniyah. Howard noted that the Iraqi companies from other cities were more determined and active than their Diwaniyah counterparts, since the former faced little concern over threats to their families. Given the relative calm, Colonel Howard and two companies redeployed north to Kalsu, leaving the Dragoons behind to assist the Iraqi forces in killing or capturing the militia leaders responsible for the massacre of the Iraqi soldiers. The battalion forward command post, now under Maj. Curtis D. Taylor, the battalion operations officer, also remained at Echo. An armor officer with twelve years' service, Taylor had a tour in Afghanistan under his belt.

Late in the month, Company D had its most serious engagement to date in Diwaniyah. Captain Simms was leading a mixed unit of American HMMWVs and M1A2s and Iraqi armored cars on a night sweep to

monitor police-manned security checkpoints and to check out suspected locations of wanted militia leaders. The group stopped to search one house, finding nothing. Afterward, although Simms intended that a tank always lead, the narrow streets made it impossible for the patrol to move out in the desired order, so an Iraqi vehicle ended up at the head of the column with the captain's HMMWV next in line. There was no room to pass an Abrams to the front until they reached the next major intersection, site of a friendly checkpoint. As the force approached the cross street, it became apparent that the police had abandoned the position. Just then, an array of daisy-chained IEDs exploded against the lead vehicle. The force of the blast, far larger than anything Simms had experienced to date, shattered all the nonballistic glass in his HMMWV and gave the driver a concussion. Of the six Iraqis in the armored car, two died immediately and the others lost a total of six limbs. The rest of the force found and destroyed two more IEDs and stabilized the casualties. There was no landing zone for an aerial medical evacuation, but the Iraqi command dispatched vehicles that arrived quickly and got the wounded back to Echo for airlift to a hospital. Within two hours, two companies of Iraqi infantry appeared at the scene and searched every house in the area. Tracing back the command wires of the IEDs, they found and arrested two suspects. The responsiveness and effectiveness of the Iraqi soldiers in this and other instances gave Simms some confidence in their capability. The deadliness of the ambush and the enemy's use of EFPs also made him reluctant to send out his men in wheeled vehicles on any future high-risk mission.

Shortly after this engagement, the 2d Battalion initiated a swap of units at Echo. One platoon of Abrams from Company C arrived to start the handover, while Captain Simms sent two-thirds of his outfit back to Kalsu, keeping his 2d Platoon of tanks. The latter was a veteran unit. The platoon leader, 1st Lt. Andrew J. Merchant, had been in the Army two years, while the NCOs commanding the other tanks each had served for more than a decade. All had participated in dozens of raids and had been under fire before. The only experience they lacked was actually fighting from their tanks in an urban area. While they had considerable training in this realm back at Fort Hood, the limitations of that simulated environment did not reveal the full power of an Abrams in a city.

On the evening of 8 October 2006, the Dragoons received credible intelligence on the location of a prominent sheik accused of ordering the execution of the Iraqi soldiers. A videotape had shown him brandishing a pistol he had taken from the platoon commander killed in the August fight. A local Iraqi offered to lead Coalition forces to the house and positively identify the sheik. The target was one block west of Salem Street. The source thought the best approach would be via a side road to avoid the most dangerous part of the neighborhood. Recent aerial photography seemed to confirm this route was viable.

The 2d Battalion forward command post planned an immediate raid. The U.S. unit conducted most of its operations at night in any case, and time was essential with such fleeting information. Lacking any infantry of its own, it asked the 8th Iraqi Army Division to provide its strike platoon, a specially trained unit tailor made for an operation such as this. The American contribution would be five M1A2 SEP tanks—the 2d Platoon reinforced by the company commander, who would exercise overall control. For this mission, Simms brought along his interpreter and the local guide. To provide them the same protection accorded his own men (plus anonymity for the guide), the captain had each of them displace a loader, who would remain behind at the base, a calculated risk that decreased the combat effectiveness of two tanks.

The American force linked up at the Iraqi compound with the strike platoon, which on short notice turned out a dozen or so men and three uparmored HMMWVs. Simms briefed the lieutenant on the mission and scheme of maneuver right before departure, thus minimizing any threat posed by the Iraqis' sometimes-lax approach to operational security. The tanks, one section in front and the other in trace, would escort the wheeled vehicles to the target and then provide a cordon around it while the Iraqi soldiers entered the house and picked up the suspect. The strike platoon leader provided an Iraqi Army handheld radio to the interpreter, who would ride in Simms' Abrams and serve as the communications link between the two units. The plan maximized the respective strengths of both elements—the armored firepower and night capability of the Americans and the ability of the Iraqis to deal more effectively with the population. Together, the tanks and infantry also had the combined arms versatility essential for urban operations.

The raid force rolled out of the Iraqi Army base shortly after midnight on 9 October and headed into the city. The temperature was a pleasant 60 degrees with a clear sky and a partial moon that provided little ambient light. The operation proceeded without incident until the column was moving along Jamhouri Street, approaching the turnoff to the road leading to the target house. *(See Map Inset.)*

Suddenly, all the lights in the city went out. Simms and his men could not determine whether this was a reaction to their operation or a random blackout. Both types of power outages had occurred frequently in this area and elsewhere in Iraq. Either way, the darkness was of little concern and actually gave the Americans an additional advantage due to their night-vision devices. The raiders continued forward without a pause.

When the lead tank reached the designated turn, its commander, Sgt. First Class. Jonce S. Wright, saw that the side street was narrow and choked with low hanging wires strung between buildings. It was a poor avenue of approach for armor. The next option was Salem Street, less than six hundred meters farther down. Captain Simms approved the change in plans. Minutes later, as Sergeant Wright's Abrams, D24, turned north onto the broader avenue, an insurgent poked around the corner of a building and fired an RPG. The tank crew replied immediately with an M1028 canister round from the 120-mm. main gun. The casing disintegrated as designed and spewed its load of 1,200 quarter-inch tungsten balls in a shotgun pattern; but the militiaman already had ducked back out of sight. Wright, one of the most skillful armored fighters Simms knew, responded with classic counterambush tactics, charging up Salem Street to deny cover to the attacker. The RPG gunner leaned around the corner to fire a second time but again missed. While the crew of D24 reloaded the 120-mm., the tank commander engaged with his .50-caliber machine gun. As the tank moved into the intersection, an RPG struck its right side in a shower of sparks and flame. Wright already had the turret trained over the side of the tank, down the road, and his gunner saw the RPG team as it fired. Two militiamen sought cover behind a car parked on the right side, while a rifleman hid behind a van across the street. The main gun spit out a high-explosive antitank (HEAT) round at the automobile. When the smoke from the blast cleared, the vehicle was a tangled wreck resting on the bodies of the two RPG gunners. The rifleman was lying dead in the street. Within moments, someone came out of a house and dragged his body away.

Meanwhile, at the intersection of Jamhouri and Salem Streets, the Iraqi Army platoon had heard the firing, stopped, and refused to move forward. Since the street was not wide enough to allow a tank to pass the HMMWVs, this cut the raid force in half and prevented it from proceeding the last several hundred meters to the objective. The Iraqi lieutenant was shaken by the ambush. Shouting over the radio to the interpreter, he frantically claimed he had orders to return to camp. Simms made several appeals and threats to get the Iraqi unit moving while simultaneously monitoring his company and battalion radio nets to determine what was happening with his lead section and to keep the forward command post informed of the situation.

While Captain Simms' attention was focused on the dispute with the Iraqi lieutenant, a militia rifleman approached the left rear of the company commander's tank, using a parked minibus to mask his movement. Lieutenant Merchant, next in line in D21, saw the threat, engaged with his .50-caliber machine gun, and had his gunner join in with the coaxial M240. Their fire chewed up the vehicle, and the insurgent disappeared. Before they could ascertain whether they had killed or wounded the rebel, the strike platoon leader relented and agreed to resume the advance. The back half of the column moved out again.

Having dispatched the RPG team on Salem Street, the lead section of tanks reached the target building and took up positions covering the streets leading to it. The Iraqi Army soldiers arrived soon after and quickly entered the house. Within minutes they emerged, reporting that they had captured the wanted sheik and recovered the slain Iraqi officer's pistol.

While these actions proceeded at the objective, the trail tanks were passing the side street where the ambush had occurred. Another RPG team emerged at the same location and fired one hundred fifty meters down the lane at the last Abrams in line, S. Sgt. Russell E. Chapman's D22. The well aimed rocket detonated against the side skirt. The force of the blast disabled the commander's optics, while a jet of hot gasses found a seam and penetrated to start a blaze in the engine compartment. Sergeant Chapman continued to operate the tank using night-vision goggles while his gunner shot a canister round back down the alley. The blast from the tank round obscured the narrow road and made it impossible to determine whether it had any effect. As the smoke and dust cleared, a second RPG from the same direction missed the wounded Abrams. For the next several minutes, Sergeant Chapman and his crew exchanged fire with RPG gunners located at the end of the alley. The tank's automatic fire-suppression system retarded the flames and bought time for D22 to continue fighting but could not put out the growing inferno. As the blaze got out of control, Chapman ordered his men to evacuate the vehicle. The gunner, Sgt. Jason Caroll, saw two men with an RPG at the end of the alley. He shot a final HEAT round dead on target and killed them before abandoning the burning tank.

By this time, the Iraqi Army soldiers were back in their vehicles. Captain Simms asked the forward command post at Echo to provide immediate close air support and armor reinforcements. Staff Sgt. Jimmy M.

Brown Jr., commanding D23, meanwhile smashed his tank through a compound wall, making his own shortcut to quickly secure a key alleyway and protect the team's northern flank. In the process, however, dead electrical wires ensnared the vehicle, wrapping around the turret ring and jamming it. For the remainder of the fight, Brown had to pivot steer the Abrams side to side to aim the main gun. At the same time, Lieutenant Merchant in D21 and Captain Simms in D66 headed back toward Sergeant Chapman, whose last report was that his M1A2 SEP was on fire, that he was engaging an RPG team, and that his crew was evacuating the damaged Abrams. As the two tanks approached, they could see Chapman and his men taking cover behind the burning hulk and firing with small arms at a rooftop. From a perch on top of the two-story building on the southwest corner of the intersection, a militia rifleman had the soldiers pinned down. But the sergeant's decision to stay inside the tank until the last possible moment probably saved his men by allowing them to destroy the RPG team. Otherwise, they would have been facing fire from two directions with no effective cover at all. The two supporting tanks added their coaxial M240 machine guns to the duel and quickly brought it to an end. The raiding force received no more interference from that rooftop the rest of the night.

The crew of D22 took advantage of the short-lived respite from incoming fire to split up among the four remaining tanks, adding a fifth man to each. In three cases they crammed, rifle in hand, into the loader's station with the man already there. This greatly complicated the work of the loader, who had to maneuver in an already cramped space, hit a knee switch, select a round from the ready rack, and then pivot and maneuver the fifty-pound shell into the breach. Both men then had to keep clear of the path of the gun's recoil in a space designed for one person. All this occurred while the tanks were in a quick-draw battle in close urban terrain, which left no margin for delay or error. Only Sergeant Brown's crew could operate normally, as the Iraqi civilian who had identified the target house voluntarily yielded his position in the loader's seat to Sergeant Chapman and moved to the top of the turret. For the remainder of the battle, the young man clung to the armor as the tank spun left and right to bring the main gun to bear then jolted in recoil as it fired each 120-mm. round. Deafened, dizzied, and dodging small-arms fire, he maintained his composure throughout the ordeal.

Following the rescue of Chapman's crew, the four other tanks were in the positions they would hold throughout the night. Sergeant Wright in D24 faced north on Salem Street while Sergeant Brown in D23 secured the northeast alleyway. The turret of D66 pointed north, covering the backs of the two sergeants, while Captain Simms trained his heavy machine gun over the side and down the southeast alleyway. Parked beside a low wall topped by a chain-link fence, he had defilade protection from RPGs but still had a clear field of fire over the top of the fence from his perch in the turret. Lieutenant Merchant in D21 parked just to the rear of Simms, aiming south toward the burning tank. The four Abrams were spread out over about two hundred meters.

The Iraqi strike force, which had performed well on the objective, now huddled in its HMMWVs in the middle of the American formation. Simms, having faced the challenge of getting the Iraqi lieutenant to move forward after the initial small ambush, realized that his partners had no firm leadership and that the unit would be only as brave as its commanding officer. He wanted the infantrymen to hold the rooftops or at least protect the rear of his tanks against infiltrators, but he was heavily engaged in a full-scale battle that consumed his attention and required his active participation as a tank commander. He was in no position to cajole the Iraqi soldiers into action. He bolstered his close-in defensive capability as best he could, passing his own 9-mm. pistol to the interpreter so the Iraqi could help deal with any militiamen trying to crawl onto the tank.

Simms had little time to make a decision on his next course of action. His situation bore eerie inklings of a remake of Blackhawk Down. In the October 1993 battle in Mogadishu, Somalia, the loss of two helicopters had turned a quick snatch-and-withdrawal operation into a static defense in a hostile urban zone. Rapidly surrounded by hundreds of enemy militia, that raid force had fought against heavy numerical odds while a relief column struggled for hours to get to the scene. Simms had one important advantage this night that the soldiers in Somalia did not—the armor and firepower of four Abrams. In the chaotic first minutes of the insurgent attack, the tanks were mobile fortresses that dominated the battlefield. (It was an asset he had nearly forgone a few hours earlier during the hasty planning phase when he had considered using HMMWVs to increase the odds of surprise. He now realized that would have resulted in disaster.) What the Dragoon commander lacked was the reliable infantry needed for a battle in a city. He had little concern about the ability of his tanks to fight their way back to base if it came to that, even though this militia force seemed more determined, more numerous, better trained, and better armed than any foe he had yet faced in the war. But the shocking loss of D22 to an RPG complicated the picture. If Simms abandoned the Abrams, the insurgents would undoubtedly exploit it to achieve a propaganda coup. Much more important, the technical secrets of the

M1A2 SEP would likely make their way into the hands of enemies beyond the borders of Iraq. The captain thus determined that he had to accept the risk of remaining in place to defend the destroyed vehicle until help arrived to retrieve it.

The insurgents gave the Dragoons little time to dwell on their circumstances. It was impossible to tell whether the militiamen were operating under central control or merely reacting individually and moving to the sound of the guns. The flames from D22 were now reaching three stories high and seemed to draw Mahdi gunmen like moths. The result was a steady stream of fighters maintaining pressure on the small perimeter. The first probe came almost immediately after the rescue of Sergeant Chapman's crew. Sergeant Brown observed an individual carrying a sniper rifle at the end of the alley and killed him with a burst from the .50-caliber machine gun. An RPG team appeared next, and Brown's gunner fired a HEAT round. Another RPG gunner moved down Salem Street toward D24. Sergeant Wright employed a canister round, shredding the insurgent and detonating the rocket on his shoulder. Another militiaman maneuvered into position to launch a rocket at D23, but the tank commander again eliminated the threat with his machine gun. Several minutes later, yet another RPG team appeared and Brown wiped it out with a multipurpose antitank (MPAT) shell. A sabot-encased round primarily designed to penetrate light armor and destroy fortifications, the MPAT's fuse could be set for a proximity burst that turned it into a fragmentation weapon useful against soft targets such as personnel.

Approximately forty minutes into the battle, as Sergeant Brown remained engaged in a toe-to-toe fight on the north end of Salem Street, two Air Force F–15s arrived on the scene. The flight commander contacted the forward command post and the tank platoon on the battalion frequency. Using the burning tank as a reference point, the pilots reported directly onto the command net what they were seeing. The enemy was approaching from the northeast and staging along a road three hundred meters to the east that roughly paralleled Salem Street. From that cover, the militiamen could make a quick dash down the alleyways to attack the Coalition perimeter. Some of them were already moving over the rooftops to seize positions overlooking the tanks. One cluster at the north end of Salem Street seemed intent on trying to outflank Sergeants Brown and Wright to get into position for a clean RPG flank shot on either Abrams. A second group appeared to be boring in toward the D22 bonfire. Simms asked the jets to make repeated shows of force over Salem Street and five hundred meters to the east, hoping they would deter additional militiamen from joining the battle and changing the odds. Several low, ear-shattering passes from the F–15s had the desired effect, disorganizing the enemy and slowing his advance.

The near-simultaneous probes across a broad front, the enemy's equipment (sniper rifles and the latest RPG models), his sheer numbers and aggressiveness, and the fact that fighters already had scored two long range rocket hits in darkness against moving tanks all indicated to Captain Simms that he was facing a tougher and more sophisticated opponent than usual. The danger would increase exponentially if the insurgents launched a large-scale coordinated attack and simultaneously blocked the approach of a relief force. Fortunately, the militiamen had no appreciation of the capability of American night-vision systems or of the futility of seeking cover behind vehicles or walls. Some of the insurgents moved in the open, thinking the darkness was all the concealment they needed. Others sought shelter that might have protected them from small arms, but the tank main guns simply obliterated the obstructions. The side-by-side townhouse-like structures that lined the alleys offered the enemy almost no place for concealment or cover, and the firepower of the 120-mm. smoothbores and the .50-caliber machine guns proved devastating in these open corridors. The varied heights of the buildings also limited the ability of the insurgents to move rapidly from rooftop to rooftop to gain position over the tanks. Still, the threat of envelopment was real and growing more serious with every minute.

While Simms focused on the close fight, the battalion forward command post worked to prevent the encirclement of the force and protect the long line of communications back to the compound. Clearly, the enemy's most logical course of action would be to lay deadly roadside bombs along the approach routes to ambush any reinforcements. To prevent this, Major Taylor sent out a quick reaction force of four tanks from Company C. The platoon moved rapidly into the city and established a strongpoint at the intersection of Salem and Jamhouri Streets, with one Abrams pointing in each direction. That formation provided all-around defense for the relief force and gave them a clear field of view (and fire) down the length of the two main thoroughfares, thus allowing them to defeat any attempt to emplace explosive devices on either route.

The platoon was barely in position when an RPG team appeared from a nearby alley. The soldiers ended that initial threat with a canister round. The F–15s then reported men on the rooftops immediately above the relief force and also near the flaming carcass of D22. The Abrams crews could not see the attackers above them, but the pilots illuminated the enemy positions with a directed infrared beam (known as Sparkle) that the tank commanders picked up with their night-vision goggles. The tankers opened up with their .50-caliber machine guns, aiming for the bottom of the bright beams of light. The armor-piercing rounds sliced easily through the light masonry or sheet metal of the upper floors of the buildings and then through the roofs, scattering the gunmen. The real-time situational awareness provided by the aviators protected the armor platoon in the potentially deadly urban canyon and denied the enemy positional advantage.

While the relief force fought to secure its intersection, the enemy kept up the pressure on the Dragoons. A small pack of dogs and several startled birds alerted D66's crew to the presence of a militia group even before it came into sight. Captain Simms thus already had his machine gun trained on a cross street down his alleyway when an RPG team turned the corner. The surprised gunmen disappeared among the flashes of .50-caliber armor piercing incendiary rounds spraying the walls and pavement all around them. At the same time, an RPG gunner peered around a corner from the North on Salem Street and loosed a rocket at D24 that sailed wide of the mark. Sergeant Wright returned fire with a HEAT round and killed him.

With Sergeant Wright securing the northern approaches of Salem Street and the relief force holding Jamhouri Street to the south, the small American force had "refused right" and "refused left," giving the enemy no chance to maneuver around the flanks. On the other hand, without infantry and having to maintain control over D22 and the two main routes, the eight tanks were in no position to launch a counterattack to dislodge the militiamen staging in the parallel street to the east of Salem. The battle in effect had become a standoff.

About this time, the F–15 flight lead reported that he was leaving the net to refuel from a tanker. It was the last time the forces on the ground would hear directly from the jets, although they stayed in the air for several more hours. Before the aircraft returned from the tanker stop, Air Force ground control directed the flight to talk only on high-frequency radios and only to the nearest Air Force ground control team located eighty kilometers north at FOB Kalsu. To communicate with the pilots, Simms thenceforth had to contact the battalion forward command post, which would relay the message through an online chat system to the Kalsu ground control team, which would pass it by radio to the aircrew. This effectively ended the close coordination between the troops in contact and the F–15s, eliminating the critical reconnaissance and target-designation capabilities the airmen had been providing to the ground tactical commander.

Just after Sergeant Wright's engagement, Major Taylor arrived on scene with his tank, an M88 recovery vehicle, a company of Iraqi soldiers, and a contingent of the local fire department. The Iraqi unit immediately established a screen along Jamhouri Street to secure the exit route. The Abrams and the M88 pressed on to the burning wreckage that was once Sergeant Chapman's tank. The engine fire had grown to consume the entire vehicle. Flames reached high above the buildings, and the heat could be felt at one hundred meters. Small puddles of molten aluminum were beginning to form at the base of the tank as the tracks and road wheels melted into the asphalt.

Two Apache helicopters also arrived at the scene at the same time. As the gunships made their first pass, another RPG team attempted to maneuver down Sergeant Brown's alley to the northeast. He could see their rocket poking up into the air as they moved behind a low wall. A HEAT round eliminated both the masonry structure and the gunmen. Once the Apaches located the tanks, the pilots reported armed men on the street to the east. Since Iraqi Army soldiers were now in the area, Captain Simms checked to confirm that there were no friendly dismounts in that vicinity. The Apaches reached the same conclusion almost simultaneously when they started taking fire. They requested clearance to engage, and Major Taylor approved the mission. The attack helicopters began a series of strafing runs down the axis of the street parallel to Salem, catching the enemy in enfilade. The Apaches relied solely on their 30-mm. chain guns, which were both precise and devastating against personnel in the open, thus limiting the potential for collateral damage. The pilots reported two to four enemy dismounts killed in the initial passes.

The attack aviation proved to be the ideal weapon at the perfect time, serving as the additional maneuver element needed to break the impasse. The enemy was now caught in a dilemma. If the militiamen remained on the parallel road, they were at the mercy of the helicopters. If they moved into the side streets, they fell under the guns of the tanks. Several insurgents chose the latter course and rushed to escape the aerial assault.

Sergeant Brown took out one RPG team with a HEAT round and engaged another group of militiamen with an MPAT. The Apaches saw an RPG team hesitating and destroyed it with 30-mm. cannons.

That was the last contact with the enemy. Under attack from the air and the ground and with no tactical options left open, the survivors slipped into the nearest houses and blended in with the civilians. The engagement had lasted four hours from the opening ambush to the final shot. Suddenly, all was quiet and the battlefield was empty, even of casualties. Throughout the night, a steady stream of unarmed people had policed up enemy wounded and dead and the raiding force had made no move to interfere.

Near sunrise, with the battle over and the danger of ammunition cookoffs in the tank diminished, Iraqi firemen moved in to extinguish the flames. The Dragoons repositioned closer around the destroyed Abrams to provide better security from the crowds that started forming at first light. The Iraqi rifle company and the strike platoon began searching the surrounding neighborhoods. They found a rocket at a school on Salem Street and detained eight male suspects. The Coalition force owned the Mahdi-dominated area for the next several hours as a complex ballet of cranes and heavy equipment transporters retrieved the massive hulk of D22.

Large, unfriendly crowds gathered on all sides of the perimeter throughout the day. Periodically, groups of children would run to within fifty meters of the tanks and throw rocks at the men and equipment involved in the recovery mission. That nuisance took on a deadlier cast on two separate occasions when hand grenades came flying in from the rear ranks of the kids and detonated near the tanks. Fragments from one blast slightly wounded Captain Simms' interpreter in the arm. At one point, a sniper also fired from long range, the round smacking into a telephone pole just overhead. The sheer mass of the thousands of people hovering so close posed a significant risk. As dangerous and frustrating as this was, the soldiers never lost their composure and never resorted to force to clear the streets. Whenever the mob moved forward, the American and Iraqi troops shouted verbal warnings, brandished their weapons, fired warning shots into the air, or formed online and moved toward the civilians to intimidate them into retreating. Apaches also were on station throughout and occasionally made low-level passes. By mid afternoon, the derelict tank was on the back of a heavy equipment transporter and the American force headed back to Camp Echo.

Both air and ground technology had helped achieve this victory, but the outcome had been decided largely by the ingenuity and bravery of the junior tank commanders and their men. Sergeant Chapman and his crew fought from a burning Abrams for almost fifteen minutes and then joined the remaining tanks to continue the fight. Sergeant Brown's decision to aggressively seize the key northeastern alley and his subsequent efforts to retain it while in close combat with the enemy most likely saved the unit from being overrun. He and his crew proved absolutely fearless in the face of wave after wave of attacks from what proved to be the enemy's most heavily used avenue of approach. All with a disabled turret and a civilian on the top of the tank whose identity and safety had to be protected. For the duration of the fight, Sergeant Brown and his crew were seemingly immune to defeat, fear, and enemy fire. The small but fierce battle along Salem Street prevented the Mahdi militia from taking control of a large city and enabled the Iraqi Army and police to regain dominance in the area. It also serves as a powerful reminder that the resourcefulness and courage of the American soldier remains the Army's greatest asset.

Editor: The M1028 canister round for the 120mm gun entered service in 2005, following an urgent request from the US Marine Corps and the Coalition Forces Land Component Command for use in Iraq. As indicated in this article, the new round provided tank commanders more engagement flexibility and more lethality against personnel targets.

Nighttime operations traditionally are associated with confusion and chaos, but in this case, the problems of the American tank platoon did not stem from the darkness. A hesitant Iraqi team split the force; a resolute RPG gunner scored a lethal hit on an Abrams tank, forcing its evacuation; and low-hanging wires jammed the turret of a second tank. The combination of these events transformed the rapid raid into a defense, with the tank platoon holding a perimeter against a rising tide of hostile militia.

Central to this change in posture was the commander's decision not to leave the disabled tank to become an enemy trophy and propaganda victory. This decision could not have been easy. It tied the platoon to a specific location amid an attack by a force of unknown size. Aggressive fighting by the tank crews, coupled with air support, held the perimeter, but the episode underscores both the strengths and weaknesses of armor in an urban environment; the tank's armor let it survive initial contact; its firepower enabled a quick and lethal response to the first attacks upon the column; and its mobility ensured the platoon reached its objective. In the perimeter defense, the platoon relied mainly on its armored survivability and firepower. However, against an urban dismounted threat able to move through streets and buildings, and along rooftops, the tanks relied on aerial assets to find and mark targets. The platoon's experience underscores the importance of combined arms operations in urban environments. An infantry contingent can help protect vehicular blind spots; mark targets otherwise invisible to the tank crew, and secure key positions against sudden flank, rear, or top-down attacks on the vehicles. The Iraqi strike team proved unable to fulfill this role, leaving the tank crews to wage the fight alone until a relief force arrived

Notes

1) This article is an expanded version of the essay that took first place in the U.S. Army Center of Military History (CMH) 2007 James Lawton Collins Jr. Special Topics Writing Competition and subsequently appeared in the Fall 2007 issue of Army History. It is based primarily on the direct observations of those who fought the battle.

2) Patrick Gaughen, Backgrounder No.17: The Fight for Diwaniyah: The Sadrist Trend and ISCI Struggle for Supremacy, (Washington, D.C.: The Institute for the Study of War, 2007), Historians files, CMH.

3) Thassin Abdul-Karaim, "40 Killed as Shiites, Iraqi Forces Fight," Fox News.com, 28 August 2006; "Iraqi Militia Kills 20 Soldiers, Seizes Key Town," Middle-East-online.com, 28 August 2008; U.S. Department of State, "Iraq Weekly Status Report," 30 August 2006, p. 5; copies of all in Historians files, CMH.

4) E-mail, Col. James A. Howard to Jon T. Hoffman, 14 May 08, Historians files, CMH.

Armor Battalion Intervention in Local Dispute

Editor: A local dispute broke out between Mahdi militia leaders and an Iraqi police chief. It escalated, and an American armored battalion found itself drawn into an unplanned urban fight with Mahdi fighters. Compiled from interviews of combatants and unit after action reports, Mark J. Reardon authored this piece, which first appeared as "Unanticipated Battle: Musayyib—July 2006," in Jon T. Hoffman (General Editor), *Tip of the Spear: U.S. Army Small-Unit Action Iraq, 2004-2007* (Washington, D.C.: U.S. Army Center of Military History, 2009).

Musayyib, a majority Shi'ite city of about two hundred thousand located sixty kilometers south of Baghdad, reflected many of the divisive issues that arose in Iraq after the toppling of Saddam Hussein's regime. On Saturday evening, 17 July 2005, al-Qaeda in Iraq targeted the town as part of a regional wave of suicide attacks. A propane tanker truck exploded in a fireball just as shoppers crowded a marketplace and worshippers departed an adjacent Shi'ite mosque. A hundred civilians perished in the inferno, making it one of the deadliest terrorist operations up to that point in the conflict.(1) Angry crowds blamed local authorities for not doing enough to prevent the horrific attack, while national legislators criticized the prime minister for repeated failures by Iraqi security forces. (2) Moqtada al-Sadr ordered his Mahdi militia to begin patrolling neighborhoods, calculating that he would garner popular support by doing so. The Baghdad government responded to the bombing by replacing the city's chief of police with Col. Ahmed Mijwal, a Shi'ite.

The colonel would prove to be a corrupt official who did little to soothe tensions between the religious sects. He was soon competing with Sadr's militia for money and influence. The two sides eventually clashed over the receipts from the gas station located in Tahir, a suburb of Musayyib. The urban area straddled the Euphrates, with Tahir on the western bank and Musayyib across a bridge to the east. Mijwal had assigned Mohammed Jassim, a Sunni who served with him in Hussein's army, to collect a share of the money at the end of each day. The militia, which was also extorting money and free gasoline from the station's owner, apparently was incensed at a Sunni interfering with a major source of revenue. (3)

On the morning of 22 July 2006, the Mahdi militia snatched Jassim from the gas station. (4) The kidnappers encountered a police patrol as they drove back to the mosque in Musayyib that served as their headquarters. The gunmen disarmed the Iraqi police and disabled their patrol vehicle by firing several rounds into the engine. Learning of the incident, an incensed Colonel Mijwal stormed over to the mosque to confront the militia leaders. After trading heated comments for a few minutes, Mijwal reportedly blurted out: "If you mess with me, I'll have the Americans bring this mosque down on your head!" (5) His words were more prophetic than he knew. Just then a patrol from Company D, 1st Battalion, 67th Armor, 4th Infantry Division, led by 2d Lt. C. Ryan Kelley, was en route to Tahir to teach Iraqi police officers the finer points of manning a roadside checkpoint. As the American patrol neared its destination, Sgt. Stanley R. Sneathen overheard shots coming from the east. (6) Kelley decided to detour to investigate.

The 4th Infantry Division was well into its second tour in Iraq. During its period of refitting back at Fort Hood, Texas, the outfit had converted to the new modular structure. The reorganization added a fourth brigade and pushed the combined-arms concept down to battalion level.(7) The 2d Brigade Combat Team's (BCT's) 1st Battalion, 67th Armor, for example, switched from an all tank force to a mix of companies: 2 mechanized infantry, 2 tank, 1 engineer, and 1 multifunctional support.(8) Combat experience in Iraq dictated other changes. M1114 up-armored high mobility multipurpose wheeled vehicles (HMMWVs, or Humvees), better suited to lengthy mounted patrols and narrow streets, replaced many of the M1A2 Abrams and M2A3 Bradleys. The mechanized and tank companies also traded platoons to provide a flexible mix of combat systems.

While a large percentage of the division's soldiers had seen combat prior to its second tour, they would find the political situation, insurgent tactics, and area of operations different from previous experiences. The 4th Division's latest deployment coincided with escalating sectarian violence instigated by the al-Qaeda–inspired bombing of the Samarra mosque in February 2006. The 2d BCT inherited the so-called Triangle of Death. Situated between Baghdad and Karbala, the religiously mixed region gained notoriety when both Sunni and Shi'ite death squads began dumping increasing numbers of victims alongside major roads or tossing their bodies into the Euphrates River. The 1st Battalion, 67th Armor, took over Forward Operating Base

(FOB) Iskandariyah, which surrounded a smoke-belching power plant several kilometers north of Musayyib in the heart of the triangle.

Four months to the day after the February bombing of the Samarra mosque, Lieutenant Kelley and his men were about to gain firsthand experience with the simmering tensions in Musayyib when they crossed the Euphrates River bridge from Tahir. The patrol consisted of four up-armored Humvees commanded respectively by Kelley, Sgt. Jahmali E. Samuel, Sgt. Brandon O. McDaniel, and S. Sgt. Carlos Garcia Jr. (9) The vehicles drove a couple hundred meters beyond the bridge and into the traffic circle in front of the mosque serving as the local Mahdi militia headquarters. It was a little after noon when Kelley saw Mijwal out front arguing with several militiamen. The Iraqi police colonel broke off the discussion and walked over, asking the Americans to "come with me."(10) Without another word, Mijwal departed. The patrol followed him to the main Musayyib police station located one-half mile southwest of the mosque. For better or worse, the small American unit had just become tied unwittingly to one side in the dispute over skimming gasoline receipts.

Colonel Mijwal asked Kelley to remain with him for a while as he sought out the kidnappers and the situation in town calmed down. After an hour, Sergeant McDaniel noticed several Iraqi police preparing to depart the station and queried them on their mission. They replied that they were going to investigate reports of militia carrying rocket-propelled grenades (RPGs). (11) Iraqi citizens were authorized to carry small arms but prohibited from possessing heavier weapons. Kelley relayed the information to higher headquarters, prompting the battalion operations center to direct him to verify the report. (12) He told Mijwal that the patrol had to go investigate but promised that he would return as soon as possible.

The Humvees departed, with Kelley's vehicle in the lead, shortly before 1400. As the lieutenant headed toward the mosque, he noticed that there were no cars or trucks on the road. All of the shops and houses appeared to be closed. As the patrol entered the traffic circle, Kelley saw armed men perched in nearby windows and atop the mosque. The unprecedented open display of weapons raised in his mind the specter of ambush. (13) The black-clad militiamen for their part probably assumed the Americans were coming to carry out Mijwal's threats. Within moments, five Mahdi fighters standing on the roof of the mosque opened fire with assault rifles. Kelley's turret gunner, Sergeant Sneathen, shot back, killing at least one insurgent. (14) The Humvees continued into the traffic circle and started taking more fire from a building to the left of the mosque. (15)

At a point opposite the mosque, the patrol stopped and all four turret gunners began spraying the Iraqi fighters with bullets. Everyone else dismounted to add their individual weapons to the fight. Most of the Iraqi fire was inaccurate, but two rounds cracked Sergeant McDaniel's windshield as he exited his Humvee. A third bullet ricocheted from the turret shield that protected his gunner, Private First Class Philip R. Adams. Adams hunched a little lower as he continued to trigger controlled bursts at the enemy. As the skirmish escalated, Sergeant Garcia radioed a situation report to the company command post. Informed of the firefight, Capt. Irvin W. Oliver Jr., the company commander, ordered Kelley to disengage and meet up with friendly forces at the first major road intersection north of town. The battalion headquarters in turn ordered a patrol consisting of four HMMWVs from the mortar platoon to converge on the same spot. (16)

Although the Americans were directing a large volume of suppressive fire against their opponents, Kelley estimated that thirty to forty individuals were still shooting back. A sudden explosion near the lieutenant's vehicle, followed by the whooshing sound of additional incoming RPG rockets, marked an escalation in the battle. The patrol had confirmed the hard way that the reports of militia carrying antitank weapons were accurate. Kelley got his men mounted up, and the patrol moved out. As the unit left the traffic circle, Sergeant Garcia's gunner, Cpl. Ryan C. Rupprecht, noticed a two-man RPG team approaching from the rear. His M240 machine gun jammed, forcing the corporal to engage the insurgents with his M4 carbine. (17) His accurate fire bowled over both Iraqis.

Still trading shots with the militia, the four Humvees headed southwest. That was the opposite direction from the linkup point, but the patrol would not have to fight its way through the insurgents around the mosque. Kelley also calculated that he would avoid potential ambushes by taking the less-direct route back toward the base. Mahdi gunmen were almost certainly already moving to close off the likely avenue of reinforcement. Although the patrol dodged several more RPGs while passing through an industrial sector, Lieutenant Kelley reached the intersection north of the city, marked on battalion maps as Checkpoint 11, without suffering casualties. He joined forces there with four Humvees from the mortar platoon led by Staff Sgt. Todd M. Tagami. Kelley ordered McDaniels, whose HMMWV engine was running roughly, back to the

base, with Sergeant Garcia's team as an escort. The remaining six vehicles established a defensive perimeter. *(See Map 1.)*

Back at Iskandariyah, Oliver told Sgt. First Class Jeffrey A. Mask, Kelley's platoon sergeant, and the 1st Platoon leader, 2d Lt. Keith G. Angstman, to send "every single soldier that we could get outside the wire . . . to Checkpoint 11." (18) Mask directed two of his tank commanders, Staff Sgt. David Teran and Sgt. Brian J. Steffani, to ready their crews for combat.(19) Sergeant Teran immediately felt the sense of urgency:

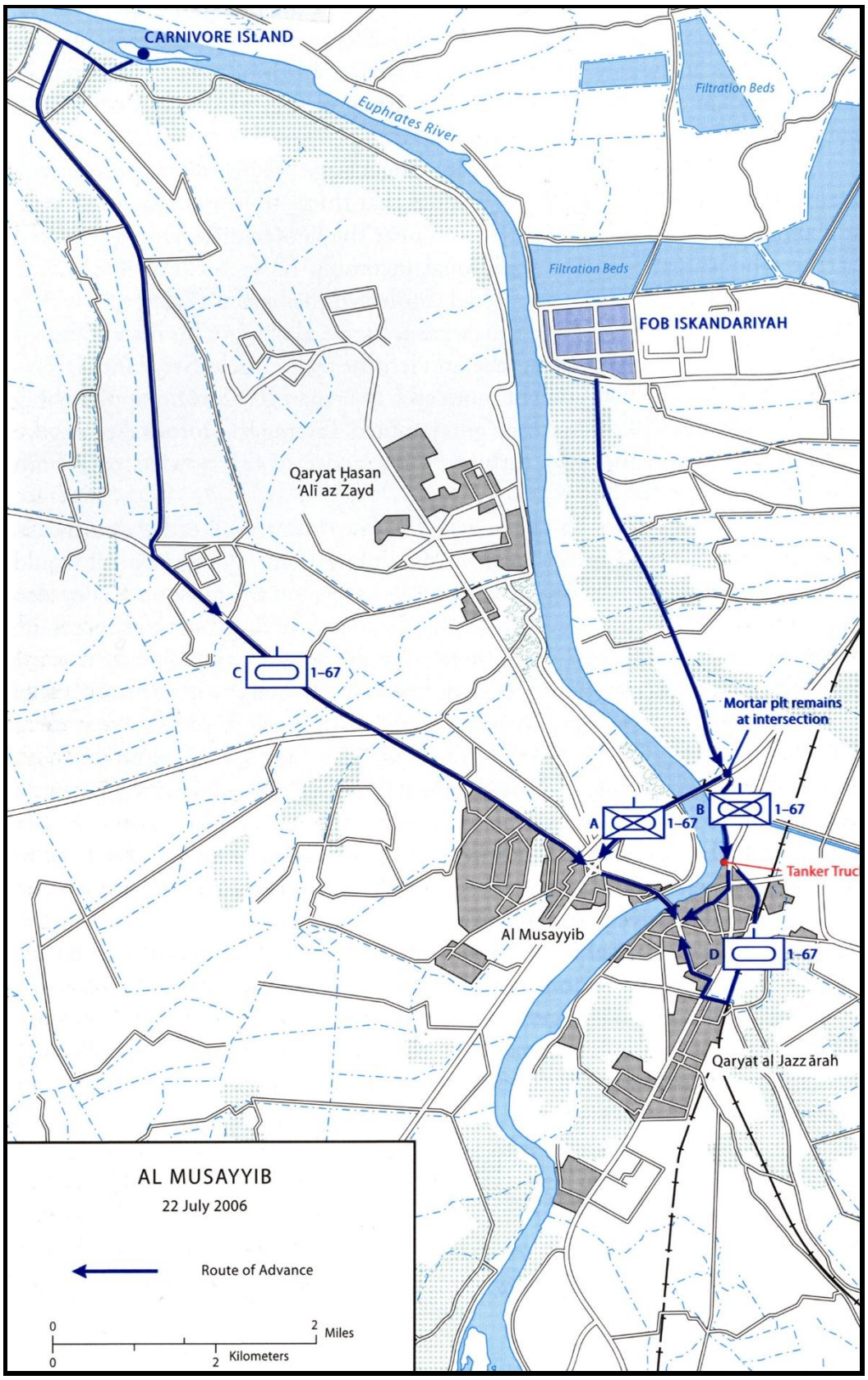
> I just got back from the shower after a night patrol when my platoon sergeant screamed at me to get ready to move out with the platoon's remaining gun trucks. As I headed for the motor pool I met Capt. Oliver who told me to prep the platoon's tanks rather than more Humvees. His statement surprised me because we had rarely taken tanks into Musayyib. In the past six months the company had only driven tanks at night around the outskirts of the town. Usually we try to keep the tank commanders and drivers available. But that day I actually had two infantry guys in my crew, one who drove and one who loaded. The infantry guy [Spec. Sean L. Creighton], who was driving, had never operated a tank until that day. (20)

Although Kelley had extracted his patrol from the city, Lt. Col. Patrick J. Donahoe, the commander of 1st Battalion, 67th Armor, did not consider the matter resolved. He began preparing for a coordinated counterattack against the militia. He planned to use Captain Oliver's company, augmented by Iraqi Army troops collocated with his battalion at Iskandariyah, to launch an assault into Musayyib from the southeast.

To ensure the attack did not simply drive off the insurgents, Colonel Donahoe moved to seal off possible escape routes. The force at Checkpoint 11 was in position to initially cover the north side of town. Donahoe instructed Capt. Bradley J. Maroyka's Company A to secure the sole bridge between Tahir and Musayyib, thus closing off the west side of the city. Most of Maroyka's men, however, manned guard towers situated at regular intervals along Iskandariyah's four-kilometer perimeter. The captain realized he would need more personnel to execute the blocking mission than the only readily available infantry section belonging to 2d Lt. Matthew F. Dusablon's 3d Platoon. So Maroyka ordered his platoon leaders to swap off-duty mechanics for infantry soldiers manning the fence line and to rouse from sleep those soldiers who had finished the night guard shift. Staff Sgt. Brian L. Jenkins awoke to the words, "Company D just got hit in Musayyib." Jenkins had no other information but quickly understood the gravity of the situation: "We started loading everything up on the Humvees. Then we were told to bring armored vehicles. That is when I realized something serious was going on." Ultimately, Maroyka mustered just three Humvees and two Bradleys (both with their 25-mm. chain guns nonoperational). (21)

Colonel Donahoe ordered Capt. Stefan R. McFarland's Company C to take up a blocking position at the Tahir police station and assist Company A in sealing off the western exit from Musayyib. Two of McFarland's platoons were conducting changeover at a patrol base on an island in the Euphrates River located several miles northwest of Musayyib. McFarland assigned the Tahir mission to 1st Lt. Ken Nguyen and his 1st Platoon. Half of the platoon became stranded, however, when a five-ton truck slipped off a narrow causeway linking the island with the riverbank. (22) Nguyen departed with the remaining vehicles—his own up-armored Humvee and another under Sgt. James L. Freeman, plus two Abrams tanks commanded by Sgt. First Class Samuel Del Pilar and Sgt. Gregory T. Wright.

Conforming to standard operating procedures discouraging use of a single avenue for entry and egress into an objective area, Donahoe tasked Company B with safeguarding the road leading from Checkpoint 11 to the traffic circle at the mosque. This would also help seal the city from the north. Once Company D completed the counterattack from the southeast, Captain Oliver's force would depart the city using the northern route secured by Company B.


CARNIVORE ISLAND
Euphrates River
Filtration Beds
Filtration Beds
FOB ISKANDARIYAH
Qaryat Ḥasan
'Alī az Zayd
C 1–67
Mortar plt remains
at intersection
A 1–67
B 1–67
Tanker Truc
Al Musayyib
D 1–67
Qaryat al Jazzārah
AL MUSAYYIB
22 July 2006
Route of Advance
0 2 Miles
0 2 Kilometers

Map 1

Donahoe notified the Company B executive officer, Capt. Barry E. Wiley II, of the unit's mission. (23) The departure of the regular company commander on mid-tour leave had left Wiley temporarily in command. He summoned the platoon leaders to his command post and ordered them to start recalling everybody. (24) His initial plan called for a platoon of up-armored Humvees to secure the egress route for Company D. This conformed to previous practice that stressed avoiding damage to the streets by limiting the size and number of combat vehicles sent into Musayyib. The radio traffic coming over the speakers in the company command post, however, indicated that the fighting was more intense than in past incidents. The task organization soon evolved into a mix of Bradleys and gun trucks and then changed again when Wiley settled on employing all of the tanks and Bradleys he had available. (25) His scheme of maneuver called for Company B to hold north of the Checkpoint 11 intersection until Company D moved out in the assault. Then Wiley would head south to secure the designated egress route. (26)

Company B faced difficulties similar to others when it attempted to marshal its personnel. Two platoons had just returned to Iskandariyah after conducting gunnery training. They were busy unloading vehicles, showering, and cleaning weapons when the word came to mount up. Despite the absence of his 2d Platoon, which manned a combat outpost, Captain Wiley succeeded in assembling 7 Bradleys, 2 tanks, and 45 soldiers. (27) The 3d Platoon, commanded by 1st Lt. Jeffrey W. Donahue, one of the company's most experienced officers, formed the column's vanguard. The 1st Platoon, led by the newest officer, 2d Lt. Nathan A. Brown, brought up the rear. As Company B lined up at the forward operating base's front gate, Wiley notified the battalion executive officer, Maj. Ty D. Bonner, that his unit was ready to enter the fight.

Moments later, Company D departed FOB Iskandariyah with four tanks and seven Humvees. (28) Captain Oliver left behind two partially manned Humvees, under Lieutenant Angstman's command, with instructions to join up once they had full crews. The quartet of Abrams formed the point element, with the tank commanded by Sgt. First Class Corey E. Stevenson, Angstman's platoon sergeant and the company's acting first sergeant, in the lead. Staff Sgt. Arthur H. Castro, Sergeant Teran, and Sgt. Brian J. Steffani followed in that order. Company D headed south toward the road intersection held by Kelley and Tagami.(29)

While the 1st Battalion prepared for battle, Colonel Donahoe contacted Capt. James P. Cook, an American adviser with the 2d Battalion, 4th Brigade, 8th Iraqi Army Division, also located at Iskandariyah. Cook passed on the request for assistance to Lt. Col. Shahed Mohammed Jalel. The Iraqi battalion commander assembled two infantry companies in a few minutes, mounted them on vehicles, and sped off to link up with Captain Oliver. Donahoe and Oliver were impressed by the performance of the Iraqi unit. Only later did it dawn on the Company D commander: "The Iraqi Army was kind of expecting something to happen. Everybody was expecting it except for us." (30)

Captain Oliver's unit arrived at Kelley and Tagami's position without encountering resistance. A few moments later, the column of pickup trucks bearing the Iraqi soldiers and Captain Cook pulled up behind Company D. Oliver instructed his tanks to set up a hasty security perimeter between the intersection and the city and then started preparing an operations order to issue to the units assembled at the intersection. After mulling over possible courses of action while examining a map of the city, Oliver radioed for all leaders to assemble at his Humvee. He explained to the group that Company D, along with the Iraqi units, would move south along the eastern outskirts of Musayyib, bypassing a suspected militia strongpoint on the northern edge of town. Once the column reached the southeast corner of the city, it would head northwest up a main road to assault the mosque. The tanks would lead the attack, followed by the American Humvees and Iraqi Army vehicles. Turning to Cook and Jalel, Oliver explained that the Iraqi contingent had three important missions. First, it would clear out the industrial area where Lieutenant Kelley had taken fire as his patrol departed the city. Then the Iraqis would move forward on foot alongside the American vehicles during the final assault on the objective. After the militia had been defeated, Company D would provide security for the Iraqis while they searched the mosque for documents and weapons. Captain Oliver closed by reminding everyone that they would depart Musayyib using the route secured by Company B. (31) Partway through the briefing, Lieutenant Angstman arrived with his two Humvees. He received the mission of providing rear security behind the Iraqi units. (32) Sergeant Tagami's mortar platoon would remain at Checkpoint 11 while Kelley joined the assault.

Oliver was wrapping up his operations order when a tanker truck unexpectedly appeared. Since it was virtually the only vehicle operating in the city at that time, two AH–64 Apaches on station over Musayyib had been following its movements. The pilot of the lead helicopter, call sign Longbow 62, broke into the battalion radio net to report: "I have a white fuel truck about a kilometer and a half from the tanks at Checkpoint 11. I

am concerned that it is a Vehicle Borne Improvised Explosive Device [IED]. If he crosses the canal, I am going to fire." (33) Oliver asked the Apache pilot to go ahead and engage the vehicle, but the latter replied that he could not fire unless authorized by higher headquarters. Alerted by the radio call, Sergeant Teran moved his Abrams into the road to prevent the truck from entering the company perimeter. The truck stopped when it saw that and then reversed for a short distance before backing into the courtyard of a large building adjacent to Company D's intended route of advance.(34)

Grabbing a radio handset, Captain Oliver voiced concerns to Colonel Donahoe over the potential danger and stated that he did not want to start the counterattack until the truck had been destroyed. (35) Seconds later, the radio crackled with a transmission from the battalion commander: "Longbow 62 this is Dealer 6, engage the white fuel truck on [Route] Jennifer. My initials Poppa Juliet Delta (PJD)." The pilot acknowledged Donahoe's order. Less than a minute later, a Hellfire missile smashed into the cab of the truck, which burst into flames and sent a large column of smoke into the air. (36)

The immediate threat eliminated, Company D moved out but quickly met other resistance as soon as it passed the burning tanker. A lone gunman atop a water tank opened fire on the Humvees trailing behind the four Abrams. Captain Oliver ordered: "Take out the tower." Unsure where the fire was coming from, one of the tanks blasted a cell-phone tower. The mistake had an unintended but beneficial consequence. The Mahdi militia communicated via cell phone—when the hub went down, "they couldn't talk." (37) A few moments later, an Abrams main-gun round took out the correct target.

Other militiamen joined in the fray as Company D advanced, spraying various parts of the column with small-arms fire. Lieutenant Angstman's gunners at the rear responded with hundreds of rounds from their M240 machine guns. (38) The insurgents directed most of their attention to the lead tanks as they approached the outskirts of the city. Sergeant Stevenson's gunner, Sgt. Jess C. Thompson, identified four militiamen in a car firing AK47s at the first Abrams. The car disappeared in a ball of flame after Thompson hit it with a 120-mm. high-explosive antitank round. The sergeant quickly found new targets:

> I was scanning to the left when [I noticed] more small arms fire. . . . I shot down a couple of insurgents then traversed [the turret] to the left after Red 4 [Stevenson] called out "Identified Car" [pinpointing a potential vehicle-borne IED]. I replied "Identified Car," then shot a high-explosive round and blew it up. We continued our movement, but [now more] slowly because of irrigation ditches and soft terrain.(39)

Company B trailed Oliver at a distance, until Company D turned east to cross over a set of railroad tracks and then angled sharply south again. The column led by Captain Wiley continued down the main road from the north into Musayyib. He had an Abrams in the lead, followed by three 1st Platoon Bradleys, his own Bradley, a trio of Bradleys from Lieutenant Brown's 3d Platoon, and the second M1A2 bringing up the rear. That trail tank had orders to halt before it lost sight of Sergeant Tagami's platoon. Likewise, Brown's last Bradley would stop before it moved out of visual contact with the tank. The process would be repeated until Company B was stretched along the entire length of the route between the intersection occupied by the mortar platoon and the traffic circle. (40)

Company B initially ran the same gauntlet as Company D, though the opposition was now much reduced. Lieutenant Donahue was in the middle of the action: "We rolled past the burning truck suspected of being a vehicle borne IED. The lead tank was about 100 yards in front of my vehicle. As he passed a building on the edge of town, the M1A2 Abrams was engaged by an insurgent rocket propelled grenade team in an alleyway." (41) The blast caused the Abrams' gunner, Sgt. Brian A. Craycraft, to briefly lose control of the turret. It spun crazily; but he got it settled, and his tank resumed the advance. (42) Donahue's Bradley rolled up slowly and scanned down the alley. When the gunner reported he could not see anyone there, the remainder of Company B continued.

On the western side of the river, Lieutenant Nguyen's platoon arrived in Tahir shortly before Captain Maroyka's company. Nguyen noticed a throng of Iraqi Army and police around the gas station, with a gaggle of Humvees and law enforcement vehicles parked nearby at the police station. *(See Map 2.)* When bullets began ricocheting in the platoon's vicinity, Nguyen sought and received permission to return fire from the most senior Iraqi he could find. The tanks opened up with their coaxial machine guns, forcing the militiamen to scramble for cover. Sergeant Wright's gunner, Cpl. Edwin J. Rodriguez, chased four gunmen with his 7.62-mm. bursts, but they escaped into a three story building. (43) The Iraqis were safe for the moment, since

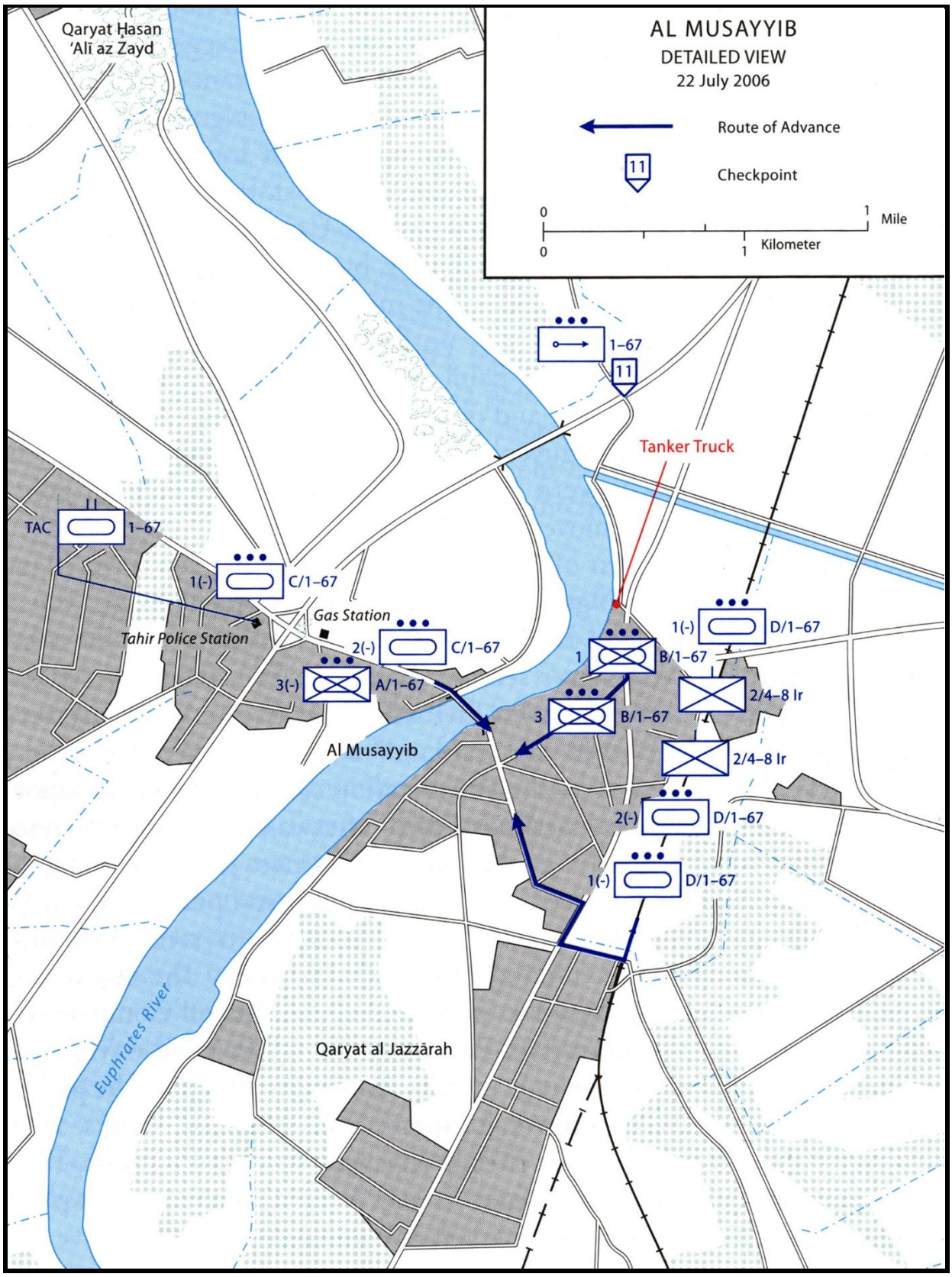
Nguyen decided to withhold use of the tank main guns until he got Iraqi bystanders out of the line of fire. The arrival of the Babil Province police chief, Brig. Gen. Abbud Hamza al-Mamouri Qais, and the Hillah police Special Weapons and Tactics (SWAT) team solved Nguyen's dilemma. After the American lieutenant expressed to Qais his concern about possible fratricide, the Iraqi police general ordered everyone to move back. (44)

In the meantime, the pair of Company C tanks marooned on the island patrol base arrived in Tahir. Nguyen waved C10, commanded by Sgt. Robert K. Curry, and Staff Sgt. Richard D. Phillips' C13 into position near the other pair of Abrams. (45) The company's senior noncommissioned officer, 1st Sgt. Charles M. King, accompanied by a fuel truck and two more up-armored Humvees, also linked up with the platoon. (46) King's Humvee disgorged a sniper team that scrambled up to the police station roof. (47) Colonel Donahoe's forward headquarters element arrived shortly afterward. Donahoe directed his top enlisted soldier, Command Sgt. Maj. Ernest Barnett Jr., to position the battalion command vehicles near General Qais' command post. (48) Once on the scene, Colonel Donahoe decided to send Maroyka's Company A across the bridge linking Tahir with Musayyib. The new assault from the northwest would take some of the enemy pressure off Company D's advance from the opposite direction. Receiving the order via radio while still en route, Maroyka passed the change in mission along to his unit. The path to the bridge went right through the major intersection where the Iraqi security forces and Nguyen's platoon were already engaged with Mahdi forces. From there, Company A would have to fight its way under fire across the exposed and narrow bridge over the Euphrates before it entered Musayyib.

As Captain Maroyka neared the Tahir police station, he could hear heavy small-arms fire. Rather than continue leading with up-armored Humvees, he sent his two Bradleys to the front of the column. Dusablon's M2A3 Bradley assumed the lead, followed by Sergeant Jenkins' armored vehicle and then the trio of gun trucks commanded by Staff Sgt. Chadwick R. Decker, Sgt. Trevor T. Lord, and Sgt. John P. Norton. At the intersection, the company turned left onto the road leading to Musayyib. Two hundred meters farther, the assault force began receiving small-arms and RPG fire. Bulling forward, Maroyka's men soon found themselves showered with "massive amounts of small arms fire, RPG's, and frag [mentation] grenades thrown on top of their BFVs [Bradley fighting vehicles] and next to their gun trucks." (49) Corporal Rodriguez watched the four insurgents he had earlier fired upon scramble to the building roof where they began tossing grenades at Company A's Humvees. Although he now had permission to fire his main gun, the tank commander could not engage the militiamen without endangering Company A. (50)

In Maroyka's column, Sergeant Jenkins noted the increasing opposition: "An RPG went between the slowly moving Bradleys. A second hit and exploded to the right of my vehicle. A volley of three RPGs sailed in. One hit some overhead power lines and spun away trailing sparks. The other two slammed into the front of Lieutenant Dusablon's Bradley."(51) One of those rockets ricocheted off the lieutenant's headlight and detonated against his thermal sight. Enveloped by the heat of the blast and a shower of fragments, he dropped down into the turret, surprisingly unhurt. (52) The explosion tripped the Bradley's electrical circuit breakers, shutting down the turret power and radios. The engine and the intercom system remained operable. Dusablon ordered his driver to halt. The lieutenant and his gunner popped open their turret hatches and began firing at the enemy RPG teams with M4 carbines. Fixated on the most dangerous threat, both men did not realize militiamen on nearby roofs were firing down at them. It was only after the battle that Dusablon would notice the bullet holes in the top of the Bradley's anti-sniper netting. (53) Unable to bring the Bradley's coaxial machine gun to bear with a dead turret, the lieutenant ordered his driver to reverse back up the street.

By this time, Sergeant Jenkins had pulled in front to suppress the RPG teams. The Humvees closed up behind Jenkins' M2A3, and the rest of the column resumed inching forward. The American vehicles drew heavy small arms fire from a school on the right side of the street and a multistory building on the left. Other militiamen began popping out of alleyways to loose off bursts from automatic weapons. Sergeant Jenkins' Bradley, which had been firing at insurgents on nearby rooftops, experienced a coaxial machine-gun malfunction. When his effort to repair it under fire proved unsuccessful, his M2A3 and the trio of Humvees backed up the road until they reached Nguyen's position. (54)


AL MUSAYYIB
DETAILED VIEW
22 July 2006
Route of Advance
Checkpoint
0
1
Mile
0
1
Kilometer
Qaryat Ḥasan
'Alī az Zayd
1–67
11
Tanker Truck
TAC
1–67
1(-)
C/1–67
Gas Station
Tahir Police Station
2(-)
C/1–67
3(-)
A/1–67
Al Musayyib
1(-)
D/1–67
1
B/1–67
2/4–8 Ir
3
B/1–67
2/4–8 Ir
2(-)
D/1–67
1(-)
D/1–67
Euphrates River
Qaryat al Jazzārah

Map 2

The militia's apparent victory was short lived, as it opened them up to retribution. Lieutenant Nguyen's tanks were now able to engage targets without fear of injuring their comrades. When Maroyka's force pulled behind Corporal Rodriguez's Abrams, he brought his 120-mm. cannon to bear on the three-story building occupied by the four men who had earlier outrun his machine gun: "The insurgents were still on the balcony after Company A backed up. I lased [to obtain range information for the fire control computer] and hit the balcony with four main gun rounds. When the smoke cleared, there were no more grenades being thrown from the building." (55) The other tanks destroyed several more enemy positions. The battalion's next push into western Musayyib would meet with less resistance.

Maroyka's ill-fated attack made it clear to Colonel Donahoe that another assault from Tahir would require tank support. He believed the bridge could not support the weight of an Abrams, but he wanted the M1A2s to clear a passage to the riverbank and then take up firing positions that would support Company A's second attempt to get into Musayyib. Donahoe shared the new plan with Captain McFarland, the Company C commander, and Maroyka. MacFarland ordered Sergeant Del Pilar to switch to the battalion radio frequency and coordinate directly with the Company A commander. Maroyka told the section leader that his two tanks would lead. Del Pilar moved out as the point, followed by Sergeant Wright's Abrams, Lieutenant Dusablon's hastily repaired vehicle, and Sergeant Jenkins' Bradley bringing up the rear. A few hundred yards up the road, Del Pilar noticed an Iraqi police vehicle: "It kind of looked like it had been shot up. The doors were open, you know, tires flat and bullet holes in it."(56) He had come upon the scene of the original confrontation between the police and militia kidnappers.

The armored column did not encounter significant opposition until Del Pilar reached the near end of the bridge, when heavier small-arms fire and a few RPGs began impacting near the tanks. Convinced that it was unwise to remain stationary in the face of this increasing fire, the sergeant ordered his driver to cross the bridge. Colonel Donahoe heard Del Pilar broadcast his intentions over the battalion net and immediately told him to stay off the bridge. It was too late. The driver already was gunning the engine and racing onto the structure. (57) The second Abrams followed its section leader without hesitation. Lieutenant Dusablon and Sergeant Jenkins paused for a moment to ascertain whether the bridge had been damaged by the tanks. Then the two Bradleys followed the tanks across. (58)

The pair of Abrams continued up the street until they entered the traffic circle where Lieutenant Kelley's patrol had been fired upon. Del Pilar paused for a moment to gain his bearings. Even with the engine roaring and commander's hatch lowered, he could hear bullets ricocheting off the turret. His gunner returned fire with the coaxial machine gun against any winking muzzle flash he could see. Realizing even a tank should not remain exposed in the traffic circle indefinitely, Sergeant Del Pilar ordered his driver to head southeast to link up with Company D. Sergeant Wright followed behind and to the left of the lead Abrams. After traveling several hundred yards, both tanks came to an abrupt halt when Del Pilar's driver yelled over the intercom: "I've got to stop. I've got an IED right in front of me." (59) The Abrams' turrets began traversing left and right to spot militia RPG teams that might be lurking in ambush.

By this time, Company D was nearing the industrial area in southeast Musayyib. The column turned right onto a main road and began crossing over a bridge spanning a large irrigation canal. Captain Oliver was not surprised at the reaction provoked by the lead tank: "All hell broke loose. There were multiple enemy fire teams firing at us with AK47s, machine guns, and RPGs. We engaged them and killed some, while others withdrew."(60)

Oliver asked Captain Cook to have Colonel Jalel bring up his troops to clear the buildings on either side of the bridge. The four tanks slowed to a crawl to allow the Iraqi soldiers to make their way to the front. At that speed, Sergeant Castro spotted an IED emplaced in the road and told his driver to back away from it. An Iraqi soldier, Saed Dakhel Nuwaier, walked forward and began following the command wire in an effort to pinpoint the triggerman. (61) As he approached the building that it snaked into, an insurgent hiding inside shot him dead. Sergeant Castro fired at the IED with his .50-caliber machine gun, and it exploded. Three Iraqi soldiers then ran forward to recover their fallen comrade. (62) Seconds later, Castro spotted an RPG team lurking on a nearby rooftop. He pointed out the targets to his gunner, Cpl. Mark E. Baldwin, who blew them away with a 120-mm. high-explosive round. The loader, Sgt. Roberto Burgos, saw an Iraqi with an antitank rocket launcher attempting to crawl behind Sergeant Stevenson's tank. Burgos killed the militiaman with a short burst from his M240 machine gun. (63)

At the rear of the stalled column, the four Humvees began drawing enemy fire from a white, two-story house two hundred meters to the north. Lieutenant Angstman ordered his section to dismount: "We took cover behind our vehicles and a stone fence to our rear and began returning fire. We fired about two magazines per dismount and three 40-mm. high-explosive grenades, along with the Humvee's turret machineguns, but [that] didn't seem to have much effect on the house." (64) Meanwhile, Sgt. Daniel A. Lewandowski alerted the platoon commander to several gunmen firing from behind a car parked in a nearby alleyway. (65) Angstman ordered half of his element to turn their attention to the enemy in the alley.

Sergeant Teran heard a radio call reporting the firefight at the rear of the column and asked Captain Oliver for permission to assist Angstman. The company commander assented. Locking one track in place while applying power to the other, both Abrams in Teran's section spun around on their axis and then headed back the way they had come. As they approached the Humvees, Teran asked Angstman to move his vehicles out of the road so he could pass. Angstman complied and pointed out the building that was giving him the greatest trouble. Teran got into position and fired two 120-mm. high explosive rounds at the house. Sergeant Steffani's Abrams added two more. Angstman dispatched Sergeant Lewandowski with a few men to search the structure. They found one dead militiaman and one wounded.

The tank section began retracing its path back toward the head of the column, but Sergeant Teran's M1A2 Abrams became stuck in an irrigation ditch. His crew dismounted under fire and hooked a tow cable to Sergeant Steffani's tank, which pulled the stranded Abrams free. The section resumed its journey to the front of Company D, which had halted again after spotting a second IED in the road leading to the mosque. (66) They were now close enough to the objective that Sergeant Stevenson could see the tanks from Company C, also hung up by an IED, several hundred yards to the north.

Captain Wiley's Company B, charged with securing the battalion's egress route, was encountering different challenges. Trailing in the wake of the lead Abrams, Lieutenant Donahue saw a wounded Iraqi lying on the sidewalk and instructed his driver to halt. The platoon commander started to climb out of the turret to investigate, throwing his load-bearing vest to the ground and grabbing his rifle. "As I was coming out, we started taking fire . . . my gunner could not traverse the turret because I was getting out . . . [so] I literally jumped right off the turret to the ground." (67) Donahue scrambled to the opposite side of the Bradley to gain cover. Realizing he could do little by himself, the lieutenant banged on the driver's hatch and told him to drop the ramp. Sgt. Mickey E. Brigman's team piled out the back of the Bradley moments later. With bullets pinging off the vehicle's armor, Donahue directed the men to seek cover at the base of a nearby courtyard wall. Moving in its shelter, the group got near the next Bradley and linked up with a second dismounted element under Staff Sgt. Jerry W. Holcomb II. The platoon commander told the two team leaders to clear out nearby houses.(68)

Donahue's efforts to root out the gunmen were hampered by language barriers. One of the last units to depart Iskandariyah, Company B found that "everyone [else] grabbed all of the interpreters there were." (69) The soldiers found themselves reduced to communicating with the occupants of the houses using pidgin Arabic and pantomime. A desire to avoid harming civilians also slowed the process. Stepping onto the top of one building, Donahue and his men found themselves trading fire with militia shooting from an adjacent roof. It reminded him of "one of those games at the arcade with the target that pops up and you're trying to knock it down, smack it back down before it pops up again . . . [they] have a little wall, and they would just stick the gun over and spray."(70)

Monitoring the platoon's progress over the radio, Captain Wiley realized his dismounted elements were moving too far off the main street in pursuit of the gunmen. He ordered Donahue to return to the egress route and reminded the company to keep the road under observation to prevent insurgents from emplacing IEDs. He also sent medics to treat the wounded Iraqi, but the man had died.

While the enemy facing Company B refused to make a stand, the insurgents near the mosque swarmed around the American armor there. The Company A Bradleys had caught up with the Company C Abrams stopped in the road by an IED. The four stationary targets were a magnet for RPG teams, which rapidly converged on the site. The militiamen took positions in alleys, second floor windows, and rooftops. The Americans laid down suppressive fire with their machine guns, the tanks taking on street-level targets while the Bradleys focused on upper-story windows and roofs. But it was not enough against a numerous and dispersed enemy.

A rocket soon hit Sergeant Jenkins' Bradley, sending a ball of fire up its left side, penetrating the hull about one foot behind the driver, and cutting electrical lines.(71) The Bradley lost turret power, radio, and internal communications. Damage to the cooling system also shut down the engine. (72) Jenkins ordered his gunner, Private First Class Matthew C. Bragg, to manually traverse the turret to bring the coaxial machine gun to bear. Fragments were jamming the turret, and it took several attempts before Bragg succeeded in freeing it. The crew also got the radio working; but a few moments later, while Jenkins relayed a status report to Captain Maroyka, another RPG slammed into the rear of the turret. The transmission ended abruptly in midsentence as the vehicle lost all power. The driver finally coaxed the Bradley's engine back to life, and Jenkins turned his damaged vehicle back toward the Tahir police station. (73)

The RPG teams now concentrated their efforts against Dusablon's M2A3. (74) The blast of several near misses repeatedly shook his Bradley. One finally struck home. The halon fire suppression system went off; a soldier in the rear compartment, Spec. Isaac Guiterrez, screamed out that he could not see anything. The lieutenant ordered his driver and gunner to assist the injured man while he took the turret controls and continued to engage targets. Dusablon reported the casualty to company headquarters. Asked whether the wounded man would require air or ground evacuation, he reflexively answered "air" because that was the standard for injuries threatening life, limb, or eyesight. Given the amount of incoming fire, he realized it would be impossible for a helicopter to land in the traffic circle. He thus ordered his driver to head back over the bridge. When the two Bradleys limped into the perimeter at Tahir, Lieutenant Nguyen sent his two other Abrams into Musayyib and also deployed his own and Sgt. James L. Freeman's Humvees to secure the bridge. (75)

Even before the reinforcements arrived, Sergeant Del Pilar's section of Company C tanks exacted a toll from the militia near the traffic circle in return for the damage inflicted on the Bradleys. He could see gunmen running to the scene, but also felt that the tide was turning. "We engaged them with our [automatic] weapons. . . . .50 caliber, M240, and coaxial machineguns. . . . We opened the hatches and were engaging from the top of the tank at that time, because we pretty much had control of the circle at that point."(76) Sergeants Curry and Philipp joined up soon after and added their firepower to the battle. Then General Qais ordered the Hillah SWAT unit to cross the river.

Company D still had to deal with the IED blocking its progress. Captain Oliver requested one of the Apaches circling overhead to take out the obstacle with its 30-mm. cannon. The helicopter missed on its first attempt, but the second strafing run detonated an unseen IED on the opposite side of the road. (77) It took a couple more time-consuming gun runs before the Apache destroyed the initial IED. (78) As the dust cleared from the explosion, Oliver asked Captain Cook to have Colonel Jalel's infantry companies push forward into the traffic circle.

The destruction of the final IED signaled the end of the Mahdi militia's confrontation with the 1st Battalion, 67th Armor. The convergence of two Iraqi infantry companies, Hillah SWAT, and several more Abrams took the fight out of the gunmen near the mosque. The insurgents began disappearing into nearby neighborhoods dragging their casualties with them. Within minutes, Company D and its accompanying Iraqi soldiers linked up with the four Company C tanks in the traffic circle. General Qais then ordered the Hillah SWAT to clear the mosque. The Coalition force recovered a number of documents but only a few weapons.

The battle for Musayyib, unplanned by either side, had concluded as fast as it began. But it had a lasting impact. Colonel Mijwal found himself transferred to another job. The Mahdi militia treaded lightly around the Americans for the remainder of the 1st Battalion, 67th Armor's deployment, opting to target patrols with IEDs rather than engaging in open combat. And the 4th Division soldiers who fought that day gained an appreciation for their ability to handle a determined enemy in an urban environment.

Editor: Operations in urban areas amid sectarian conflict combined with old-fashioned power plays and corrupt practices makes for an environment that can quickly change from calm to combat with little warning. In the case outlined above, an armored unit possessed the means to survive initial contact, the combat power to take the fight to the enemy, and the mobility to do so at a time and place of its choosing. However, the multiple manpower demands associated with unit sustainment and security in a COIN environment reduced the soldiers and assets available when a sudden surge in combat power is required, as in the case described above.

The accidental destruction of the cell phone tower is instructive, since the cell phone has become the primary means of communication among real and potential adversaries. Commanders need to weigh the relative cost and benefits of disrupting enemy command, control, and communications versus the impact upon the civilian community.

The Mahdi militia here used RPG showers against armored vehicle, especially when given the time to deploy teams in multiple locations and heights. The tactic has become standard in urban areas and traces its origins to the Chechens fighting against the Russians in Grozny in the 1990s. Even without obtaining a kill, such shower attacks can cause major damage to armored vehicles and onboard systems, including the Abrams and Bradley, evidenced by the impact upon the two Bradleys engaged at the traffic square.

The fight for the traffic square highlights the importance of mobility for armored platforms—they become more vulnerable when stopped and subject to attacks from multiple directions. Although it may be necessary to secure a position, a stationary defense nullifies the mobility of an armored task force.

The difficulties experienced in communicating with Iraqi forces underscores the importance of language skills throughout the force. In this case, the unit was short on interpreters, but this paucity underscored a larger issue faced by the Army in Iraqi—a general lack of Arabic language skills that made it dependent upon interpreters in the first place.

Notes

1) Andy Mosher and Saad Sarhan, "Death Toll Rises to 100 in Suicide Blast: Relatives Seek Missing After Attack That Took Shiite and Sunni Lives," Washington Post, 18 July 2005, copy in Historians files, U.S. Army Center of Military History (CMH), Washington, D.C.

2) "Carnage in Iraq, Fuel Truck Bomb Kills 98," *Turkish Daily News*, 18 July 2005, copy in Historians files, CMH.

3) Interview, Mark J. Reardon, CMH, with Lt. Col. Patrick J. Donahoe, CO, 1st Bn, 67th Armor, and Command Sgt. Maj. Ernest Barnett Jr., 1st Bn, 67th Armor, 30 Nov 06; Ltr, Capt. Irvin W. Oliver Jr., Commanding Officer (CO), Co D, 1st Bn, 67th Armor, to author, 4 Feb 08; both in Historians files, CMH.

4) After Action Review (AAR), 1st Bn, 67th Armor, n.d., sub: Bn Actions—Dealer, Archangel, Carnivore, Historians files, CMH.

5) Interview, Reardon with Donahoe and Barnett, 30 Nov 06.

6) Sworn Statement, Sgt. Stanley R. Sneathen, Co D, 1st Bn, 67th Armor, 25 Oct 06, copy in Historians files, CMH.

7) William M. Donnelly, *Transforming an Army at War: Designing the Modular Force, 1991–2005* (Washington, D.C.: U.S. Army Center of Military History, 2007), pp. 44–45.

8) Ltr, Lt. Col. Patrick J. Donahoe to author, 19 Jan 07, Historians files, CMH.

9) Sworn Statement, 2d Lt. C. Ryan Kelley, Plt Ldr, 2d Plt, Co D, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

10) Interview, Reardon with 1st Lt. C. Ryan Kelley, Plt Ldr, 2d Plt, Co D, 1st Bn, 67th Armor, 28 Nov 06, Historians files, CMH.

11) Sworn Statement, Sgt. Brandon O. McDaniel, Veh Cdr, Co D, 1st Bn, 67th Armor, 24 Oct 06, Historians files, CMH.

12) Interview, Reardon with Donahoe and Barnett, 30 Nov 06.

13) Interview, Reardon with Kelley, 28 Nov 06.

14) Statement, Sneathen, 25 Oct 06.

15) Ibid.

16) Interview, Reardon with Capt. Irvin W. Oliver Jr., CO, Co D, 1st Bn, 67th Armor, 27 Nov 06, CMH.

17) Statement, Kelley, 25 Oct 06.

18) Interview, Reardon with Oliver, 27 Nov 06.

19) Sworn Statement, Sgt. First Class Jeffrey A. Mask, Plt Sgt, 2d Plt, Co D, 1st Bn, 67th Armor, 25 Oct 06, Historian files, CMH.

20) Interview, Reardon with Staff Sgt. David Teran, Veh Cdr, Co D, 1st Bn, 67th Armor, 29 Nov 06, Historians files, CMH.

21) Interview, Reardon with Staff Sgt. Brian L. Jenkins, Sqd Ldr, Co A, 1st Bn, 67th Armor, 28 Nov 06, Historians files, CMH.

22) Sworn Statement, 1st Lt. Ken Nguyen, Plt Ldr, 1st Plt, Co C, 1st Bn, 67th Armor, 24 Oct 06, Historians files, CMH.

23) Interview, Reardon with Capt. Barry E. Wiley II, Exec Ofcr, Co B, 1st Bn, 67th Armor, 28 Nov 06, Historians files, CMH.

24) Interview, Mark J. Reardon with 1st Lt. Jeffrey W. Donahue, Plt Ldr, 1st Plt, Co B, 1st Bn, 67th Armor, 29 Nov 06, CMH.

25) Ibid.

26) Interview, Reardon with Wiley, 28 Nov 06.

27) Sworn Statement, Staff Sgt. Jerry W. Holcomb, Sqd Ldr, Co B, 1st Bn, 67th Armor, 22 Oct 06, Historians files, CMH.

28) Interview, Reardon with Oliver, 27 Nov 06.

29) Interview, Reardon with Teran, 29 Nov 06.

30) Interview, Reardon with Oliver, 27 Nov 06.

31) Ibid.

32) AAR, 1st Plt, Co D, 1st Bn, 67th Armor, n.d., p. 1, Historians files, CMH.

33) Apache Longbow Video, "221508Jul06 PVBIED (White Tanker) Engagement in Musayyib 418," Historians files, CMH.

34) Interview, Reardon with Teran, 29 Nov 06.

35) Interview, Reardon with Oliver, 27 Nov 06.

36) Apache Longbow Video, 221508 Jul 06.

37) Interview, Reardon with Oliver, 27 Nov 06.

38) AAR, 1st Plt, Co D, 1st Bn, 67th Armor, p. 1.

39) Sworn Statement, Sgt. Jess C. Thompson, Tnk Gnr, Co D, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

40) Interview, Reardon with Wiley, 28 Nov 06.

41) Interview, Reardon with Donahue, 29 Nov 06.

42) Sworn Statement, Sgt. Brian A. Craycraft, Tnk Gnr, Co B, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

43) Interview, Reardon with Cpl. Edwin J. Rodriguez, Tnk Gnr, Co C, 1st Bn, 67th Armor, 28 Nov 06, Historians files, CMH.

44) Sworn Statement, Nguyen, 24 Oct 06.

45) Interview Reardon with Staff Sgt. Richard D. Phillips, Tnk Cdr, Co C, 1st Bn, 67th Armor, 28 Nov 06, Historians files, CMH.

46) Sworn Statement, Sgt. Gregory T. Wright, Tnk Cdr, Co C, 1st Bn

47) Statement, Nguyen, 24 Oct 06.

48) Interview, Reardon with Donahoe and Barnett, 30 Nov 06.

49) Statement, Wright, 21 Oct 06.

50) Interview, Reardon with Rodriguez, 28 Nov 06.

51) Interview, Reardon with Jenkins, 28 Nov 06.

52) Interview, Reardon with 2d Lt Matthew F. Dusablon, Plt Ldr, 3d Plt, Co A, 1st Bn, 67th Armor, 28 Nov 06, Historians files, CMH.

53) Ibid. Antisniper netting was a field expedient system using standard camouflage netting draped on a frame above the turret. It partially obscured the view of potential snipers, making it more difficult for them to target crewmen exposed in the hatches.

54) Interview, Reardon with Jenkins, 28 Nov 06.

55) Interview, Reardon with Rodriguez, 28 Nov 06.

56) Interview, Reardon with Sgt. First Class Samuel Del Pilar, Plt Sgt, 1st Plt, Co C, 1st Bn, 67th Armor, 28) Nov 06, Historians files, CMH.

57) Apache Longbow video [Classified], viewed by author, 28 Nov 06.

58) Interview, Reardon with Dusablon, 28 Nov 06.

59) Interview, Reardon with Del Pilar, 28 Nov 06.

60) Interview, Reardon with Oliver, 27 Nov 06.

61) AAR, 1st Bn, 67th Armor, n.d.

62) Sworn Statement, Staff Sgt. Arthur H. Castro, Tnk Cdr, Co D, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

63) Sworn Statement, Sgt. Robert Burgos, Veh Cdr, Co D, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

64) AAR, 1st Plt, Co D, 1st Bn, 67th Armor, p. 1.

65) Sworn Statement, 1st Lt. Keith G. Angstman, Plt Ldr, 1st Plt, Co D, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

66) AAR, 1st Plt, Co D, 1st Bn, 67th Armor, p. 1.

67) Interview, Reardon with Donahue, 29 Nov 06.

68) Ibid.

69) Ibid.

70) Ibid.

71) Interview, Reardon with Jenkins, 28 Nov 06.

72) Sworn Statement, Private First Class Matthew C. Bragg, Veh Gnr, Co A, 1st Bn, 67th Armor, 25 Oct 06, Historians files, CMH.

73) Interview, Reardon with Jenkins, 28 Nov 06.

74) Interview, Reardon with Dusablon, 28 Nov 06.

75) Sworn Statement, Nguyen, 24 Oct 06; Sworn Statement, Sgt. James L. Freeman, Veh Cdr,Co C, 1st Bn, 67th Armor, 24 Oct 06, Historians files, CMH.

76) Interview, Reardon with Del Pilar, 28 Nov 06.

77) Interview, Reardon with Oliver, 27 Nov 06.

78) Ibid.

Hasty Convoy Security at Diwaniyah

Editor: The following article details a combat action in April 2004 when a large convoy carrying combat vehicles, including Abrams tanks, came under attack. The tanks were driven off their transports and thrust into action, securing the convoy and defeating the ambush. The account below provides an excellent example of an unexpected tactical encounter and the effectiveness of armored combat power coupled with inspired leadership. The article was authored by Richard E. Killblane, the Transportation Corps historian. Entitled "Battle of Broken Chains 17 April 2004 Ambush at Ad Diwaniyah," it was included in *Convoy Ambush Case Studies*, Vol. II by the same author.

The Mission and Task Organization

Task Force 2-37 Armor (Iron Dukes) had served in Iraq since early June 2003 and was completing its transfer of authority with the 1st Cavalry Division in early April 2004. The Iron Dukes had been assigned responsibility for the northeastern portion of Baghdad, including the overpopulated slum area, Sadr City. After twelve months of boots on the ground, the Iron Dukes and its parent command, the 1st Armored Division, was preparing to redeploy to their home station in Germany, when on 4 April 2004, the radical young cleric Muqtada Al Sadr ordered his followers to conduct a jihad against the Coalition forces.(1)

Al Sadr's Mahdi Militia did not have sufficient strength to drive the Coalition forces out of Iraq so at best he just wanted to flex his muscles and establish himself as a contender with the elder clerics. To do this, he wanted control of three towns. He already had control of An Najaf. His militia would drive the Ukranians out of Al Kut, but the Bagdhad suburbs named after his father, Sadr City, belonged to the newly arrived 1st Cavalry Division. Like a brush fire, uprisings spread across several cities in Central Iraq, such as An Najaf/Kufa, Karbala, Al Hillah/Babylon, and Al Kut. Al Sadr's Mahdi Militia captured local police stations and government offices, allowing his followers to set up their own governments and courts under Islamic law.

At 1600 hours on 4 April 2004, the Mahdi Militia attacked an Iraqi Police station, isolating Alpha Company, 2-5 Infantry (Lancer) of 1st Brigade, 1st Cavalry Division. C Company, 2-37 Armor (Crusader) was still under tactical control to Lancer Battalion and was immediately dispatched as a Quick Reaction Force to Sadr City. Crusader Company, followed closely by the remaining combat power of Task Force 2-37, attacked into Sadr City to rescue the 2-5 Infantry, which had already suffered seven killed at the police station. After successfully repelling the Mahdi Militia that night, Task Force 2-37 braced itself for the inevitable.(2)

With a transition of authority only days away, Task Force 2-37 focused on redeployment. 1st Lt. Colin Cremin, Executive Officer (XO) of Alpha Company, 2-37 Armor, was preparing to ship the bulk of his company's supplies and equipment south to Kuwait, with the majority of their combat vehicles to make the journey a few days later. These plans changed with the announcement that the 1st Armored Division was extended in Iraq for an additional four months.(3)

With the extension official, Task Force 2-37 fought the Mahdi Militia in Sadr City over the next 11 days before turning control over to the 1st Cavalry Division. Task Force 2-37 then received orders to move southwest to assist the Ukrainians regain control of Al Kut. Within days of their arrival, Al Kut was secured and power restored to the Coalition Provisional Authority (CPA). On 16 April, the Iron Duke's orders changed to move to An Najaf with the simple task to destroy the Mahdi Militia and capture or kill its leader – Al Sadr.(4)

When the 766th Transportation Battalion received the transportation movement request (TMR) back at Camp Arifjan, Kuwait, it was to haul the tracked vehicles of the Task Force 2-37 to Al Kut, not An Najaf. The 766th provided command and control over all Combat Heavy Equipment Transportation (HET) companies based in Kuwait and assigned the mission to both the 1175th Transportation Company of the Tennessee National Guard, and the 2123rd Transportation Company of the Kentucky National Guard. The 1175th Transportation Company provided 16 HETs, three HMMWVs configured as gun trucks, one wrecker, and one contact truck. The 2123rd Transportation Company also provided HETs and gun trucks.(5) Coincidently, the 1175th had also been in country for a year and was similarly extended. Once the convoy arrived at Al Kut, they received a change in mission from the 2nd ACR to transport the Task Force 2-37 to An Najaf.(6)

The task force set about preparing to move its base of operations from Camp Delta 175 kilometers west to An Najaf. On the night of 16 April 2004, Capt. Erik Peterson, Assistant S4, arrived with the last of the unit equipment from Baghdad and found his battalion making extensive preparations for the road march to An Najaf. Erik had just pinned on captain bars a few months earlier and left his job as a tank company executive officer. He became the battalion redeployment officer possessing nothing more than his computer and a rucksack.(7) One third of the battalion's equipment was already in Kuwait. So he departed Baghdad with the remaining 14 tanks of 2-37 by HETs to Camp Delta at Al Kut. His move to Al Kut had been slow, because the insurgents had destroyed major bridges between Baghdad and Al Kut the previous week.(8)

When he arrived at Camp Delta in the dark, Peterson radioed his battalion tactical operations center and was told to stay in position because the battalion executive officer wanted to talk with him. Around 2100 hours, the executive officer spread out a map on the top of his M998 and explained the battalion had been ordered to An Najaf. The only restriction was to not travel at night.(9) All the wheels in the battalion to include the commanders and all staff would roll out at 0700 hours. Peterson had one map set of the route with satellite graphics of the turns. The HETs were already loading, but Battalion did not know how many HETs were available, or how much equipment was actually on the ground. There was just an urgency to move.(10)

During his early Operation Iraqi Freedom I experience working with HETs, however, Peterson learned the HET convoy commanders jealously guarded their role as the convoy commanders and the tanks and convoy escorts fell under their control for the movement. If a maneuver officer, regardless of rank, tried to take charge, it usually resulted in shouting matches and almost always the Transporter won. The reason was that most combat arms officers riding in their HMMWVs did not know what a HET could or could not do. Peterson figured it made no sense to try to take charge of the convoy. He thought he was dealing with just one HET company, which was how most missions were assigned, but for some reason the 766th Transportation Battalion had not designated a single convoy commander.(11) Instead Capt. Thomas Jerry Moore II, commander of the 1175th HET, and 1st Lt. Robert L. Henderson II, 2123rd HET, agreed each would command their own march units and Peterson would be the serial commander.(12)

The escort platoon came from elements of 1st and 4th Platoons of Apache Troop, 1st Squadron, 2nd Armored Cavalry Regiment (ACR), which was equipped with four M1025/26s HMMWVs armed with machineguns and dual radios. Peterson's battalion also provided four of the new M1114 up-armored HMMWVs.(13)

All 65 of the battalion's tracked vehicles were finally loaded onto the HETs for the trip. The vehicles included 39 M1A1 Abrams tanks. Hauling tanks on trailers conserved fuel, reduced the wear and tear on the combat vehicles, and allowed the crews to focus on security during the convoy. Most vehicles kept two crewmembers inside the tanks with any excess soldiers riding inside the cab with the two HET drivers. The crews riding in the tracked vehicles could man the crew-served weapons, turning each HET into a firing platform thus augmenting the security provided by the Apache White scout vehicles.(14)

Capt. Peterson task organized the convoy of 53 HETs, four M1114 and four M1025/26 scout gun trucks from the line companies into two serials of roughly 33 vehicles each, because it was easier for the gun trucks to support smaller serials of that size.(15) Since the 2nd ACR gun trucks had dual radios, Peterson assigned one with a map to lead each serial; another to the rear of the convoy for security; and kept two gun trucks together in the middle of the convoy to respond to any situation. Peterson consolidated the four 2-37 Armor M1114s into a platoon. Because two did not have radios, he assigned them in pairs with ones that did. Peterson did not know the HET convoy consisted of two different companies and assumed Capt. Moore was the company commander of all the HETs. So he let Moore pick the order of march of the trucks. Capt. Moore chose to lead with the 1175th and have 1Lt. Henderson follow with the 2123rd approximately 45 minutes behind the lead serial.(16)

The 2nd ACR and 2-37th Armor planned the route in conjunction with the two officers of the HET convoy. The convoy would move north on Alternate Supply Route (ASR) Bismarck to ASR Kiev, then west to Main Supply Route (MSR) Tampa, south to ASR Evansville, east to ASR Miami, north to ASR Boston, and then south to Forward Operating Base (FOB) Duke with a stopover at Convoy Support Center (CSC) Scania escorted by a security element from the 1st Armored Division. The plan was briefed and approved by the 2nd ACR.(17)

This early in the war, only a few of the HETs had SINCGARS military radios and the rest used privately or unit purchased citizen band (CB) radios. There were five different units in the convoy and each monitored their own internal frequencies. The company commander and executive officer of the tanks had Blue Force Tracker systems, but no headquarters to talk to on the other end, since their battalion was also en route and had not set up. Neither did anyone in the convoy have satellite phones. The HETs had some mobile tracking systems (MTS), which gave them an email texting capability. In the event the convoy ran into trouble, these trucks had better access to texting for help.(18)

Staff Sgt. Vancleeve's Apache Two led the first march unit followed by Apache One, led by 1st Lt. Joel Schuh.(19) Concerned about the convoy getting lost, Capt. Peterson rode in one of his battalion's M1114s, pretty close to the front of the lead serial. During the trip he would primarily maintain radio communication with the Apache Troop escorts. But would have radio problems throughout the journey and by the time the fight came, his radio communication failed.(20) At Start Point (SP) time, Capt. Moore, call sign Warrior Five, radioed 1st Lt. Henderson, call sign Saber 25, to notify him they were ready to move.(21)

Move to Scania

By dawn, most of the HETs were loaded and the leaders started to work out what was left for future load requests. Meanwhile, Moore and Henderson were highly resistant to moving on the route Task Force 2-37 had planned to take, which traveled around Al Hillah. The HET commanders understood the 1st Armored Division would provide the escorts, but the addition of the 2nd ACR was a change. This was significant because the convoy escorts from 1st Armored Division had been briefed and helped plan the route from Al Kut to FOB Duke.(22) The 2nd ACR security element told Capt. Moore and 1st Lt. Henderson that a deviation from the original plan had been approved by the Movement Control Team (MCT) at CSC Scania.(23) The new route, however, was not an approved route so the HET commanders were appropriately worried about bridges and weight restrictions. HETs loaded with tanks could not always travel the same places other vehicles could. In addition, they did not have route maps to Camp Echo near Najaf. That was when everyone assumed the MCT at Scania probably had route maps to An Najaf. Peterson knew convoys needed march credits, meaning presumably, an MCT was going to select their route. Due to the urgency of the fight in An Najaf, the mentality at the time was to go and get into the fight as fast as they could and "Don't worry about the formalities."(24)

The wheeled vehicles departed Camp Delta first early in the morning. Then after re-fueling and a morning of delays and confusion over the exact route to be taken, the HET convoy finally departed Al Kut around 1230 hours on 17 April.(25) As the convoy approached Scania, the new escorts from the 2nd ACR had little knowledge of the original route plan and wanted to head north to Baghdad.(26) 1st Lt. Henderson and Capt. Moore halted the convoy just south of Scania at 1530 hours to explain to the Apache Scouts and Capt. Peterson that it was not the route they had agreed on. So Moore and Henderson told Peterson they would not go that way due to roadway height and weight restrictions.

Only one map with poor graphics and limited data on major intersections was provided for this route. Coalition forces had not traveled through areas of this route in several months. So Capt. Peterson sent two of the scout vehicles ahead to the Movement Control Team (MCT) in Scania to verify the route and get coordinates. There the scouts received a threat brief and the new route. This route deviation would take the convoy east on ASR Orlando, then east on a route south of the city of Ad Diwaniyah to ASR Miami, and onward to ASR Boston. After about 30 minutes, the scouts returned with the approved route and one set of 1:50,000 maps for the entire route. Henderson and Moore agreed on the route, briefed their march units and departed. (27)

The Transporters claimed the handoff of convoy escorts should not have resulted in a change in route unless dictated by the current enemy situation. Changing the escorts led to confusion about the planned route. No strip maps were available to the truck drivers of the route change or of the immediate area. The movement control team at Scania was unable to provide the status of the route or any recent intelligence about enemy actions in the immediate area.(28) The wheeled vehicles and the bulk of the battalion leadership, however, had departed for An Najaf in a series of convoys early in the morning and encountered absolutely no enemy contact along their route. This safe travel provided no warning as to what awaited the main body.(29)

The new route would take them into the southern portion of Iraq. Over Easter weekend, 9 to 11 April, the insurgents had for the first time launched large-scale complex ambushes throughout the Sunni Triangle. The

subsequent counter-offensive by the armored units seemed to put an end to this threat and Intelligence claimed there had been very little activity this far south along this route.(30) Intelligence also reported that if enemy contact was to occur, it would most likely take place on the roads outside of Al Kut.(31) The convoy rolled out around 1600 hours heading south on ASR Orlando.(32) Once beyond Al Kut, the HET convoy had escaped what it thought was the danger area. Coincidently, a HET convoy from the 1452nd Transportation Company from the North Carolina National Guard happened to stop behind the 1175th and 2123rd HET convoy at Scania and was heading the same way, so it fell in behind the 2123rd as a third march unit.(33)

Ad Diwaniyah

The convoy had very few problems for the first few hours, traveling through some small towns stopping periodically to fix flat tires on the HETs.(34) The convoy continued west and approached the main supply route where it was to turn south. The lead scouts providing convoy security found the traffic ramp closed and impassable to HETs. Likewise, it was impossible for the HETs to turn around, so Peterson decided to continue driving west, which led to the city of Ad Diwaniyah where two alternate supply routes merged and the convoy could get back on the designated route.(35) During the confusion of the April Uprising, it was not unusual for an MCT to not know a road was blocked forcing the convoy commander to find an alternate route.

At approximately 1715 hours, the lead march unit reached the outskirts of Ad Diwaniyah.(36) The escort element, Apache White One, radioed back for Moore's march unit to halt because an overturned semi-trailer blocked the main road through the city. A large crane was on hand but it would take some time to clear up. Waiting any length of time near a populated area was a seriously bad idea, so they needed to find another way around the wreck. Peterson saw a local Iraqi Police officer on the scene give the scouts directions for a detour and the scouts left to reconnoiter it.(37)

The city had looked like any other Moore had driven through. The gas station adjacent to where the convoy waited had over ten cars lined up in the road. Children had been running around playing soccer and were beginning to walk up to the drivers asking for food and water. All of this was a common and reassuring sight in Iraq. One small child about seven or eight years old told Moore his convoy was heading to An Najaf. The other drivers similarly reported young children telling them the same thing and one young boy added the "convoy would be taken care of soon." Moore thought it was very strange how this young Iraqi child knew their destination. Moore had been in country 366 days and never experienced this before, but did not consider it something to become alarmed about.(38)

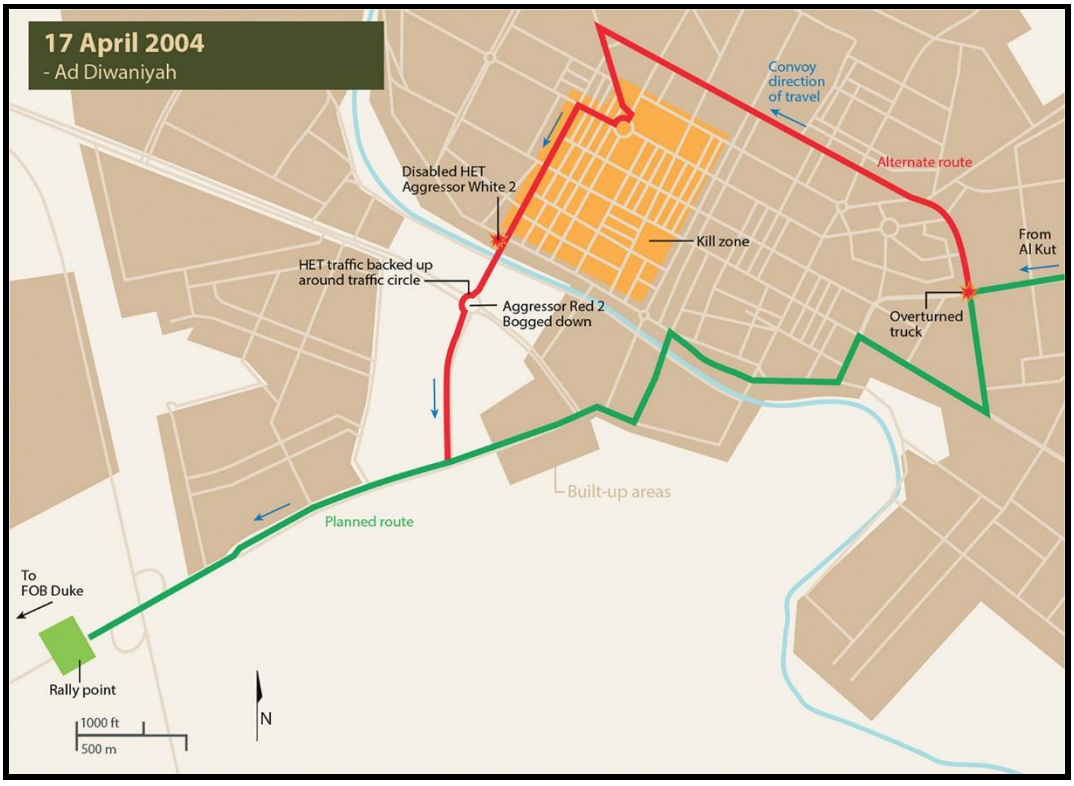
The scouts returned after about 15 minutes saying they had found an alternate route through the city that was passable for HETs but tight. One of the reasons Transporters do not like to give up control of their convoy to non-Transportation Corps officers is that they do not know the capabilities and especially the limitations of the vehicles in the convoy. Capt. Peterson and Moore approved the route, and Moore radioed back to his elements and Saber 25, whose march unit had caught up by that time, that they had to drive around the accident ahead.(39)

As the convoy entered the city, the situation changed dramatically. The fuel station began to close up and the cars left in a hurry. Iraqi policemen began stopping civilian traffic to allow the convoy to pass and herded Iraqi citizens away from the convoy to side streets. An eagle statue on a pillar at the entrance of town had a picture of Al Sadr and a crowd started to gather around the statue as if they were protecting the statue. Many flags with the same design and writing were hanging on homes as the convoy rolled through the city. Moore believed the flags might have been Al Qaida flags. A small group of men appeared to be arguing about an auto accident, but no one noticed any damage on either vehicle causing the soldiers to think the argument was staged. The vehicles disappeared along with the men after the lead element of the convoy passed them. At least two individuals were spotted on top of a building overlooking the convoy with what looked like binoculars. These were all clear indicators that something bad awaited the convoy down the streets of Ad Diwaniyah.(40)

Contact Lead March Unit

Moore led the convoy deeper into the city down a main street with opposite lanes separated by a median. He noticed a group of around 60 to 70 men dressed in black on the right side of the road listening to a man, possibly a cleric, agitating them through a mega phone. The man looked upset and did not seem to want the Americans there, so Moore relayed back on his SINCGARS radio for everyone to pay attention to the group as they drove by. Near the end of the city, the convoy made a left turn down a street that looked more like an

alley with low hanging power lines stretched across the alley from house to house. The first two HETs made their way cautiously down the alley trying not to hit the lines and they saw a familiar sight, kids running out along the streets waiving at the drivers along with an unusual number of adults coming out standing on the sidewalks. Moore radioed back that the Iraqis seemed friendly so the drivers should try to not tear down the power lines. This caused the traffic to slow down to a crawl bunching the two march units into one long convoy on the first road. Moore had an uneasy feeling negotiating the cramped alley with large HETs and no room to maneuver. It was every HET driver's nightmare. The Iraqis grew restless with the convoy taking so long and began motioning for the drivers to roll on and not to worry about tearing down the lines. Upon closer examination, the lines were very small wire and not attached to any source of electricity, more like something used to hang clothes; so Moore told his drivers to just roll on and that the Iraqis did not mind them tearing the lines down. Then the adults began gathering their children up and returned inside their buildings, similar to a scene in any Western movie before a gunfight. Moore searched for any sign they would reach their designated route soon. The convoy turned into a traffic circle beyond the overturned truck and then took a right-hand turn heading back down another alley. Moore radioed for his lead gun truck to set up a traffic control point there to make sure everyone made the correct turn as there was actually two right turns out of the circle.(41)



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Apache elements led the convoy down an alley flanked on both sides by apartment buildings. There were no longer any pedestrians on the streets. To the scouts' surprise, the next street ended a short distance in a T-intersection. About 1830 hours, as the convoy approached the end of the alley, Moore heard 10 to 15 rounds fired from what seemed to be his right. He then radioed, "Contact right, contact right." The lead HET, Tango One, also radioed there was contact left.(42) As the rest of the convoy followed, several soldiers saw a green flare in the sky and then the convoy began to take small arms fire. Some drivers from both the 1175th and the 2123rd indicated they saw at least three flares and the volume of fire increased as each flare was launched.(43) A large volume of fire erupted behind Moore and drivers radioed him they were receiving small arms fire.(44) Upon hearing the initial reports of contact on the battalion net, 1st Lt. Colin Cremin, A "Aggressor" Company Executive Officer, likewise warned the tanks not yet in contact about the imminent threat along the route.(45)

Staff Sgt. Joshua D. Martin had monitored both his company and the drivers' frequencies on his two radios in his tank. After seeing children further down the road running away, he heard on the HET drivers' frequency they were in contact. He then charged his .50 while his loader brought his M240 to a red status - ready to engage. Within minutes he saw weapons pointed out every door, window and rooftop. Significantly outnumbered, Martin ordered his loader to button up the hatch, and he could operate his .50 from inside the commander's turret.(46)

The ambush began with sporadic small arms fire from both sides of the street. The HETs in contact reacted by stopping their vehicles and returning small arms fire causing the rest of the convoy to a halt.(47) After suppressing the targets, the HETs moved on but continued to receive more small arms fire. The sporadic small arms fire erupted into a full-scale ambush as more insurgents arrived to the fight. Armed with automatic weapons and rocket propelled grenades (RPG), the insurgents lined multi-story residential buildings and factories to fire down on the convoy.(48)

The drivers and the armor crewmen returned a heavy volume of fire, but the units in the convoy had difficulty talking to each other due to two reasons. First, there were no less than three separate radio systems within the convoy. Several trucks had SINCGARS, several had citizen band (CB) radios, and others had hand-held systems. Second, the entire convoy was not on the same frequency. Each serial operated on a different frequency that forced soldiers to constantly switch channels to talk to other serial. This not only made coordination difficult, but also enhanced the confusion as to why the convoy was stopped.(49)

In spite of these difficulties, the enemy made one very big mistake; they ambushed a HET convoy hauling tanks. Each HET provided a firing platform armed with anything from a .50 caliber machinegun to a 120mm cannon. These could inflict some serious damage and the only limitation was fear of collateral damage. At the end of the street, Moore's serial halted while the scouts again searched for the correct route out of the city. While stopped, insurgents continued to pour small arms fire into the convoy while the gunners and drivers returned fire with M2s, Mk19s, SAWs, and M16s. When the volume of fire became too intense, Capt. Moore finally authorized the tank crewmen to return fire their main guns.(50)

Halted at the T-intersection, Moore radioed back asking if his HETs were all together and Wrench One, his maintenance section, replied they had caught up to the march serial. He also said he had the 2123rd element with him. About that time Saber 25, Henderson's vehicle, called over the radio and announced 1st Lt. Henderson had been hit. Moore switched his radio over to both the Sheriff and medevac frequencies, but could not raise anyone. Sheriff was the equivalent of a 911 operator in a war zone which coordinated for medevacs or the Quick Reaction Force (QRF) from the battle space owner. He then radioed his NCOIC, Staff Sgt. Lee, call sign Warrior Two, who was bringing up the rear of his march serial and told him to keep calling for medevac, since he could not contact them. Moore had to monitor the command frequency to stay abreast of the tactical situation. Moore told Saber 25 to keep moving. Staff Sgt. Grimes, who was with Saber 25, calmly radioed back and stated he needed a medevac immediately. Henderson had been shot in the femoral artery and would bleed out and die if he did not receive medical attention quickly.(51)

About three HETs back from the front, Moore could not see anyone in the buildings, nor did he see any muzzle flashes coming from the buildings ahead. The lead HET, Tango One, radioed back that one of the crewmen on the tank he was hauling was killed and emphasized the convoy needed to move.(52) Sgt. Jonathan Hartman, in tank A66 commander's cupola, was shot in the right abdomen and dropped into the turret. Private First Class Eric Mullins, the loader and the only other crewmember on the tank, immediately assessed Hartman's wounds and rendered first aid, while at the same time still firing back at the attackers. "It took me awhile to determine what had happened to John. I just thought he was reloading when I noticed his face had gone white." For Hartman to receive proper medical treatment the convoy had to get out of kill zone, so while defending his tank and caring for Hartman, Mullins threw anything within arm's reach at the cab until he was able to gain the attention of the drivers.(53)

Monitoring the battalion "Warrior" frequency, 1st Lt. Cremin was clueless as to why they had stopped for an estimated 15 to 20 minutes. He assumed the HET drivers did not know how to properly react to contact and had merely stopped in place until they received guidance from higher authority. The scout HMMWVs continued to suppress the enemy and facilitate movement, but the HETs continued to remain in place. Cremin realized unless they rapidly cleared the kill zone, all hell was about to break loose. So, he quickly scanned his map and then ordered all vehicles to consolidate across the southern bridge. It took some time to disseminate this information from his battalion net to the individual companies and finally to the transportation units. By

then the HETs had started moving forward again, and the enemy poured heavy small arms and RPG fire from both sides of the street and rooftops.(54)

At that point, the HET hauling Cremin's tank was halted at an intersection and receiving heavy RPG and small arms fire. His driver, Welch, remembered, "I looked back and saw 20 to 30 tracer rounds bounce all around the executive officer as he was out of the hatch firing his M4." There were numerous enemy combatants on the rooftops of both residential and commercial buildings firing at the convoy, creating an in-depth kill zone. While engaging enemy in a nearby window, an RPG fired towards Cremin's location exploded in the street, and showered his tank crew with gravel and asphalt. A few seconds later, a second and third RPGs impacted with an enormous explosion into the right rear of his tank's hull. Shaken by the impact, Cremin quickly assessed any damage or injury to his tank and crew. With everything still in working order, Cremin immediately identified the attacker's position about 300 meters down the main street to the east and then killed him with .50 caliber fire while his gunner, Sgt. Shaun Ellertson, continued to fire the loader's M240 machinegun on insurgents on the rooftops from the western side of the street. The enemy would momentarily step out from behind alleyways and pop up over rooftops while they fired then drop back behind cover. While this made it difficult for the tankers to acquisition targets, it also decreased the enemy's accuracy, but once the tankers identified the main threat in the alleys, they poured overwhelming firepower onto the attackers. Cremin's tank fired small arms fire at the nearest targets, and his crew-served weapons at more the distant attackers, RPG teams, and any buildings the enemy used for cover.(55)

At one point his M4 carbine malfunctioned, so Cremin switched to his AK-47. Cremin caught a white flash out of the corner of his eye and a 7.62mm round penetrated his backpack directly in front of him. It was only then that Cremin had the stark realization that the enemy was trying to kill him, which seemed surreal up to that point. While still in contact, Cremin did his best to encourage the convoy to move to the designated reconsolidation point. After what seemed like an eternity, his HET finally began to move.(56)

By then the .50 cal gunners on the M1 Abrams and M88s were tearing up the buildings with heavy suppressive fire. Tango One, lead HET, said he was at an intersection and did not know which way to turn. Moore radioed for one of the Apache elements to come back and lead them out of there. Moore could hear gunfire everywhere and every driver throughout the convoy radioed him they under attack. He realized this was a very large kill zone.(57)

Ten to 15 minutes after they had departed, the scouts returned with a new route and Moore's serial began to roll out of town.(58) Apache scouts made a right-hand turn and the lead serial traveled about 50 yards where it came upon a low overpass that fully loaded HETs could not drive under, so it stopped again. Moore could hear and see the battle raging the full length of the convoy. The situation was turning into a nightmare as there seemed no way out of the city. The scouts then found another alley that led back to the main road. Moore's serial then turned right and drove down a very narrow alley paralleling the bridge. This brought them out onto a four-lane road and they could finally see their way out of town. With Apache back in the lead, Tango One made a U-turn and headed out of town across the bridge. Moore looked ahead for any possible signs of another ambush. The convoy passed through an Iraqi checkpoint in the road and there was a clearing with just a few houses about 1200 meters off both sides of the road. Moore told Apache to stop and set up a perimeter. He then ordered the lead trucks to turn and form the box formation blocking both lanes of traffic so no one could get near the convoy.(59)

As Moore approached the bridge, he made the U-turn and heard his maintenance element, Wrench One, radio it had separated from Moore's convoy and did not know which way to go. Moore told him to stay in place and describe what he saw around him. Moore recognized his maintenance element was halted at the last traffic circle. The maintenance element was the rear of his march serial, which meant the 2123rd and the 1452nd serials were also stopped in the city. Moore knew stopping a convoy in the kill zone violated their doctrine and training. He could also tell that everyone was very excited and feared if they started to drive in different directions he would not be able to get them out of the city alive. So he positioned his truck on top of the elevated bridge hoping the HET drivers, when they came out of the alley, would see it. He informed them over the radio his truck was sitting on the bridge and he was not going to leave until everyone could see it.(60)

While his march serial continued to pass him toward the box, Moore could hear the battle raging in the alleyways of the city and hear on the radio the coordination and movement of his four gun trucks. Those gun trucks repeatedly drove back and forth laying suppressive fire until all his vehicles had cleared what appeared to be three kill zones. It was frustrating to sit on top of the bridge listening to his men screaming they had to

move while still receiving fire from the front to the rear. Feeling the lead element was safely out of the city, Moore called his Apache element to go back into the firefight to help get the rest of the convoy back together so they could move. Moore heard Wrench One radio Wrench Three to make that right turn because he could see the tail end of the convoy. Moore then felt as if he had everyone going in the right direction and they could move out.(61)

Inside the city, the convoy was still taking fire from both sides of the road. Each tank's crewmen poured massive amounts of fire into the buildings with their crew served weapons. Some of them fired their main guns into the buildings knocking out personnel firing RPG's. No matter how much fire was coming into the buildings, the insurgents kept firing.

Second Serial

When CPT Moore's serial made the right turn onto the highway heading west, 1st Lt. Cremin noticed that there were no other HETs behind his.(62) In a convoy with few radios and maps, the hail of enemy gunfire just added to the confusion about the route. Several HET elements accidentally split off and drifted around the city. The scouts drove back into the kill zone to round up these vehicles and attempt to keep the HETs moving toward safety. The HETs for various reasons repeatedly stopped, allowing the enemy to relocate and concentrate their firepower.(63)

The 2123rd had not turned down the same route as the 1175th. When the convoy commander, 1st Lt. Henderson, Saber 25, saw the 1175th's vehicles moving over the bridge he ordered his serial to follow. As the 2123rd drove down the street, the serial came under intense enemy fire. At that point Henderson was shot in the thigh severing his femoral artery. His crew did not realize the extent of his injury at the time. Henderson continued to drive his HMMWV leading his serial down the street, eventually losing consciousness and lost control of the vehicle, which came to a stop at the end of the street. At that time Staff Sgt. Grimes called for an immediate medevac. Meanwhile, the enemy fired small arms and rocket propelled grenades at the passing convoy from prepared positions within alleys along the road. Tiring of the delays, the crews fired up their tanks, broke the chains, backed off the trailers and turned this into a tank battle.(64)

Cremin made a guidons' call to all his Aggressor tanks to gain situational awareness and determine where his platoons were. Aggressor Blue Three, Staff Sgt. Americana Mulitauopele, told him that part of the convoy with the rest of his platoon had taken a wrong turn at the traffic circle and was traveling away from the main body. Realizing the mistake, Aggressor Blue One, 1st Lt. Joe Rhyne, had to get his HET driver to turn around. Without any communication with the truck, he crawled out of the safety of his tank's turret onto the back of the HET to bang on the window of the cab. Once he gained the driver's attention, Rhyne directed him to turn around and head back to the traffic circle.(65)

Simultaneously, the HET carrying Aggressor White Two became disabled just south of the engagement area. The crew dismounted and joined another vehicle. The truck was then struck by two rocket propelled grenades destroying it.(66) The 2123rd serial continued down the street and the M1114 gun truck that had been following behind the disabled HET continued past it while engaging enemy in the alleys and on the rooftops. About 100 meters down the road, the crew realized the convoy had stopped behind the disabled HET, so they turned their gun truck around and drove back to provide cover.(67) Aggressor White Two, Staff Sgt. Kevin Morton, refusing to allow his tank to fall into enemy hands, ordered his gunner into the driver's compartment, and together they broke the tank free of its tie-down chains, drove the tank off of the trailer, and fell back into the convoy.(68)

As the lead HETs continued to move south towards the consolidation point, a traffic jam formed at the traffic circle because the drivers were confused as to which street to take. Still under constant small arms fire, the HET convoy halted to sort out the traffic jam. Realizing the extreme danger of the situation, Cremin ordered his driver to break the tie-down chains on his HET and back his tank off the trailer and get into the fight. Cremin then radioed his company and stated he needed the first three tanks that could provide him with full tank crews. Aggressor Red Four, Staff Sgt. Antonio Costa, immediately volunteered his platoon; Aggressor Red Two, Staff Sgt. Ronny Coleman; and Aggressor Red Three, Staff Sgt. Jeff Yager, formed his counter-attack force to rescue the stranded HETs.(69)

A total of 13 tanks dismounted to assist the HET movement.(70) The serial continued over the bridge under fire and linked up with M1s from the 1175th. The M1s laid down suppressive fire with crew served

weapons and cannons to lead the rest of convoy to the 1175th's perimeter.(71) SSG Martin's HET had stopped at the bridge waiting to move forward when a HMMWV raced past him screaming for a medic. He engaged targets of opportunity for the next four to five minutes while waiting to move, switching from his main gun to .50 since he did not have a gunner.(72)

Rally Point

As Staff Sgt. Grimes, Saber 25, pulled into the rally point with his seriously wounded platoon leader, he pleaded on the radio for Moore to send help back into the city because the rest of his 2123rd was still in the kill zone. Moore immediately exited his vehicle and motioned for the front tanks to dismount. The executive officer, Battle Five, was riding in the tank on Moore's HET. Moore told him to send some tanks back into the city to get everyone out of there. Some tanks took the time to disconnect the chains on their tanks while others just pushed the gas pedal, breaking the chains as they drove down the ramps heading into the city. Every tank crew climbed out on their tank wanting to go back to the fight. Martin's tank had just arrived at the rally point and offered to remain to pull security since all the other tanks had charged back into the city.(73)

Moore then radioed he wanted a casualty collection point set up at the front of the box formation. Warrior Two had finally contacted the medevac, and it was enroute. Saber 25 informed Moore that he was then in charge of the 2123rd element and asked very calmly what Moore needed him to do. The captain told him to park his vehicle next to his and keep him updated as to where his personnel were. At that moment, Moore had operational control over both HET companies. Moore asked the Apache elements to keep trying to get air support in there as well as a quick reaction force deployed to their location since they were still taking fire. Moore also told Apache Two, Staff Sgt. Vancleve, to look for the route out of there because as soon as the casualties were lifted out Moore wanted to leave. (74)

Cremin's Counterattack

Meanwhile, Cremin in control of the Aggressor Red platoon returned to the traffic circle to find the convoy at a standstill. Vehicles were bumper to bumper, all looking for guidance from anyone who could direct them out of this kill zone. Cremin drove his tank over the curbs and around the HETs to head to the bridge on the northern side of the circle. Aggressor Red Four and Aggressor Red Two went through the center of the traffic circle to reach the bridge. It was there that Red Two's tank ran into soft ground and immediately became mired. Not wanting to leave him alone, Cremin ordered Aggressor Red Three to remain with Red Two and provide security while they assessed the situation and attempted to self-recover.(75)

Cremin then had to choose between defending in place and continuing the counter-attack with only a tank section. With little time for consideration, he pushed his tank forward over the bridge and back into the initial kill zone with Red Four, Sgt. Ellertson. As soon as the two tanks crested the bridge, Cremin saw the disabled HET swarming with jubilant Iraqis who were quickly surprised to see two tanks heading their way. The tanks immediately began to receive heavy small arms fire again as the enemy scattered to more concealed positions. After confirming all personnel to their direct front were enemy, the tanks engaged with coax and .50 caliber machinegun fire. The number of enemy was astounding, estimated at well over one hundred, and their volume of fire was increasing as the tanks moved forward. Once Cremin's tank had cleared the bridge, the enemy began to displace down the main street to the east, using the buildings and alleyways as cover. An RPG fired from a near alley grazed of the front slope of his tank. Cremin spotted the enemy sighting in another RPG. Only after eliminating this threat did he realize the enemy was just three boys, maybe ten or twelve years old.(76)

The two tanks continued to maneuver to the same intersection where the convoy took the initial brunt of the ambush. Cremin's tank turned right heading east and Red Four took up a position behind his facing north. Cremin instantly identified several attackers with AK-47s still on rooftops and hiding in alleys to his direct front. He could also see a large number of insurgents around the building about 400 meters down on the northern side of the street, but his tanks had to focus on the threat within their immediate vicinity. Cremin fired his .50 cal onto the rooftops while Red Four was busy clearing the enemy on the street to the north, protecting Cremin's blind flank. Fortunately, the enemy was unable to coordinate their attacks or concentrate their fires towards the tanks.(77)

The building 400 meters away was buzzing with enemy activity. Cremin saw two bright flashes of light and as two RPGs flew high over his tank and exploded about 100 meters behind him. Sgt. Ellertson identified

the Iraqi's location and instantly fired a 120mm Multi-Purpose Anti-Tank (MPAT) round into the building, eliminating that RPG threat. Another volley of RPGs streaked toward their location, impacting low and to the left of Cremin's tank. After some creative loading, Ellertson eliminated that RPG team with another 120mm MPAT round neutralizing that threat and demonstrating the crew's willingness to use all available combat firepower, quickly destroying any arrogance on the enemy's part and any attempt at organization. At that point, any remaining attackers fled the immediate vicinity down the alleys and side streets. Fearing a possible flanking attack, Cremin ordered Red Four back to the traffic circle to provide security for the HET drivers while they continued to work their way out of the traffic jam and while Aggressor Red Two tank continued to recover itself from the soft soil. Aggressor White Three, Aggressor White Two, and Battle Cat White One arrived from the rally point and joined the fight providing returning fire against the small arms fire coming from rooftops and from the roads leading off of the traffic circle.(78)

Cremin pulled back from the main streets, took up a position near the disabled HET and requested guidance through Crusader Blue Four about what to do with it and Warrior Five's intent. While awaiting the order to either recover or destroy the HET, another RPG slammed into the driver's side door of the HET causing it to burst into flames. That seemed to be a rallying cry as the enemy armed with small arms swarmed back out into the streets. Cremin's crew-served weapons engaged the insurgents as they attempted to maneuver against his tank through the alleys and around parked vehicles. Their chaotic and uncoordinated attack made it easier for Cremin's crew to identify and eliminate each threat as it appeared. All the while, he continued to monitor both the battalion and company nets to determine the disposition of the convoy.(79)

Rally Point

Meanwhile as dusk arrived at the rally point around 1900 hours, the truck drivers could still hear Cremin's fierce firefight in the city. Realizing they were going to remain in the box formation for a long while, Capt. Moore instructed his NCOs to tell everyone to pull out their night vision goggles and scan the perimeter. Sgt. Carlson, the medics and other soldiers were trying to keep pressure on the wounds of the three casualties. 1Lt. Henderson and Private First Class Clayton W. Henson, Apache White, both shot in the femoral artery and Sgt. Hartman was wounded in the abdomen. Henderson's condition was rapidly deteriorating. As a Registered Respiratory Therapist, Capt. Moore could see the lieutenant was crashing fast and soon would need an artificial airway to survive. Moore grabbed Gun Smoke One, Staff Sgt. Cross, and told him to take his place on the radio. Moore then grabbed his oxygen and medic bag and ran to Henderson. Henderson was still struggling to get up but just barely conscious. Moore leaned down and told him who he was and what he was going to do. If Moore could get the airway in and give him oxygen, it would help to ensure the lieutenant would not have brain damage and also help protect his lungs should he aspirate. On the other hand, if Moore tried to place the tube in his airway and he did regurgitate before the tube was in place, his lungs would be filled with the vomit causing him more harm. Moore prepared his equipment and decided to quickly try one time. He opened Henderson's mouth and placed the larynga scope into the back of his throat. Moore could see where the tube needed to be but his vocal cords kept collapsing on the tube. Henderson then started to gag and Moore realized he needed to stop so as not to cause further harm. Moore said he was sorry and to hang in there because the chopper was enroute. Minutes later Moore saw the soldiers performing CPR on Henderson.(80)

Capt. Moore ran back to his truck for an update on the situation. Apache Two told him a Spanish quick reaction force was coming from the south and should arrive anytime. Moore then radioed the rear of the box warning them know not to shoot the quick reaction force as they should arrive there soon. Warrior Two was talking to the medevac, call sign Medicine Man 23. Moore was still receiving reports more HETs were still joining the rear of the formation. Battle Five told him there was a disabled HET left in town and wanted to know what he wanted the tankers to do with it. Moore ordered it destroyed as it was not worth the risk of recovering.(81)

Rescue

As darkness fell, about three hours after the initial ambush, Cremin's tank had secured the bridge leading out of the city. This allowed the HETs to finally work their way to the HET consolidation point and out of harm's way. His primary concern was local security for Aggressor Red Two while he worked to free his tank from the soft soil. Cremin noticed a second bridge to the east, about 400 meters away, and still concerned about a flanking maneuver, ordered Aggressor Red Three and Aggressor Red Four to secure that bridge. After

realizing that self-recovery would not work, Aggressor White Three was sent back to the HET consolidation point to retrieve the M88 recovery vehicle.(82)

At this point, Battle Cat White One and a second Battle Cat tank assumed the security mission for Aggressor Red Two. On Aggressor White Three's return, Battle Cat White One pushed north towards the bridge and provided rear security for Cremin's tank while he still engaged a number of insurgents and cars that would try to attempt drive-by shootings. Since these engagements were no more than 500 meters away, they were able to destroy these threats immediately. Evidently, the enemy did not understand the capabilities of the thermal and night vision devices, because once the sun set, a large number of Iraqis attempted to walk freely out in the streets to reposition on his tank or to retrieve the dead and their equipment. The thermal sights enabled Cremin's tank to quickly and easily identify combatant from non-combatant and engage.(83)

For a few minutes the city went quiet, providing them with the hope this engagement would soon come to an end. However, two RPGs were fired from behind some buildings to the northeast in an attempt to use them as indirect fire, but they were very inaccurate and detonated harmlessly away from the vehicles. These RPGs, however, did start a new wave of small arms fire, as Iraqis tried to engage from across the first bridge. Aided by the cover of night, these attackers could not accurately identify the location of the tanks so their fire was very imprecise and wild, but the muzzle flash betrayed their locations. The thermal night vision enabled the tanks to place overwhelming and accurate firepower to neutralize these threats.(84)

Finally Cremin received the call from Aggressor Red Two that his mired tank was operational and they were ready to move to the rally point. Cremin ordered Aggressor Red Two, Aggressor Red Three, Aggressor White Two and Aggressor White Three to escort the M88 recovery vehicle back to the consolidation point while his tank and Aggressor Red Four provided cover. Once the recovery team moved, Aggressor Red Four and Cremin's tank similarly fell back to the consolidation point covering the withdrawal. As they made their way around the traffic circle, Cremin's driver crossed the road to provide rear security for Aggressor Red Four and in doing so became mired in the soft ground. Cremin immediately notified Aggressor Red Four to stop while he appraised the situation. He then called the M88 back to recover his tank. Red Three returned with White Two and White Three to aid in local security. Within five minutes, the M88 had successfully pulled Cremin's tank out and they returned to the consolidation point at approximately 2230 hours.(85)

Rally Point

Sgt. First Class Handy, call sign Scooby Doo, had then came forward and said he was now in charge of the 2123rd. Moore told him just to remain nearby. Moore then told Gun Smoke One to get his landing zone kit and prepare to receive the medevac helicopter. There were houses on both sides of the roads but the soldiers did not see very many people stirring about the area. They marked the landing zone with chemical lights placed on a side road in front of Moore's truck. As the medevac helicopter descended, it came under fire from the houses to Moore's right. All the soldiers on the right flank fired into the houses but the helicopter still flew off. Medicine Man 23 radioed he had to leave, but suggested they move the landing zone further down the road. Apache One and Two drove about one mile down the road and located a safer landing zone. Moore instructed everyone to mount up in their vehicles because they had to move down the road. They placed the casualties on an empty HET trailer and then Moore gave the order to move out. They traveled about one mile where they formed another box formation and Warrior Two called the medevac back in. Gun Smoke One again laid out another landing zone to the front of the formation. To everyone's surprise the helicopter quickly flew in and landed at the first landing zone. More radioed for Gun Smoke Three to run out and tell the pilot they needed him to fly to the front of the new formation. Within three to four minutes the helicopter had relocated to the correct landing zone. They lost no time loading the casualties and then the medevac helicopter flew away.(86)

At the rally point, Cremin learned three soldiers had been killed and medevaced to a Spanish camp a few miles away.(87) The only thing preventing them from departing was getting complete accountability of all personnel and the dismounted tanks. Someone reported to Capt. Moore they had more than 60 HETs in the formation. It was then Moore realized the 1452nd had followed the 2123rd through the kill zone. Moore radioed for someone in the rear to find out who was in charge of that march unit and have them contact him on his radio frequency. Moore, Apache One and Two then made a quick assessment as to what they had to do to depart. Moore told the leaders of all the units to update him on the status of their personnel, equipment, and

ammunition. The tank commander said he had to download an M88 to go back to the rear to recover a disabled M1. The time was around 2100 hours.(88)

Moore and his scouts pulled out their maps to find a route to the nearest coalition base. Staff Sgt. Grimes informed Moore he had a soldier that had flown out with the medevac at a coalition base near their location. Moore told him to find the grid coordinates. Apache Two had also located a base near Hilla to the north, but it was a hot spot and dangerous. Grimes finally gave them the coordinates, which they plotted on the map. The base was to their rear but would force the convoy to drive back through the edge of the kill zone. There was no way Moore would ask his soldiers to go through that again. Their only other option was to continue on to the original destination, Camp Duke near Najaf, 120 kilometers away. Apache Two plotted a route and briefed it to Moore who approved it. The drive would take four to five hours and they would arrive at Duke early in the morning hours.(89)

From the map reconnaissance, the convoy had to drive through just one city; so Moore told Apache Two he wanted air support when driving through that city and also wanted FOB Duke to have a quick reaction force on alert in case of another ambush. All tanks with enough fuel would escort the HETs for security. Moore wanted pairs of M1 Abrams in the front, middle and rear of the convoy in case of any trouble. He then briefed the leaders on the route and the support they would have. Moore knew his drivers were mentally and physically drained by then and knew the leaders had to convince their soldiers they would be safe, so they could concentrate on driving. The units reported back over the radio they had everyone accounted for. That was the first sigh of relief Moore had since escaping the kill zone. He had feared some soldier was left back in the city and the enemy would mutilate the body as they had done with four Blackwater security guards on 31 March.(90)

As 2300 hours approached, Moore walked around checking the physical and mental status of his troops. Some were praying while others asked when they were leaving. The captain told everyone he met they were continuing their mission to the drop point. Moore described the route and the support, ensuring they would not be attacked again. He asked several drivers if they were up to completing the mission and surprisingly not one professed needing any help driving. It was hard to ask them to keep driving on after they had survived a fire fight that lasted over an hour and a half and been in a defensive position for over three hours. They would have to drive another four to five hours, which would keep them awake for over 24 hours.(91)

Around 2315 hours, the M88 was loaded and all vehicles were either ready to move or being towed. The HETs had plenty of fuel to make the trip and all light wheeled vehicles had added ten gallons of fuel to ensure they could complete the journey. The skillful mechanics of the 1175th and 2123rd had performed temporary repairs on all vehicles in the convoy, which then included over 70 vehicles. If not for their quick work and extensive knowledge of the HET systems, the convoy would have had to wait longer, putting it at even greater risk of another attack. With everyone ready, Moore sent word for every element to monitor his frequency throughout the convoy. Moore then asked for one last status check to verify everyone was ready to roll, and the reply came back, "Apache element ready," "Battle Five ready," "Warrior Two ready," "Scooby Doo ready," and "1452nd (T-Dog One) ready." Moore assigned Scooby Doo to bring up the rear and keep him abreast of any problems back there. The convoy finally pulled out along the planned route and all along the route they saw men carrying flags along the side of the road. Moore was sure everyone in his convoy kept a bead on every Iraqi they passed because their main concern was survival.(92)

The radio remained quiet; causing Moore to fear his drivers might drift off to sleep. He tried to maintain a check on personnel by talking with everyone he knew that had a radio in the entire convoy. There was a Ranger One, Viper, and several Tango elements of his unit that would check on each other to help stay awake. Everyone was pulling together to help each other make it through this mission. As the convoy drove into the city, Moore could hear the air support overhead just as the Apache element had requested. That was the last choke point causing Moore to finally feel safe. The convoy made one last turn heading north with only about 45 miles to go. Battle Five called him on the net; some of the tanks were down to 1/8th of a tank of fuel and needed to be loaded up on the HETs for the rest of the journey. The convoy halted and Moore instructed Warrior Two and Scooby Doo to supervise the loading. About 30 minutes later, the convoy was again ready to move. Moore pleaded over the net for everyone to hang in there that they were near their destination.(93)

Finally around 0430 hours, the convoy made a left turn and rolled into FOB Duke. Elements from each company met the convoy and directed their vehicles into the FOB. The sand was of fine powder and several of the HETs became stuck. They down loaded the tracked vehicles and Cremin immediately found his

commander, Capt. Maynulet, briefed him while the rest of the company refueled and then prepared for follow on combat missions.(94)

Moore held one more formation to ensure he accounted for all of his personnel. He then thanked them for the job they had done over the last 24 hours and had them bed down for six hours. Scooby Doo had done the same for his troops. Ranger One, Saber 25, Scooby Doo and Moore sat around discussing the last 24 hours and then started planning for the next day. They came to the conclusion that this group would stay together and would always be one family and share this bond they had developed due to the unfortunate circumstances they had encountered. The sun was starting to rise when Capt. Moore finally laid his head down on his cot.(95)

Lesson

From appearances, the enemy had executed a deliberately planned but hastily executed ambush, similar to those that caught the Dalton Gang in Coffeeville, Kansas and the James-Younger Gang in Northfield, Minnesota. Members of the militia or any local who wanted to participate were assigned a place to fight only to wait for the prearranged signal, in this case green flares. Upon seeing the signal, the fight began sporadically indicating its hasty execution and grew in intensity.

The first key decision for the convoy was whether to wait for the Iraqis to clear the roadblock or take a detour through the city. Neither was a good idea. Waiting could just as likely have invited a hasty ambush, but waiting outside town possibly allowed more maneuver room. The question was whether that traffic jam was deliberate or the result of an accident. A road block can be used to channel a convoy into a deliberately prepared kill zone. Some truck companies after Easter weekend added large pushing bumpers to their 5-ton trucks and put them out front to push right through any road blocks.

The rules of engagement did not change after the April Uprising but as Lt. Col. Akin said, "the interpretation of them did." Where before, drivers were more sensitive to civilian traffic, this changed. Civilian traffic was no longer tolerated in or near US convoys. Lead trucks would bump cars off the road to get them out of the way and rear gun trucks would not hesitate to put a round through the engine block of any car that would not keep its distance. The Iraqis quickly learned the rules and pulled off to the side of the road and halted when a convoy approached.

The urgency to get Task Force Duke into action out west left not enough time to properly prepare the move as a combat operation. All the participants found plenty of areas for improvement. At this time of the war, radios for trucks were in short supply and no single net was established for command and control. But when the ambush began down the narrow streets of Ad Diwaniyah, the fight was at crew and team level. NCOs and officers stepped up and established common communication, which ensured everyone cleared the kill zone and made it to the safety of the rally point.

The HET drivers were provided with copies of a hasty route sketch from Al Kut to An Najaf, not a detailed military map, or later computer maps, which revealed the streets of Ad Diwaniyah. With one, the trucks might have done a better job negotiating their way out of Ad Diwaniyah and going around choke points. Mobile Tracking System also provided onscreen map display of the surrounding area. Once trucks received more of those, they could navigate through congested areas or around road blocks better. But in this case, once the HETs had committed to driving down the streets of Ad Diwaniyah, they had no other choice but to follow the truck in front of them regardless of the danger.

The Al Sadr Uprising of April 2004 taught the lesson that convoys should not exceed 30 vehicles yet, units arriving the next year would violate that policy and learn this same lesson the hard way. This convoy was divided into smaller march serials, but bunched up when they ran into a choke point. When the convoy turned into Ad Diwaniyah, three march serials had combined into a super convoy of 70 vehicles significantly complicating command and control. The advantage, however, was the combined firepower.

A centralized command and a separate command and control net are crucial to success on the battlefield, but this convoy had elements from eight separate companies and all operating on different frequencies, some even in plain text or on citizen band radios. When contact was made, there was no unity of command and elements began to defend themselves according to their individual leaders' guidance. Capt. Moore was on his citizen band or plain text radio talking to the HETs and Apache White, while 1st Lt. Cremin was operating off of FM 102, Battlecat on FM 202, Crusader on FM 302 and Headhunter on either FM 650 or 651. To facilitate

the transfer of information, there needs to be one commander and one command net to which leaders from all companies monitor. Once established, net discipline must be enforced to keep this command net clear and for companies to then operate on internal nets.(96)

During this four hour fight, there were incredible acts of heroism by the drivers of three HET companies, and the troopers of Aggressor, Battlecat, Crusader, Head Hunter and Apache White elements. In spite of the things that went wrong, the training of the soldiers who had never worked together before caused them to pull together and do the right thing under the most extreme circumstances. Consequently, the officers had nothing but praise for their soldiers and especially their NCOs. 1st Lt. Cremin received the Silver Star Medal for his action, and Sgt. Ellertson and Staff Sgt. Costa both earned Bronze Star Medals with "V" devices.

The HET convoy accomplished its mission and delivered the tanks of the 2-37th Armor, which combined with the 2nd ACR took back An Najaf from Al Sadr's followers in bitter fighting. But there is another way to look at this fight than getting from point to point. The mission of Task Force Dukes was the defeat Al Sadr's resistance and the fight was brought to their convoy. Since that was where the fight was, Cremin's decision to go back into the kill zone took the fight to the enemy. This brings up the relationship between the maneuver forces and the convoys that support them. In the big picture of things, the battle space owner's mission is to defeat the enemy and secure the area, if the enemy wants to ambush convoys, then the convoys provide the bait to draw the enemy out into a fight. In this type of war, anyone who ventures outside the wire is a combatant and should be a part of that combined arms team.

There were no shortage of things that could have been done better in this convoy at all levels internal and external; but even when everyone does everything right, convoys still drive into kill zones and all that matters then is how the participants perform. None of the mistakes cited by any of the critics resulted in the death of the three soldiers out of 300 or the loss of the HET. The enemy was waiting for a convoy and sooner or later one was going to drive through Ad Diwaniyah. On the other hand, the enemy made the biggest mistake of all – of all the convoys to ambush, they ambushed a HET convoy hauling main battle tanks with their crews. Every HET was in essence a gun truck. If the tank crew could not destroy the target with the .50 caliber machinegun, they had the 120mm main gun and were not afraid to use it. The key to success was overwhelming fire power. In the end, the insurgents of Ad Diwaniyah paid the highest price for their mistake.

Peterson reflected, "In the lens of if I got to do this again, I would have probably waited one more day prior to movement. Most of the issues would have been resolved. Chiefly, I didn't understand that I needed to take charge of the executing phase of the movement. I thought I was coordinating everything up to the move, not the move. That would have led to a lot better mission analysis when it came to maps, routing, communication, and actions on contact. The only solace I have is that I was able to execute most of my lessons learned successfully as the commander of C/2-12 CAV when I went back for my second tour. This whole operation was a textbook case on leadership, troop leading procedures, and how not to do it.(97)

Maj. Gen. Martin Dempsey, Commander of the 1st Armored Division, wrote, "A day after this fight, I received an email from Capt. Thomas Moore, of the 1175th Transportation, who was the convoy commander. He wrote: 'Were it not for the courage and actions under fire of the 2ACR and 2-37 soldiers that day, he is certain all of his men would have been killed.' He asked me if he and his soldiers engaged in that fight with us could wear the 1st AD combat patch. I told him I'd be honored."

Both the 1st Armored Division and 1st Cavalry Division commanders recognized the valor of truck drivers delivering critical supplies of ammunition and fuel as well as equipment during the Al Sadr April Uprising. Consequently, both authorized the truck units that supported them to wear their division patches as combat patches. This started a new tradition. Customarily, veterans waited until they returned home before sewing on the combat patch on their right shoulder, but with the recognition by these two tank divisions, the truck drivers sewed on the patches in theater, which inspired other units to do likewise. After the second rotation, units would then hold combat patch ceremonies after 30 days in country.

April Uprising Lessons

The Al Sadr Uprising had run its course by the end of April and subsided under the pressure of the Marines and Army attacks. The Marines pulled out of Fallujah on 30 April and the Mahdi militia turned in their weapons for money. A lull followed as the insurgents reorganized and regrouped for their next offensive. When they resurfaced, they focused their attacks on civilian targets or the Iraqi military and police in an effort

to disrupt the national election set for January 2005. The threat against convoys reduced to IEDs and small arms fire. On 15 May 2004, the Combined Joint Task Force 7 (CJTF7) was redesignated as Multi-National Corps-Iraq (MNCI), under the command of Lt. Gen. Thomas F. Metz. MNCI similarly made its plans to recapture Fallujah in the fall of that year.

The obvious lesson to the general officers in both Iraq and Kuwait was that the convoys needed gun trucks and a convoy security doctrine. Brig. Gen. James Chambers, Commander of the 13th Corps Support Command at Logistic Support Area Anaconda, established the policy that convoys traveling north of Convoy Support Center (CSC) Scania could not exceed 30 vehicles and had to have a one-to-five ratio of gun trucks to task vehicles. Kuwait-based convoys could travel with a 1:10 gun truck to task vehicle ratio. The military truck companies would no longer provide shooters for the contract vehicles but would integrate one green (military) truck with every three white (contract) trucks for KBR convoys and one to five for Kuwait contract convoys. The 7th Transportation Battalion at Anaconda would redesignate certain truck companies as gun truck companies. The 372nd Transportation Group in Kuwait would receive the 125th MP Battalion to conduct convoy security but would also organize a provisional company from volunteers. Capt. Robert Landry would recruit, organize and train the 518th Combat Gun Truck Company. He only recruited one person by name though, 1st Lt. James McCormick. He wanted McCormick to develop the company's Tactical Standard Operating Procedures (TACSOP). Based upon his recent experience and what McCormick had learned from the infantry manual, he came up with the turn, fix and fire concept. The following was his instructions to the gun truck crews for reaction to contact.

> The first thing that must be remembered during any contact with the enemy is to maintain your composure and report the direction of contact. At the first sign of contact be it IED, RPG or small arms fire it is important to locate the source. This can be very difficult especially in a built up area where sound will echo off of buildings and in alleys. The first sign to look for is flashes and the next would be dust and sound. You will hear fire and your first reaction must be to SCAN. Once the location is determined whoever has the information must send up the report. EXAMPLE: (This is Regulator 2 CONTACT Right 200 Meters, Small Arms Fire, IED, Mortar Fire, RPG) The use of smoke and flares on the contact side in the direction of enemy fire is also effective in helping Gun Trucks to spot the enemy. The use of yellow smoke seems to have an intimidating effect on the enemy they seem to fear it and believe it may be a form of chemical agent "GET YELLOW SMOKE." Flares seem to make the enemy nervous. At night I have seen some insurgents stop shooting to look up at the flare. Make sure you shoot it at a slight angle toward the enemy fire. At this point vehicles in the convoy will proceed out of the kill zone. Even if they are not in the kill zone you MUST NOT STOP. Push through the fire. Do not allow your convoy to be split up or it will be a disaster. Return fire!! Effective, aggressive fire on the enemy. The enemy you face here is much more aggressive than any we have seen. They will only displace if you make them displace. Gun trucks must not be a shoot on the go element. Gun trucks must turn and face the contact and deliver effective fire. Soldiers in the vehicle must get out of the gun truck using the doors as cover and delivering suppressive fire. The gunner on the top is a target. Gunners should not be sky lighting themselves and they must get down behind the gun at name tape level. In the event the gunner is hit the TC must get on the gun and continue the fight. Gun trucks must stay in the kill zone and not leave until after they have accounted for all trucks in the convoy. If you have a down vehicle gun trucks must maneuver into a defensive position to defend the down vehicle and make a decision to do recovery or extract driver and leave down truck behind. This decision is made by convoy commander if he is available. The destruction of abandoned US and coalition equipment has been suspended, although the destruction of equipment is a long in use practice that has been written in doctrine for years. You must obtain permission to destroy any equipment you can't take with you. Actions by convoy and gun trucks not engaged will be to move out of kill zone to move forward to a position that is varied between 2 to 5 miles. Remember that the enemy is very aware of the 2 mile rule and most times you will run into a secondary ambush or IED at that point so push beyond that point. It is also important to remember the convoy can be up to 4 miles long so the last vehicle has to be out of that 2 mile range and not the first. This has caused some convoys to have the first 10 trucks out of the line of fire but still have the rear of the convoy in the kill zone. The last truck should mark the mileage. The box formation is not a difficult maneuver but when you add civilian drivers in that convoy it can be a total disaster. Make sure if you are using the BOX everyone is briefed

> and understands how to do it prior to moving out. Ambushes are varied and in most cases they are initiated at the 4th to 10th truck back. This is done to help split convoy. The divide and conquer theory.

There was renewed emphasis on the design of "hillbilly" armor for trucks and gun trucks until the factory-built add-on-armor kits and M1114 up-armored HMMWVs arrived. Gun truck designs ranged from "sit and spin," pedestal and ring mounted machineguns. There was great imagination in all designs. Some units used M998 and M1032 HMMWVs as gun trucks while others used M923 5-ton or M1083/1087 FMTV gun trucks. Many saw height as an advantage and like using M915s as gun trucks. The 233rd HET actually came up with a design for a HET gun truck that was not fielded until 2005.

Editor: The confused communications, lack of maps and graphics, and the decentralized command of the convoy collectively resulted in limited situational awareness throughout the convoy. These factors posed a risk to the convoy that increased with the sudden and growing nature of the ambush. The skeleton tank crews were not intended to conduct tactical combat operations. Nevertheless, the presence of the vehicles and the inspired leadership that got them off the transports and maneuvering into battle ensured that the ambush did not become a debacle. The quick thinking and decisive leadership of the tanks, coupled with the efforts of the convoy's escort and HET drivers all combined to prevent a disaster, while inflicting harm upon the enemy. In this case, there was little for the tank crews to do until contact occurred. However, by monitoring the radio traffic, a degree of situational awareness and understanding was maintained that facilitated rapid decision when the ambush began. Once in combat, the firepower of the Abrams proved a critical factor in breaking up the ambush. The overall experience also underscores the importance of Armor leaders possessing a working knowledge of convoy operations that involve them, even when they are passengers and not directly in charge of security or movement.

Notes

1) Capt. Erik Peterson email to Richard Killblane, June 9, 2009; and Capt. Colin Cremin.
2) Cremin.
3) Ibid.
4) Cremin and Peterson email, June 9, 2009.
5) 766th AAR.
6) Moore email, June 11, 2009.
7) Peterson email, June 10, 2009.
8) Cremin and Peterson email, June 9, 2009.
9) Peterson email, June 9, 2009.
10) Ibid., June 23, 2009.
11) Ibid., June 10, 2009.
12) Moore email, June 11, 2009.
13) Peterson email, June 10, 2009.
14) Cremin.
15) Ibid.
16) Peterson email, June 9, 23, 2009.
17) 766th AAR.
18) Peterson email, July 6, 2009.
19) Moore.
20) Peterson email, June 10, 2009.
21) Moore.
22) Moore and Peterson email, June 23, 2009.
23) 766th AAR.

24) Moore, and Peterson email, June 23, 2009.
25) Moore remembered the convoy departed at 1230 hours and Cremin remembered 1300 hours.
26) Moore email, June 11, 2009.
27) 766th AAR; Moore email June 11, 2009; Moore; and Peterson.
28) 766th AAR.
29) Peterson.
30) Moore.
31) Peterson.
32) Moore and 766th AAR.
33) Moore email, June 11, 2009.
34) Cremin.
35) Peterson.
36) Moore and Peterson estimated that the drive to Ad Diwaniyah took about an hour, while Cremin believed the convoy arrived a little later closer to 1800. The 766th AAR also reported the convoy reached the town at 1715 hours.
37) Peterson, Cremin, Moore, and 766th AAR.
38) Moore and 766th AAR.
39) Peterson, Moore, and 766th AAR.
40) 766th AAR.
41) Moore.
42) Ibid.
43) 766th AAR.
44) Moore.
45) Cremin.
46) Staff Sgt. Joshua Martin email to Richard Killblane, July 6, 2009.
47) Cremin.
48) Peterson.
49) 766th AAR.
50) 766th AAR.
51) Moore.
52) Ibid.
53) Cremin.
54) Ibid.
55) Ibid.
56) Ibid.
57) Moore.
58) 766th AAR.
59) Moore and 766th AAR.
60) Moore.
61) Ibid.
62) Cremin.
63) Peterson.
64) 766th AAR.
65) Cremin.
66) Cremin and 766th AAR.
67) 2d Lt. Michael Russo email to Robert Cameron, June 19, 2009.

68) Cremin.
69) Ibid.
70) Peterson.
71) 766th AAR.
72) Martin email.
73) Moore and 766th AAR.
74) Moore.
75) Cremin.
76) Ibid.
77) Ibid.
78) Ibid.
79) Ibid.
80) Moore.
81) Ibid.
82) Cremin.
83) Ibid.
84) Ibid.
85) Ibid.
86) Moore.
87) Cremin.
88) Moore.
89) Ibid.
90) Ibid.
91) Ibid.
92) Ibid.
93) Ibid.
94) Cremin.
95) Moore.
96) Cremin.
97) Peterson email, June 10, 2009.

Employment of Small Kill Teams in a Tank Platoon

Editor: This article illustrates the planning, preparation, and employment of a small kill team by a tank platoon in the 2006-2007 timeframe. In this instance a platoon leader in TF 1-15 IN describes his operational environment during the "Surge" phase of Operation Iraqi Freedom and the corresponding value in creating and using a small kill team to extend the precision reach of the tank platoon into areas otherwise inaccessible. *Armor* magazine initially published this article in its November-December 2008 issue.

The war in Iraq has largely become a war with two separate insurgent groups, both with differing politico-religious aims. The insurgents in Iraq do not wear uniforms or identifiers, which allows them to blend in with the local population. Additionally, they tend to operate in small decentralized cells, which make them difficult to target using the tank platoon's conventional force doctrine. Insurgents take advantage of this by avoiding movement along main roads whenever possible and moving in small numbers through terrain that tends to be unsuitable for large vehicle traffic. This creates a potential problem because nearly all U.S. forces in Iraq operate from vehicles.

During Operation Iraqi Freedom (OIF) V's "troop surge," our unit, C Company, Task Force 1st Battalion, 15th Infantry, 3d Brigade Combat Team, 3d Infantry Division, maneuvered as an armor company team, organized with two M1A1 tank platoons and one mechanized infantry platoon, equipped with M2A2 Bradley fighting vehicles. To counter the insurgent's ability to simply avoid our vehicles, we developed a technique for employing small kill teams (SKTs), which are small covert teams employed to ambush the insurgent in an area with frequent activity. The SKT's purpose is to catch the enemy in the act of committing a terrorist act such as emplacing improvised explosive devices (IEDs) or retrieving weapons from a cache. Normally, the tank platoon is not suited for this type of dismounted work, but when properly organized for the mission, armored forces can be effective at capturing and/or killing dismounted insurgents by using the SKT technique.

Our company's area of operations in the Madain Province was historically an agricultural area with a few developed industrial areas. As such, the terrain was crisscrossed with irrigation canals and connected by narrow and poor quality roads, with the exception of the main supply routes (MSRs) located near the factories. The restricted terrain enabled insurgents to avoid coalition forces along MSRs, where our advantages were significant because of regular patrols and high-speed avenues of approach for heavy armored vehicles.

The northern-most sector of Crusader Company's area of operations was historically a bad area that comprised many unknown challenges; however, intelligence soon confirmed numerous IED attacks, indirect fire attacks/points of origin sites, sectarian violence, and caches found in the area. In response to this, Crusader Company conducted multiple cordon and search operations on warehouses, factories, and garages in the area. During these missions, they found legitimate IED materials, weapons, and ammunition that the insurgents were using; however, the amount and the quality of the cache strongly indicated this was not the big payoff the company was out to find. Oddly, very few, if any, detainees were taken at these cache sites and terrorist attacks continuously began and ended in close proximity to our combat outpost (COP) before we could put troops on the ground. It was very frustrating knowing that the enemy was out there, and despite our efforts, we could not catch him. After some frustration in dealing with these problems, the primary focus became developing and employing SKTs.

When employing a tank platoon as an SKT, the platoon leader has four main considerations: location of SKT; vehicle manning/SKT composition; communications plan; and a quick reaction force (QRF). Employing a tank platoon as an SKT can be a difficult task with many hurdles to overcome. For example, lack of manpower is a major obstacle in planning and executing an SKT. A tank platoon at full strength is 16 soldiers, 17 if you have a medic assigned to your platoon. Due to considerations, such as environmental morale leave (EML) and emergency leave, a fully manned platoon is impossible. At least two to three soldiers are on EML at any given time, with the exception of the beginning and end of a deployment.

At full strength, our platoon consisted of 14 soldiers, one medic, and me, the platoon leader. During one of our SKTs, we had four soldiers on EML or emergency leave, leaving a total of 12, and out of those, 10

would be necessary to man vehicles, at the minimum manning requirement of three per tank and two per HMMWV. Operating with a 13-man platoon, additional personnel would be required to execute the SKT.

There are several places to look for more manpower within your company or battalion. First, seek help inside your company; specifically, the headquarters section. Soldiers in the headquarters section are usually experienced and senior to many of the other soldiers in the company. Furthermore, they do not conduct missions as frequently as line platoons and are usually eager to be included in the fight. If headquarters soldiers cannot support the mission, then drawing soldiers from the battalion is another option. Every battalion should have a sniper, scout, or fire support element included within its headquarters company, which is where we drew our strength in manpower. When selecting soldiers from other platoons/companies, choose those with a combat arms military occupational specialty (MOS) because they are more familiar and comfortable with conducting combat operations.

Location may seem like the easiest of the planning considerations because it is always dictated by enemy activity; however, when you determine where the enemy is conducting operations, it may be a large area, forcing you to narrow your choice of where you will emplace an SKT. Choosing an area that is not well illuminated is critical; however, it is a safe assumption that any building within 100 meters of a well-lit MSR will effectively silhouette your SKT and should not be chosen. The area in which Crusader Company conducted its SKTs was an industrial area that had many lights for security purposes. Lunar illumination is also a consideration; percent illumination between 20 and 50 percent is optimal. If the illumination is going to be below 20 percent, night vision devices (NVDs) will not be as effective. If the illumination is above 50 percent, there is a greater chance of the enemy seeing you with his naked eye. An excellent position to choose would be one that only exposes the uppermost portion of a soldier's head and still allows him to engage hostile targets. Selecting an unwalled, fully exposed rooftop increases the risk of soldiers being spotted, especially when there is a high percentage of illumination. Choose a rooftop or some type of structure that not only provides cover, but achieves good observation. Finally, select an area with trafficable routes on which your vehicles can travel should they need to respond to a situation.

Observation of the target area is the next consideration; think about how many people you can place on the ground and how you are going to achieve good observation of enemy routes, safe houses/structures, dead area/defilade, and the kill zone. A technique that Crusader exercised was placing two SKTs approximately 600 meters apart; each SKT, consisting of eight men, could clearly see out to 300 meters, achieving overall observation of 900 meters around the target area. This enabled the SKT to observe the rear areas of the factories where the ambush was set, as well as the MSR to the rear of the SKT.

The next detail of planning is how to assign units best equipped for an SKT. Our platoon lacked some of the equipment that the infantry and sniper teams had at their disposal. For example, the platoon squad designated marksman (SDM) was on EML at the time of this mission. The SDM has more training, and the equipment, to accurately engage long-distance targets. Snipers, who possess precision optics, night vision capability, and accurized weapons systems, can be an easy solution to the problem, if they are not already tasked for another mission. Because the area we chose for an SKT was only open out to 300 to 500 meters, an SDM would have been nice, but was not mission essential.

About half of our platoon had the outdated PVS-7-series night vision devices instead of the preferred monocular PVS-14s. Even fewer soldiers had the PEQ2A, which could paint targets at night with the infrared (IR) laser, unseen to the enemy. Personnel chosen for the SKT portion of the mission all had PVS-14s and PEQ2As; those who did not were tasked to man vehicles. The SKT consisted of five members, a platoon leader, a fire support noncommissioned officer (FSNCO), crew-served weapon, a radio/telephone operator (RTO), and one additional soldier. Two HMMWVs were selected for transporting the SKT. The QRF element was comprised of two M1A1 Abrams tanks, with one four-man crew and one three-man crew. If the SKT needed the QRF, it would be better to have one tank fully manned, making violence of action on the enemy easier. The QRF for an SKT is not limited to tracked vehicles, it can use HMMWVs. Units should not plan SKTs around using tracked vehicles; instead, use tracked vehicles if the terrain can support them.

Another hurdle the platoon had to overcome was a lack of experience in dismounted operations. Our platoon had an abundance of soldiers with OIF I and II experience, who were very experienced with mounted combat operations. Finding soldiers within the platoon who possessed a light dismount-centric mentality proved to be a challenge. Because members of my platoon lacked the comfort and experience of light

dismounted nighttime operations, more detailed and well thought-out planning/preparation were imperative to the success of the mission.

Prior to mission planning, we conducted a reconnaissance of the area and took photos and video to assist in planning and use as briefing aids for our soldiers. Leaders may also coordinate for OH-58Ds to take aerial reconnaissance photos of the area prior to the mission, which allows all platoon members to not only see the exact location of the planned SKT, but also the surrounding area, in detail, and the opportunity to review it multiple times. This also allows soldiers to view the SKT's position, the QRF route, and the target area, enabling everyone in the platoon to know exactly what the other is doing, thereby eliminating questions or doubt. Rehearsals were also vital to successfully executing this operation. Rehearsing room-clearing procedures, walking at night with night vision devices, and moving stealthily at night instills in young soldiers the courage and comfort necessary for a successful mission. After your operations order, it is particularly important to conduct a back brief, especially if soldiers are unfamiliar with the mission and associated tactics, techniques, and procedures (TTP). Eliminating doubt or questions will serve to ease the execution of the SKT, especially for leaders, if they paint the picture as clearly as possible for their men.

The communications plan between the SKT and the QRF is as important as SKT placement and manning; always have a primary and secondary means of communications. Platoon leaders have a few choices that can be made when considering a communications plan. Some of our radios included the RT-1523 advanced system improvement program (ASIP) radio converted into a man-pack, the PRC-148 multiband inter/intra team radio (MBITR), and the PRC-150 Harris long-range radio. Using an ASIP or an MBITR is relatively easy compared to operating the Harris radio, which delivers at much longer ranges than the ASIP or MBITR, but only when in contact with another Harris, and it requires much more training to use effectively.

Emergency forms of communications, such as star clusters, are also needed. The SKT can use star clusters to alert the QRF if the radios are not working, and IR strobes, lasers, and chem lights are needed to ensure the team is visible to aircraft, especially if the QRF is the primary communicator to adjacent units. During execution of our plan, we used the M1151 HMMWV/M1A1 as a primary long-range means of communications between the SKT and the tactical operations center (TOC); the PRC-148 MBITR was used between the SKT and the QRF; and red star clusters and IR strobes were used for emergencies and marking positions. Each time an SKT was deployed, radio checks between the SKT and the QRF were conducted every 15 minutes to ensure communications were still good; failure to establish communications triggered the QRF to respond or the SKT to exercise its emergency plan of action.

If the platoon leader decides to incorporate Iraqi security forces (ISF) into the SKT, make certain each ISF member is trustworthy. This trust must be built over time and will take longer than just 60 days. Make certain you have good command and control of the ISF; keep them with the SKT team, do not send ISF out on their own. The SKT should have an interpreter to communicate efficiently with the ISF; they must be able to communicate clearly and quickly should they engage enemy combatants. Assign a soldier whose primary mission is to keep eyes on the ISF, which helps minimize fratricide incidents. Rehearsals and pre-combat checks/pre-combat inspections (PCC/PCI) of the ISF is important. It is important to ensure that the ISF does not compromise your position. If you choose not to incorporate the ISF, it is still important to keep an interpreter with your platoon, if not in the SKT, at least staged in a vehicle with the QRF.

QRF vehicle positioning is just as important as the SKT's location(s); these vehicles must be far enough away to fool the enemy into thinking no coalition forces are present. Keeping vehicles too close to the target area or next to residential structures may compromise the SKT. Keep in mind that the enemy may have a very intricate communications system in place — all it takes is one cell phone call to compromise your SKT. As mentioned earlier during the location discussion, ensure you choose a location that allows vehicles to travel in front of, or to, the SKT to mass fires with the main gun/crew-served weapons and serve as a casualty evacuation vehicle to retrieve injured/KIA personnel. Most importantly, the QRF needs the capability to quickly respond to any situation that arises.

Overall, SKT missions are successful; not only can the SKT deliver overwhelming firepower on an unsuspecting enemy, but it can gather valuable information through enemy observation that the battalion S2 can turn into intelligence to drive future operations. Following the execution of several SKT missions, Crusader Company noticed significant improvements in its area of operations.

Before planning, preparing, and executing an SKT, study the details in this article; thorough planning, common sense, and experienced noncommissioned officers will help execute a lethal and effective technique on a complex battlefield against a smart and agile enemy. Platoon leader rehearsals and back briefs are the single most important part of the planning/preparing phase and are the platoon leader's responsibility. When facing manning issues, seek help from other areas and always have a backup plan for every detail of your mission. Using the SKT technique will increase your platoon's effectiveness at limiting the enemy's ability to operate freely in your area of operation and will allow you to take the fight to the enemy, instead of just reacting to his attacks.

Editor: The use of small kill teams fashioned from assets organic to the tank platoon/company provides another means of enhancing the versatility of armor units. Against small, decentralized threat cells, small kill teams, supported by either tanks or light armor assets, enable the application of precision lethality and surveillance. However, creating such a team from within the platoon requires careful planning and preparation and necessarily reduces the amount of mounted maneuver combat power. In this instance, the use of small kill teams allowed the platoon to reach areas of its operational environment otherwise inaccessible and constrained the ability of threat cells to move and function with impunity. However, the creation of such teams requires soldiers with a mastery of both mounted and dismounted combat skills, and the availability of capable marksmen. Coordinating the actions of the small kill team with the rest of the platoon also poses a command and control challenge. Unit commanders should at least consider including small kill team creation and employment in their annual training.

COIN Success in Ramadi by an Armored Brigade Combat Team

Editor: This article describes the operation of an armored brigade combat team deployed to Ramadi in 2006-2007. It shows the successful application of counterinsurgency tactics to defeat Al-Qaeda and facilitate supportive actions by the local Sunni populace, also known as the Anbar Awakening. Written by the brigade commander and one of his staff officers, the article first appeared in the March-April 2008 issue of *Military Review* under the title "Anbar Awakens: The Tipping Point."

The stunning security improvements in Al Anbar province during 2007 fundamentally changed the military and political landscape of Iraq. Many, both in and outside the military (and as late as November 2006), had assessed the situation in Anbar as a lost cause. The "Anbar Awakening" of Sunni tribal leaders and their supporters that began in September 2006 near Ramadi seemed to come out of nowhere. But the change that led to the defeat of Al-Qaeda in Ramadi–what some have called the "Gettysburg of Iraq"— was not a random event. (1) It was the result of a concerted plan executed by U.S. forces in Ramadi. Tactical victory became a strategic turning point when farsighted senior leaders, both Iraqi and American, replicated the Ramadi model throughout Anbar province, in Baghdad, and other parts of the country, dramatically changing the Iraq security situation in the process.

The "Ready First Combat Team"

The 1st Brigade of the 1st Armored Division, the "Ready First Combat Team," was at the center of the Anbar Awakening. When we arrived in Ramadi in June 2006, few of us thought our campaign would change the entire complexion of the war and push Al-Qaeda to the brink of defeat in Iraq. The Soldiers, Marines, Sailors, and Airmen who served in or with our brigade combat team (BCT) enabled the Anbar Awakening through a deliberate, often difficult campaign that combined traditional counterinsurgency (COIN) principles with precise, lethal operations. The skilled application of the same principles and exploitation of success by other great units in Anbar and other parts of Iraq spread the success in Ramadi far beyond our area of operations (AO) at a pace no one could have predicted.

The Ready First enabled the Anbar Awakening by:

- Employing carefully focused lethal operations.
- Securing the populace through forward presence.
- Co-opting local leaders.
- Developing competent host-nation security forces.
- Creating a public belief in rising success.
- Developing human and physical infrastructure.

The execution of this approach enabled the brigade to set conditions, recognize opportunity, and exploit success when it came, to create a remarkable turnaround.

Ramadi on the Brink

In the summer of 2006, Ramadi by any measure was among the most dangerous cities in Iraq. (2) The area of operations averaged over three times more attacks per capita than any other area in the country. With the exception of the embattled government center and nearby buildings held by a company of Marines, Al-Qaeda-related insurgents had almost complete freedom of movement throughout the city. They dominated nearly all of the city's key structures, including the city hospital, the largest in Anbar province. Their freedom of movement allowed them to emplace complex subsurface IED belts, which rendered much of the city no-go terrain for U.S. and Iraqi Army (IA) forces.

The situation in Ramadi at this point was markedly different from that in Tal Afar, where the Ready First began its tour of duty. Although Ramadi was free of the sectarian divisions that bedeviled Tal Afar, it was the provincial capital, it was at least four times more populous, and it occupied a choke point along the key transit routes west of Baghdad. Perhaps recognizing these same factors, Al-Qaeda had declared Ramadi the future capital of its "caliphate" in Iraq. Local Iraqi security was essentially nonexistent. Less than a hundred Iraqi

police reported for duty in June, and they remained in their stations, too intimidated to patrol. Additionally, the fledgling IA brigade nearest Ramadi had little operational experience.

In late 2005, the Sunni tribes around Ramadi attempted to expel Al-Qaeda in Iraq (AQIZ) after growing weary of the terrorist group's heavy-handed, indiscriminate murder and intimidation campaign. (3) A group calling itself the Al Anbar People's Council formed from a coalition of local Sunni sheiks and Sunni nationalist groups. The council intended to conduct an organized resistance against both coalition forces and Al-Qaeda elements, but, undermanned and hamstrung by tribal vendettas, it lacked strength and cohesion. A series of tribal leader assassinations ultimately brought down the group, which ceased to exist by February 2006. This collapse set the conditions that the brigade found when it arrived in late May. The assassinations had created a leadership vacuum in Ramadi and, by cutting tribal ties to outside tribal centers, had isolated the city. For their part, the tribes had adopted a passive posture, not wishing to antagonize a powerful Al-Qaeda presence in and around Ramadi. In short, as the Ready First prepared to move from Tal Afar, their new AO was essentially in enemy hands.

Actions in Summer and Autumn, 2006

The situation in Ramadi clearly required a change in coalition tactics. We had to introduce Iraqi security forces (ISF) into the city and the rural areas controlled by the enemy. But, even with a total of five Marine and Army maneuver battalion task forces, the Ready First did not have enough combat power to secure such a large city by itself. The Iraqi Army and at some point, the Iraqi Police (IP), had to be brought into play. They would help, but we understood that without the support of the local leaders and populace, any security gains achieved solely through lethal operations would be temporary at best. In particular, we had to overcome the fallout from the unsuccessful tribal uprising of 2005. We had to convince tribal leaders to rejoin the fight against Al-Qaeda.

Developing the plan. We reckoned the brigade had to isolate the insurgents, deny them sanctuary, and build Iraqi security forces, especially police forces, to succeed. The staff developed a plan that centered on attacking Al-Qaeda's safe havens and establishing a lasting presence there to directly challenge the insurgents' dominance of the city, disrupting their operations, attriting their numbers, and gaining the confidence of the people. We intended to take the city and its environs back one neighborhood at a time by establishing combat outposts and developing a police force in the secured neighborhoods. The plan called for simultaneously engaging local leaders in an attempt to find those who had influence, or "wasta," and to get their support. We recognized this as a critical part of the plan, because without their help, we would not be able to recruit enough police to take back the entire city.

We also realized that in the plan's initial stages, our efforts at fostering local cooperation were highly vulnerable. A concerted AQIZ attack on the supportive sheiks could quickly derail the process, as it had in 2005-2006. We therefore took some extraordinary measures to ensure the survival of tribal leaders who "flipped" to our side. We established neighborhood watches that involved deputizing screened members of internal tribal militias as "Provincial Auxiliary Iraqi Police," authorizing them to wear uniforms, carry weapons, and provide security within the defined tribal area. In the more important tribal areas, combat outposts manned by U.S. or IA forces would protect major routes and markets. In a few cases, we also planned to provide direct security to key leaders' residences, to include placing armored vehicles at checkpoints along the major access roads to their neighborhoods.

We designed our information operations (IO) efforts to alienate the people from the insurgents while increasing the prestige of supportive tribal leaders. We also made friendly sheiks the conduits for humanitarian aid efforts, such as free fuel disbursements. Wherever we established improved security, we established civil military operations centers (CMOCs) and began the process of restoring services to the area. After securing Ramadi General Hospital, we began an extensive effort to improve its services and to advertise it throughout the city. Prior to our operation there in early July 2006, the hospital's primary function had been treating wounded insurgents, with most citizens afraid to enter the facility. We also took a different IO tack with the sheiks. Instead of telling them that we would leave soon and they must assume responsibility for their own security, we told them that we would stay as long as necessary to defeat the terrorists. That was the message they had been waiting to hear. As long as they perceived us as mere interlopers, they dared not throw in their lot with ours. When they began to think of us as reliable partners, their attitudes began to change. Still, we had to prove that we meant what we were saying.

Experience in Tal Afar taught us that competent local police forces were vital for long-term success. An AQIZ intimidation campaign had all but eliminated the previous police force, and a suicide bomber killed dozens of potential recruits during a recruiting drive in January 2006, an event that caused recruitment to shut down for six months. In June 2006, the Ramadi IP force claimed approximately 420 police officers out of 3386 authorized, and only about 140 of these officers ever showed up to work, with less than 100 present for duty on any given day. We realized that new recruiting was the key to building an effective police force.

Recruiting local security forces. Our desire to recruit local Iraqis into the IP was the catalyst for the Awakening movement's birth in September 2006. The way we went about it helped to prove that we were reliable partners and that we could deliver security to the sheiks in a way that broke the cycle of Al-Qaeda murder and intimidation. In the bargain, the Government of Iraq would assume the burden of paying their tribesmen to provide their security. The situation was a winner any way you looked at it. The tribes soon saw that instead of being the hunted, they could become the hunters, with well trained, paid, and equipped security forces backed up by locally positioned coalition forces.

We began the process by shifting our recruiting center to a more secure location, at one of our forward operating bases (FOBs) located closer to the tribes that had indicated a willingness to join the ISF. This shift helped to deter attacks and other forms of intimidation that had undermined previous recruiting drives. We maintained secrecy by communicating information about the recruiting drive only to sympathetic sheiks who wanted to protect tribesmen sent to join the IP. This technique resulted in a steadily growing influx of new recruits. Over the six-month period from June to December 2006, nearly 4,000 police joined without incident.

This influx taxed the brigade security forces cell, composed of the deputy commander and a small staff of highly capable officers and NCOs. The majority of the population in Al Anbar had either forged ID papers or none at all, so the recruiters had to determine the true identify and reliability of the potential recruits. Insurgent infiltration of the police force was (and still is) a problem in Iraq, and is inevitable; however, the Ready First made use of several methods and technologies to mitigate this risk.

Biometric automated tool sets (BATS) proved extremely useful in screening recruits and preventing previously caught insurgents from joining. Convincing supportive sheiks to vouch for their tribal members was a second filter in the screening process. From June to December, more than 90 percent of police recruits came from tribes supporting the Awakening, and the sheiks knew whom to trust.

Our ISF cell understood the importance of paying the new police to prove that they were respected and their service was valued. As a collateral benefit, the growing IP force also created a small engine for economic development by providing jobs in addition to security for the local community. Each recruit received a bonus if accepted for training. Officers also received a bonus if they served as active police members for 90 days. These boosts injected more vitality into the economy.

New Iraqi Army recruits also received incentives to join. One obstacle to recruitment was that locals were hesitant to join the IA because of the possibility of receiving an assignment far from home. To mitigate this, IA Division G-1s assigned the jundi (junior Soldiers) to an Iraqi battalion close to their homes. This "station of choice" option helped eliminate a major constraint of recruitment possibilities for the IA.

Both Iraqi Police and IA jundi assigned to Ramadi were required to attend a one-week urban combat training course run by the Ready First's field artillery unit to ensure that they could fight and survive once they joined their units. This focused training improved their confidence and discipline in urban combat, and significantly enhanced ISF effectiveness in small-unit actions. In time, the local IA brigade took responsibility for conducting the IA and IP courses with a cadre of drill sergeants, which helped forge closer bonds between the two services and instilled an increased sense of confidence in the Iraqi security forces.

The Ready First made every effort to help unqualified Iraqi recruits become police officers or soldiers. The most frequent disqualifier of recruits was the literacy requirement. The brigade commenced adult literacy classes, on a trial basis, for the illiterate recruits. These classes also had a positive, albeit unintended, collateral benefit. As security improved, hundreds of women enrolled in the classes—about five times more than we expected. The fact that women eventually felt safe enough to seek education reinforced the impression of improved security while directly attacking Al-Qaeda's ability to influence the population.

As the benefits of cooperation with our recruiting efforts became obvious to the various local sheiks, more and more of them expressed an interest in cooperating with us. This interest eventually resulted in an Al-

Qaeda reprisal that, although tragic, was instrumental in bringing the sheiks together in the Awakening movement.

Securing the populace. Past coalition operations in Ramadi had originated from large FOBs on the outskirts of town, with most forces conducting "drive-by COIN" (or combat)—they exited the FOB, drove to an objective or patrolled, were attacked, exchanged fire, and returned to base. Because the physical geography and road network in Ramadi enabled the enemy to observe and predict coalition movements, nearly every movement into the center of the city was attacked multiple times by improvised explosive devices, RPGs, or small arms, often with deadly results. Moreover, the patrols played into the insurgents' information operations campaign: Al-Qaeda exploited any collateral damage by depicting coalition Soldiers as aloof occupiers and random dispensers of violence against the populace.

It was clear that to win over the sheiks and their people, our BCT would have to move into the city and its contested areas. Thus, we decided to employ a tactic we had borrowed from the 3d Armored Cavalry Regiment and used successfully in Tal Afar: the combat outpost, or COP. Our COPs normally consisted of a tank or infantry company team based in a defensible local structure in a disputed area. Eventually, the COPs included an Iraqi Army company wherever possible as they became emboldened by our presence. Later, we began to establish Iraqi Police substations at or near the COPs as well. At this early stage, the outposts provided "lily pads" for mechanized quick-reaction forces, safe houses for special operations units, and security for civil-military operations centers. In rural areas, the COPs sometimes doubled as firebases with mortars and counterfire radars.

Because we now maintained a constant presence in disputed neighborhoods, the insurgents could no longer accurately trace and predict our actions. Frequent and random patrols out of the COPs prevented AQIZ from effectively moving and operating within the local populace. At the same time, the COPs enhanced our ability to conduct civil-military operations; intelligence, reconnaissance and surveillance (ISR); and IO.

These outposts also acted as "fly bait," especially in the period immediately after a new COP was established. Experience in Tal Afar taught us that insurgents would attack a newly established outpost using all systems at their disposal, including suicide car bombs. These attacks usually did not end well for the insurgents, who often suffered heavy casualties. During the establishment of the first outpost, in July 2006, the enemy mounted multiple-platoon assaults. The frenzy of attacks on the new outposts culminated in a citywide battle on 24 July 2006 in which AQIZ forces were severely beaten and sustained heavy casualties. By October, attacks were far less fierce, with elements consisting of a handful of men conducting hit-and-run type operations. These noticeable decreases in enemy strength indicated our plan to decimate their ranks was clearly working. Constant coalition presence, insurgent attrition, and loss of insurgent mobility freed the people from intimidation and sapped any support for AQIZ.

The COPs also allowed us to control the infrastructure in Ramadi and use it to once again support the populace. This was the case with the Ramadi General Hospital. We established a COP just outside the hospital's walls while an IA unit secured the premises. Within days, the hospital was providing quality medical attention for the first time in a year, and the IA was detaining wounded insurgents who had come seeking treatment.

We continued to build new outposts in the city and surrounding areas until our redeployment transition began in February 2007. The strategy was not unlike the island-hopping campaign in the Pacific during World War II. With new outposts established in an ever-tightening circle around the inner city, we wrested control of areas away from the insurgents. As areas became manageable, we handed them over to newly trained Iraqi police forces (whom we kept a watchful eye on), and used the relieved forces elsewhere to continue tightening the noose. All these developments in securing the populace required an accompanying development of key alliances with tribal leaders, the history of which is inseparable from the operational story of the Anbar Awakening.

Courting local leaders. Convincing the local sheiks to join us and undertake another uprising was an immense challenge, but obtaining their support was the lynchpin of the second part of our strategy. We knew it would be pivotal when we arrived in Ramadi in June. The sheiks' memory of their first, failed attempt at establishing the Al Anbar People's Council (late 2005-early 2006) was the main obstacle to our plan in this regard. The Sunni tribal alliance was fragmented and weak compared to the growing Al-Qaeda forces that controlled Ramadi in those days.

At the same time, area tribal sheiks had no great love for U.S. forces or the Iraqi Army. Early in the insurgency, they had directly and indirectly supported former-regime nationalist insurgents against U.S. forces, and as a result they had temporarily established an alliance of convenience with AQIZ. Many tribal members were killed or captured combating coalition forces, which diminished the sheiks' ability to provide income for their tribes. These conditions in turn enabled AQIZ to recruit from those families in need of money. Another aggravating factor was that IA forces initially stationed in Anbar consisted largely of southern Iraqi Shi'ites. Ramadi area inhabitants regarded them as agents of the Sadr militia or Badr Corps, with a covert agenda to kill off Sunni tribes and enable a Shi'ite takeover of Anbar.

Nevertheless, the tribal leaders were still fed up with Al Qaeda's violence and frustrated by their own loss of prestige and influence in their traditional heartlands. The brigade staff believed that by offering convincing incentives, we could create a tribal alliance that could produce lasting security in Ramadi. To persuade the tribes to cooperate, we first needed to understand the human terrain in our AO, and that task fell to an outstanding and talented junior officer, Captain Travis Patriquin.

An Arabic-speaking former Special Forces Soldier and an infantry officer assigned as the Ready First's S-9/engagements officer, Patriquin coordinated brigade-level local meetings and discussions. He quickly gained the sheiks' confidence through his language and interpersonal skills and developed strong personal bonds with their families. He strengthened these bonds during meetings between the brigade commander or deputy commanding officer and the sheiks. Battalion and company commanders also worked on improving relations with the townspeople on a daily basis. Thus, the sheiks' growing trust of the brigade's officers led them to support our efforts to reinvigorate police recruiting.

The combined effects of the engagement efforts were eventually hugely successful. However, some staff officers outside the brigade became concerned that we were arming a tribal militia that would fight against Iraqi security forces in the future. To allay those concerns and to pass on the "best practices" we had developed in Ramadi, Captain Patriquin created his now-famous PowerPoint stick-figure presentation "How to Win in Al Anbar." (4) This slideshow perfectly captured the Ready First's concept for winning the tribes over to our side.

We deliberately placed our first IP stations manned with newly recruited Sunni tribesmen where they could protect the tribes that were supplying us with additional recruits. This tactic gave the IPs added incentive to stand and fight and effectively ended Al-Qaeda's murder and intimidation campaign against the men serving in the ISF. In a significant change of circumstance, the newly minted IPs quickly became the hunters, arresting a number of insurgents and uncovering tremendous weapons caches. By the end of July 2006, AQIZ was definitely feeling the pinch.

In reacting to the pressure, Al-Qaeda inadvertently aided our efforts by overplaying its hand. The group launched a series of attacks against the new IP stations. On 21 August, the insurgents attacked a newly established IP station in a tribal stronghold with an immense suicide vehicle-borne improvised explosive device (SVBIED). The IPs, however, refused to be scared away. Despite offers of safe haven at a nearby coalition base, the survivors remained at their posts, ran their tattered flag back up the flagpole, and even began to conduct patrols again that same day.

Hours later, Al-Qaeda attempted to intimidate future recruits by murdering and desecrating the body of a leading local sheik who had been instrumental in our early push at recruiting tribe members into the ISF. The attack inflamed tribal sentiment against AQIZ and drove several fence-sitting tribes to support our police recruitment.

A significant leader for the burgeoning movement emerged in Sittar albu-Risha, a younger sheik who resided on the west side of town and who was reputed to have smuggling and business connections throughout Anbar. In addition to having questions about Sittar's true motives, some were concerned that we would be placing too much stock in a relatively junior sheik and undercutting ongoing negotiations with Anbar tribal leaders who had fled to Jordan. However, with each successful negotiation and demonstration of trustworthiness by Sittar, we were able to whittle away at these reservations.

The Tipping Point

Sheik Sittar was a dynamic figure willing to stand up to Al Qaeda. Other, more cautious, sheiks were happy to let him walk point for the anti-AQIZ tribes in the early days, when victory was far from certain and

memories of earlier failed attempts were still fresh. In The Tipping Point, Malcolm Gladwell writes that three types of individuals are necessary for a radical change, or a "tipping point," to occur: mavens, salespersons, and connectors. In brief, mavens have the goods, salespersons spread the word, and connectors distribute the goods far and wide. (5) In Ramadi, the Soldiers of the Ready First were the mavens who had the goods—in this case, the ability to form, train, and equip ISF and new leaders. The brigade and battalion commanders acted as salesmen. We identified Sittar as a connector who could get the people to buy into the Awakening. All the elements were in place for transformation; we only had to decide if we trusted Sittar. When our salesmen decided to take a risk with this connector, the effect was amazing in its speed and reach.

On 9 September 2006 Sittar organized a tribal council, attended by over 50 sheiks and the brigade commander, at which he declared the "Anbar Awakening" officially underway. The Awakening Council that emerged from the meeting agreed to first drive AQIZ from Ramadi, and then reestablish rule of law and a local government to support the people. The creation of the Awakening Council, combined with the ongoing recruitment of local security forces, began a snowball effect that resulted in a growing number of tribes either openly supporting the Awakening or withdrawing their support from AQIZ.

Although recruiting and establishing the neighborhood watch units was an important and necessary step to securing Ramadi, it was not sufficient to remove AQIZ influence in the city completely. We needed more police officers who would join us inside the city, which our Soldiers called "the heart of darkness." A critical agreement emerging from the council resulted in commitments to provide more recruits from local tribes to fill out requirements for police forces.

Soon after the council ended, tribes began an independent campaign of eradication and retaliation against AQIZ members living among them. Al-Qaeda's influence in the city began to wane quickly. U.S. and Iraqi units operating from COPs killed or captured AQIZ's most effective elements while resurgent IP and tribal forces raided their caches and safe houses. By late October, nearly every tribe in the northern and western outskirts of Ramadi had publically declared support for the Awakening, and tribes in the dangerous eastern outskirts of the city were sending out feelers about doing the same. The stage was set for a major change in Ramadi.

The Battle of Sufia

AQIZ did not sit idly as it slowly lost its dominance of both the terrain and the populace. Attacks remained high through October 2006 (Ramadan) inside the city limits while SVBIED attacks against and harassment of new COPs and IP stations located outside the city occurred regularly. These attacks often inflicted casualties on the nascent security forces. Casualties were not enough to slow the Awakening, however, and support continued to expand for the movement.

AQIZ long counted on a secure support base on the east outskirts of town in the Sufia and Julaybah areas. These rural tribal areas were some of the most dangerous in the Ramadi AO, and intelligence indicated they harbored a large support network for the insurgents operating inside the city. AQIZ learned that one of the major sheiks of the Sufia area was considering supporting the Awakening and that he had erected checkpoints to keep out insurgents. Facing a threat to its vital support areas outside of town, AQIZ acted quickly to maintain its grip there.

On 25 November, 30 to 40 gunmen in cars drove into the Albu Soda tribal area and began murdering members of the tribe. AQIZ forces took the tribal militiamen attempting to defend their homes by surprise, killing many while looting and burning their homes. A group of civilians fled in boats across the Euphrates River and reached an Iraqi Army outpost where they breathlessly described what was happening. The IA battalion relayed the information to our brigade TOC, where the operations staff reallocated ISR platforms and immediately called for Captain Patriquin to provide an Iraqi account of the situation.

Within an hour, Patriquin had gained an understanding of the situation through phone calls to the local sheiks. The brigade headquarters quickly made a crucial decision—we would support the Albu Soda tribe in defending itself. The BCT commanders and staff cancelled a planned battalion-sized combined operation in east Ramadi that was just hours from execution. The battalion commander who was responsible for that area, Lieutenant Colonel Charles Ferry of 1st Battalion, 9th Infantry (Manchus), quickly diverted his force away from the planned operations to assist the Soda tribe in defending its homes. The decision was immediate and

the response rapid, underscoring the brigade's flexibility in recognizing and adapting quickly to take advantage of opportunities, rather than following plans in lockstep.

U.S. Marine Corps aircraft arrived overhead to perform "show of force" sorties designed to intimidate the insurgents and convince them that air attack was imminent. Next, a ground reaction force from Task Force 1-9 Infantry began preparations to move to the area and establish defenses for the Albu Soda tribe. Because we were viewing the area using aerial sensors, our vision of the fight was indistinct, and we were unable to separate insurgents from the friendly tribesmen. We did not want to attack the friendly tribe by mistake, so we undertook actions to intimidate the insurgents by firing "terrain denial" missions. Explosions in empty nearby fields raised the possibility of suppressive artillery fire in the minds of the enemy. Complemented by the roar of fighter jets, the startled AQIZ forces became convinced that massive firepower was bearing down on them. They started to withdraw, separating themselves from their victims.

As AQIZ gunmen began fleeing the area, they loaded into several cars, three of which our sensors identified. Our UAV observed a body dragging behind one of the cars, evidently an Albu Soda tribesman. The insurgents obviously meant to terrorize and insult the tribe through this act of mutilation, but they also triggered a boomerang reaction by clearly identifying themselves. The Ready First TOC coordinated F-18 attacks that overtook and destroyed the fleeing vehicles in a blazing fury as M1A1 tanks maneuvered to engage. Armed Predator UAVs and M1A1 tanks in ambush positions finished off others attempting to escape. In the end, the Al Qaeda forces suffered far more casualties than the Albu Soda tribe. By nightfall, several companies of infantry and some M1A1 tanks had reinforced tribal defenders, further demonstrating coalition commitment.

Once again, AQIZ's intimidation attempt spectacularly backfired: tribes joined the Awakening movement at a rate that proved difficult to keep up with, even expanding into the neighboring Fallujah and Hit AOs. Within two months, every tribe in Sufia and Julaybah had declared support for the Awakening, and four new combat outposts had been constructed to secure the populations. An area previously deemed high threat and used as a staging ground for AQIZ mortar attacks became almost completely secure. Tribal members inside Ramadi began supporting the Awakening as well, and security rapidly improved. Once a tribal area joined the Awakening, enemy contact in those areas typically dropped to near zero, as IP, IA, and U.S. forces provided security. Bases once under daily mortar and small arms attacks became secure areas and transitioned to IP control, freeing U.S. forces to pursue AQIZ elsewhere.

Overall, by February 2007, contacts with insurgents dropped almost 70 percent compared to the numbers in June 2006, and they had dramatically decreased in complexity and effect. The combination of tribal engagement and combat outposts had proved toxic to AQIZ's efforts to dominate Ramadi.

Rebuilding

Clearing and holding are the bloody but relatively straightforward part of any counterinsurgency effort; building the infrastructure to sustain military success is the complicated part. In Ramadi, it was essential to begin building at the beginning of a clearing operation, so there would not be a gap between establishing security and implementing projects.

While civil affairs projects are obviously vital to the success of a clear, hold, build campaign, building human infrastructure, which includes installing government officials and agency directors, is just as vital. One of the keys to success in Tal Afar was the establishment of a credible local government with a mayor respected by the populace. In Ramadi, there was no local governance when we arrived. We prevailed upon the provincial council to appoint a mayor—one acceptable to the tribes—to coordinate development for the city. This appointment was important because it relieved the governor of municipal level duties and allowed him to focus on issues elsewhere in the province. We then worked with the mayor to ensure that schools, hospitals, sewers, power stations, and other infrastructure all returned to pre-war normalcy as soon as possible. In fact, the western part of Ramadi was undergoing redevelopment even while combat operations in east Ramadi continued during autumn. This rebuilding effort demonstrated that normal services could function again and helped convince the people of Ramadi that local security improvements were permanent.

We wanted to encourage people living in still-embattled neighborhoods that joining the Awakening was both possible and in their best interest. To that end, we held the first "Ramadi Reconstruction Conference" in January 2007 at Sheik Sittar's home. Sheik Sittar invited all of the local sheiks, any government officials we

could find, and local contractors. Following a brief on all ongoing projects, we explained the different ways coalition forces could be of assistance in reconstruction. The participants broke down into geographically based small groups, led by our five maneuver task force commanders and their local partners, to design and refine plans for reconstruction. The commanders discussed local needs and, just as importantly, local reconstruction capabilities. Everyone was asked to return in March to brief plans. Accordingly, we were able to begin reconstruction in cleared parts of Ramadi before the fighting was over elsewhere. Maintaining the initiative in this way was the single most important thing we did throughout the campaign.

Why We Succeeded

Clearly, a combination of factors, some of which we may not yet fully understand, contributed to this pivotal success. As mentioned before, the enemy overplayed its hand and the people were tired of Al-Qaeda. A series of assassinations had elevated younger, more aggressive tribal leaders to positions of influence. A growing concern that the U.S. would leave Iraq and leave the Sunnis defenseless against Al-Qaeda and Iranian-supported militias made these younger leaders open to our overtures. Our willingness to adapt our plans based on the advice of the sheiks, our staunch and timely support for them in times of danger and need, and our ability to deliver on our promises convinced them that they could do business with us. Our forward presence kept them reassured. We operated aggressively across all lines of operation, kinetic and non-kinetic, to bring every weapon and asset at our disposal to bear against the enemy. We conducted detailed intelligence fusion and targeting meetings and operated seamlessly with special operations forces, aviation, close air support, and riverine units. We have now seen this model followed by other BCTs in other parts of Iraq, and it has proved effective. Indeed, the level of sophistication has only improved since the Ready First departed in February 2007. Although, perhaps groundbreaking at the time, most of our tactics, techniques, and procedures are now familiar to any unit operating in Iraq today.

The most enduring lessons of Ramadi are ones that are most easily lost in technical and tactical discussions, the least tangible ones. The most important lessons we learned were:

- Accept risk in order to achieve results.
- Once you gain the initiative, never give the enemy respite or refuge.
- Never stop looking for another way to attack the enemy.

The tribes represent the people of Iraq, and the populace represents the "key terrain" of the conflict. The force that supports the population by taking the moral high ground has as sure an advantage in COIN as a maneuver commander who occupies dominant terrain in a conventional battle.

No matter how imperfect the tribal system appeared to us, it was capable of providing social order and control through culturally appropriate means where governmental control was weak.

Conclusion

The men assigned and attached to the Ready First paid a terrible price for securing Ramadi. In nine months, 85 of our Soldiers, Sailors, and Marines were killed, and over 500 wounded in some of the toughest fighting of the war. Only the remarkable results they achieved, and the liberated citizens of Ramadi who can now walk the streets without fear, temper the grief caused by their sacrifice. It is gratifying to see our model adapted and used elsewhere in the War on Terror. It proves once again that America's Army is truly a learning organization. In the end, probably the most important lesson we learned in Ramadi was that, as General Petraeus said, "Hard is not hopeless."

Editor: This article showcases the successful application of COIN tactics first employed in Tal Afar to Ramadi. In this instance, the Ready First brigade worked to create a permanent American and Iraqi army/police force presence among the population through the gradual establishment of combat outposts. This action facilitated the acquisition of intelligence of the operational environment and ensured a rapid reaction capability not possible for forces that executed periodic missions and withdrew to a distant base. Parallel efforts to rebuild an Iraqi police presence drawn from local citizens assigned to their neighborhoods bolstered the ability of American forces to identify, separate, and ultimately destroy Al-Qaeda elements in the city. The most important factor in the overall success, however, lay in the ability to convince the Sunni tribal leaders to act against Al-Qaeda and provide immediate, direct support to them when attacked. Increased and sustained interaction with the local population, securing the support of the local leaders, rebuilding a credible local police force, and the judicious employment of armored combat power created a winning combination that wrested Ramadi from the insurgents that had become a dominant influence in the city. The actions in Ramadi presaged a broader shift in American tactics that coincided with the surge of US forces to Iraq in 2007.

Notes

1) Frederick W. Kagan, "The Gettysburg of This War," *National Review*, 3 Sep 2007.

2) Megan K. Stack and Louise Roug, "Fear of Big Battle Panics Iraqi City," *Los Angeles Times*, 11 June 2006.

3) For the purposes of this essay, the multiple insurgent groups are broken into two main categories: former regime elements (FRE), consisting of former Baathists and other nationalists, and Al-Qaeda in Iraq (AQIZ), consisting of Islamic fundamen¬talist insurgent groups.

4) The "How to Win in Al Anbar" presentation became famous quickly, even gain¬ing mention on several news talk shows. It can be downloaded at <http://abcnews.go.com/images/us/how_to_win_in_anbar_v4.pdf>.

5) Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (Boston: Little, Brown and Company, 2000).

A Motorized Tank Company in Operation New Dawn

Editor: Operation New Dawn marked a transition for the role of American forces in Iraq. Instead of leading counterinsurgency operations, they shifted to an advisory and support mission, symbolized by the deployment of Advise and Assist Brigades in lieu of brigade combat teams. This article outlines the organization and operations of a tank company reconfigured for its advisory role and equipped with mine resistant ambush protected (MRAP) vehicles. Authored by the unit commander, it was originally published as "Team Cobra: A Motorized Tank Company in Support of Operation New Dawn," in the January-March 2013 issue of *Armor*.

When a tank company deploys to conduct counterinsurgency or stability and support operations, task organization is generally necessary to allow it to execute the specific missions it receives. Task organizing is the act of configuring an operating force, support staff or sustainment package of specific size and composition to meet a unique task or mission.(1)

Based on its modified table of organization and equipment, an Armor company consists of three platoons with an officer and 15 Soldiers each, as well as a headquarters element of two officers and six Soldiers, totaling 56 maneuver personnel. In contrast, the MTOE for a mechanized infantry company provides for up to 135 maneuver personnel. (2)

Both elements are commonly augmented with fire-support officers, medics and mechanics from the battalion headquarters and headquarters company and the forward-support company to support operations.

Realities in Iraq

I've set the stage because, as the 2nd Advise and Assist Brigade of 1st Cavalry Division, my Cobra Company, 1st Battalion, 8th Cavalry Regiment, deployed to Iraq's Diyala Province in support of Operation New Dawn. We faced multiple challenges to reconcile our assigned Team Cobra: A Motorized Tank Company In Support of Operation New Dawn by CPT Patrick C. Howlett missions with the limited capabilities inherent in our smaller size while still maintaining combat effectiveness.

As a tank company conducting SASO, Cobra Company received a variety of missions and tasks. One major task assigned to the company was to execute force-protection missions to prevent enemy combatants from attacking U.S. forces and installations. To accomplish this objective, the company conducted both mounted and dismounted counter indirect fire patrols and clearances of named areas of interest to deter indirect fire attacks on Contingency Operation Site Warhorse.

While C-IDF missions were the predominant form of force protection, the more decisive operation involved overseeing security for the line of communication between COS Warhorse and Joint Base Balad, a route heavily traveled by logistics convoys conducting resupply operations for COS Warhorse and other U.S. installations in Diyala Province. Also, Cobra Company was tasked with area-security operations to escort Department of State personnel from the Diyala Provincial Reconstruction Team to and from their various meetings and project sites.

The infantry unit that Cobra Company replaced in Southern Diyala had ample resources to conduct these operations based upon their MTOE, which provided for more than twice the number of maneuver personnel based on their MTOE. As a tank company, the Cobras faced the particular challenge of accomplishing the same tasks with significantly less company power than the infantry companies had.

An additional burden placed on units deploying to Operation New Dawn, designed to aid in the eventual withdrawal of U.S. forces, was the emplacement of a force cap. A force cap limits the number of Soldiers a unit can deploy; Cobra Company was limited to deployment with only 74 Soldiers. The tank platoons assigned to Cobra Company deployed with about 17 Soldiers, including a medic and a forward observer, who provided information and intelligence updates as part of the company intelligence-support team.

Task Organization

After some mission analysis at the battalion level upon arrival at COS Warhorse, the leadership determined to task-organize Cobra Company by attaching one tank platoon to HHC, while a mechanized-

infantry platoon attached to Cobra Company. The tank platoon attached to HHC was tasked with providing area security for the battalion commander and command sergeant major as their personnel-security detachment, and was replaced with a mechanized infantry platoon of about 30 Soldiers.

The result constructed a combined-arms company team with one or more nonorganic tank, mechanized-infantry or light-infantry platoons to a tank, mechanized infantry or light infantry company, either in exchange for or in addition to organic platoons. (3) The change from being a pure organic tank company to a combined-arms company team greatly increased the combat power and flexibility in Cobra Company, allowing it to accomplish all tasks given it.

After the platoon became part of Cobra Company, the company commander and first sergeant decided to take two three-Soldier teams from the infantry platoon and task-organize them within the company to each of the two remaining tank platoons. This decision was based on Cobra Company's previous training events from situational-training exercises at Fort Hood, TX, and during the brigade mission-readiness exercise at the Joint Readiness Training Center, Fort Polk, LA. Thus, when conducting motorized operations, the tank platoons would have the platoon leader, the Bravo Section sergeant, all the assigned loaders on the tank crews and the attached medic acting as dismounts whenever the platoon needed to dismount from their vehicles. This only provided a total of six dismounts, with a medic to provide medical support. Adding those three infantry Soldiers enabled the tank platoons to operate with the capability of a standard nine-man dismounted squad while conducting force protection and SASO.

It is worth noting that one sergeant team leader and two Soldiers made up the small infantry team attached to the two tank platoons. This not only aided the two tank platoons, giving them about 20 Soldiers for their platoons to conduct patrols, but it also provided an experienced noncommissioned officer with a strong understanding of dismounted tactics. While the three-Soldier team made it easy to integrate the platoon in a timely manner, making them an asset, an increase in the number of attached infantry would always ensure a sizeable dismount force. (4) This combination of infantry and Armor Soldiers "brought the training and experience of mounted and dismounted tactics together and made the [platoons] extremely lethal." (5)

With the requirement to send Soldiers on environmental morale leave, each platoon was sending at least two Soldiers a month. The remaining infantry allowed their platoons to maintain enough Soldiers to conduct patrols. Also, it did not degrade the infantry platoon's ability to conduct patrols, as their mine-resistant, ambush-protected Max- Pro Plus vehicles did not have the capacity to carry all 30 of their Soldiers on patrols.

Having a full nine-Soldier dismounted squad in each platoon greatly aided in the execution of the company's missions in Southern Diyala. Most of the area in which the company operated consisted of palm groves and farmlands. Also, in the small cities and villages, most of the streets were very narrow. With the vehicle platform being the MRAP, most of the terrain was heavily restricted for mounted maneuver, requiring dismounted squads to maneuver in certain areas. Not only did the terrain dictate that the company would be forced to use dismounted squads for investigating potential enemy indirect fire attack points, the specific missions assigned to Cobra Company required a greater emphasis on dismount support.

Lessons Learned

However, the coordination of the task organization was made very late. The unit had already been conducting the relief in place/transfer of authority with the redeploying unit before the decision to task-organize was made. Not only did Charlie Company and the attached Alpha Company platoon have to execute some logistical problem-solving, there had been no cross-training before the deployment between the two units, forcing both elements to quickly adapt. (6) Some of the infantrymen had been attached to Charlie Company during STX events and the JRTC rotation, but they did not stay permanently attached and there was no time to learn about the leadership they would be working for, nor the company's standards. Ensuring the same Soldiers train with the platoon before the deployment would greatly improve the effectiveness of the task organization. (7) While mission requirements are constantly adapting, decisions about task organization need to be finalized well in advance of the combat training center rotation.

Most importantly, a tremendous amount of Cobra Company's combat power focused on the C-IDF mission, with an average of two C-IDF patrols a day. COS Warhorse was a constant recipient of indirect fire from enemy insurgent groups from the surrounding farm areas in Diyala. To successfully disrupt enemy

indirect fire operations, patrols were required to disrupt areas where the enemy had previously fired from and areas determined to be potential attack sites. (This was referred to as terrain denial.)

Based on the restricted terrain and the limitations of the company's maneuver platform, the use of dismounted squads were crucial in ensuring clearance of potential indirect-launch points as well as disrupting the enemy's ability to successful launch indirect fire upon COS Warhorse.

Cobra Company was also responsible for one of the key lines of communication in Diyala Province. Due to the Tigris River separating the brigade's main support base of JBB with COS Warhorse, the brigade's supply convoys could only travel on Route Dover that contained a bridge to cross the river.

However, the U.S. supply convoys were predictable, so local insurgent groups would target U.S. vehicles regularly with explosive-formed penetrators. In response to this threat, Cobra Company assumed a specific mission upon RIP/TOA, which involved emplacing small kill teams along Route Dover to interdict any insurgent groups attempting to emplace EFPs along the route. Providing two elements, a mounted security and quick-response element and the SKT, required more personnel to operate and defend the mounted element; allow the SKT to maneuver separately; and have enough personnel to maintain security and maneuver and engage insurgents placing explosives. While this mission was more suited for a larger infantry platoon, the two tank platoons were tasked with executing this mission on multiple occasions without any hindrance. Without the added infantry dismounts to each tank platoon, Cobra Company would not have had success in its LOC-security mission.

Personnel Security

One mission Cobra Company dealt with that was critical in SASO was the security of the Diyala PRT. Almost every day DoS personnel would conduct meetings with the Diyala governor, local judges and other provincial leaders at the government center in the provincial capital of Baqubah. Cobra Company was responsible for providing area security around the government center and personnel security for PRT members.

On many occasions, PRT members would have concurrent meetings at different locations within the government center, requiring multiple dismounted security elements to escort them to the secured vehicle-staging area and their meetings. Shortly after the RIP/TOA, while a tank platoon was providing security for the PRT at the government center, a violent-extremist-network insurgent group attacked the provincial building 500 meters away. The platoon was able to maintain security at the government center with a section while maneuvering the other section to the provincial building to aid Iraqi security forces in regaining control of the building. The increased dismount capability within the two tank platoons allowed them to easily handle the tasks placed on them to provide security and allow the PRT to accomplish their missions despite the multiple locations of personnel within the government center.

Conclusions

While the attached infantry platoon still maintained the largest formation within the company, the task organization implemented by Cobra Company allowed each platoon to complete any of the patrols tasked to them. The attached infantry platoon "benefitted from the task organization as they learned much about mounted operations from [the tankers]," learning certain skills and making them successful in the mounted operations conducted by the unit. (8) It provided the commander a tremendous amount of flexibility, as in the event of an attack or a recent intelligence report, he could send the most readily available platoon, not a specific one, as all were equipped to handle every mission.

Another benefit from this specific task organization was the ability to rotate platoons among specific patrols. Rotating platoons between the PRT escort mission, C-IDF and counter-EFP patrols regularly prevented complacency forming within the platoons from conducting the same missions repeatedly.

Above all else, the decision to task-organize "gave more combat power and added dismounted knowledge to the platoons they were tasked to." (9)

When a mechanized-infantry platoon attaches to a tank company, they maintain their full amount of infantrymen, and the two tank platoons remain at their pure organic allocation of Soldiers. This generally leads to specific missions being assigned to each of the two types of platoons. Also, in conventional offensive

and defensive operations, there are no added capabilities, nor anywhere for an organic tank platoon to add any more personnel.

In the current operating environment dealing heavily with SASO, the tank platoon, which operates the MRAP and Humvee, is required to operate in a vastly different form than exposed to in initial training.

Clearly, task organizing and adding those extra infantry dismounts greatly aided both the tank platoons and the company as a whole to accomplish the commander's intent and succeed. Having those attachments allowed an experienced noncommissioned officer to aid in dismounted operations, provide flexibility to the commander in assigning patrols to the platoons and provide the additional personnel vitally needed to allow the platoons to operate while maintaining security and accomplishing their missions safely. As armored brigade combat teams now begin to deploy to Afghanistan to conduct stability operations, task-organizing their Armor companies in a similar manner could prove invaluable to support their missions.

Editor: In the more constrained operational environment of Operation New Dawn, the MRAP-equipped company described still provided a range of capabilities suited to its mission set. While lacking the combat power of a normal tank unit, it possessed sufficient means to perform its primary force protection missions. It offset its lack of mounted maneuver capability through the intelligent use of dismounted patrols, small kill teams, and the acquisition of additional infantry. The resultant task organization proved capable of executing the missions assigned to it, making this company's experience a potential model for deployments into similar, future operational environments that lack a robust and aggressive threat. It also again demonstrated the ability of an armor unit to operate as a light motorized and/or dismounted force.

Notes

1) *Field Manual 5-0, The Operations Process*, Department of the Army, March 2010.

2) FM 3-90.1, Tank and Mechanized Infantry Company Team, Department of the Army, December 2002.

3) *FM 101-5-1, Operational Terms and Graphics*, Department of the Army, September 1997.

4) Interviews with 1LTs Benjamin Mower and Nicholas Potter, platoon leaders for 1st Platoon and 3rd Platoon, C Company, Aug. 16, 2012.

5) Interview with 1LT Mower.

6) Interview with 1LT Jeffery Tolbert, platoon leader of 3rd Platoon, Alpha Company, 1-8 Cavalry, Aug. 10, 2012.

7) Interview with 1LT Potter.

8) Interview with 1LT Tolbert.

9) Ibid.

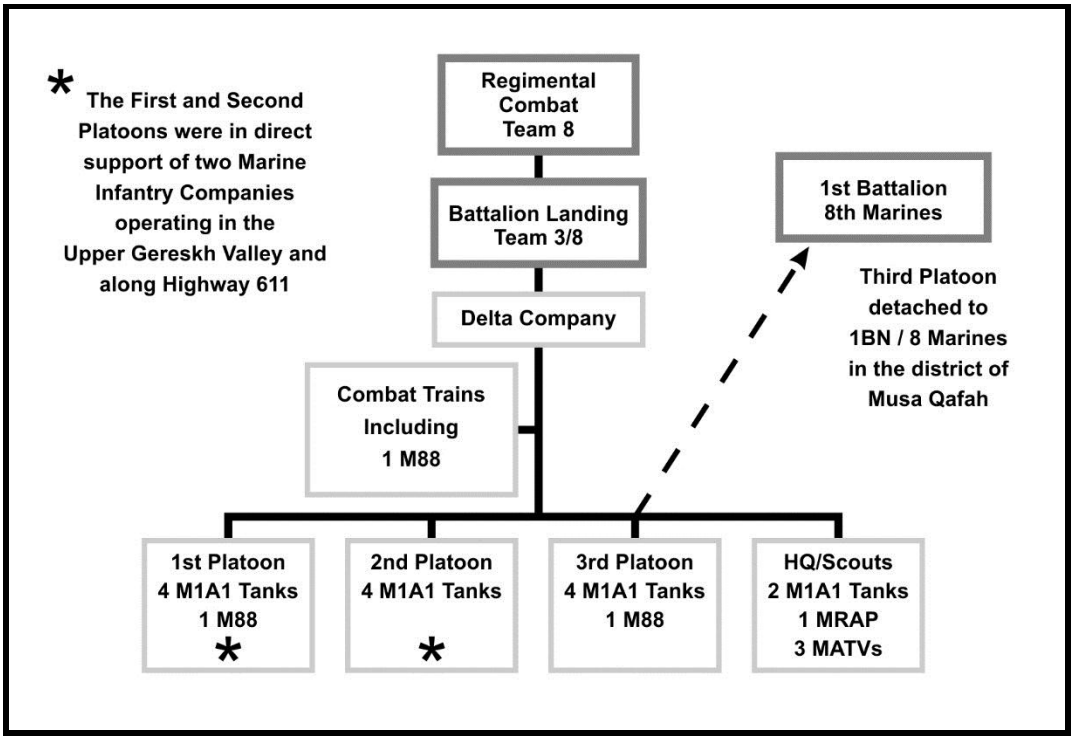
U.S. Marine Corps Tank Company in Afghanistan

Editor: At the time of this publication, there have been no U.S. Army tank deployments to Afghanistan. However, the Marine Corps did employ tanks between 2010 and 2013 tanks. The following report is based upon a briefing summarizing the experience of a Marine tank company in Helmand Province in 2011.

Mission:

Delta Company, 1ST US Marine Tank Battalion conducts offensive and defensive operations in support of Marine Ground Infantry Units in the Helmand Province of Afghanistan from the beginning of January 2011 through July 2011 in order to provide combat power by using armor protected firepower, shock effect and maneuver in order to close with, destroy and deny the enemy use of this terrain to conduct operations against coalition forces and the Afghan People living within the province.

Task Organization:



Task organization

Mobility: Effects of the terrain on tank maneuverability

1) Traditional.
   - Tank crews became more proficient maneuvering in the restricted terrain of the province as the deployment progressed. Adverse terrain did not affect the mobility or maneuverability of the tank.
2) IED Defeat.
   - Became the primary threat to the tanks as the deployment progressed.
   - Blades used to proof routes, positions and for counter IED sweeps.
   - Delta Co tanks incurred 19 IED strikes over the seven months of the deployment.

3) Tanks versus Wheels.

- Tanks encountered restricted maneuvering in conjunction with wheeled vehicles as the wheels frequently could not keep up with the tanks and could not travel on the same terrain. Tanks frequently escorted wheels in support of resupply operations.
- The tank was the only platform in country that was not restricted to established routes or flat and open terrain.
- Tanks operated successfully with belly armor in the heavily vegetated green zone that skirts both banks of the Helmand River.
- Tank blades did not hinder mobility.

Force Protection: Protection of the platform and the supported Marines.

1) Fortifications.

- None fixed in the areas the tank platoons & the infantry companies were in.
- Used blades mounted on the front of the tank to build fighting positions and to provide force protection measures.
- Tank blades frequently separated pressure plate initiators from IED main charge.
- Tankers would blade the ground to a depth of one foot where the Marines would walk.

2) Platform.

- Belly plates installed.
- Insignificant ambush and direct fire threat to the tanks.
- Most effective CIED TTP was utilizing terrain rather than letting terrain dictate movement.

3) Tank Survivability.

- No tanks lost, two evacuated for repairs
- One tank evacuated because the FSR could not repair the belly armor. Fixed and returned to unit.
- One tank evacuated with turret damage. Fixed and returned to unit.

4) Human Casualties.

- One casualty from Delta Company, a Marine with light shrapnel wounds to the left arm from an IED strike.

5) Belly Plates.

- All the tanks had belly armor installed (theatre requirement).
- Loss of belly armor deadline vehicle till repaired or replaced.
- Successfully protected the crew from IED strikes.
- Unit could not short track the vehicle when suspension damaged due to weight / clearance of belly armor.
- No ARAT installed on the tanks.

Operational Reach: What capabilities the tank brought in support of the dismounted infantry.

1) First the enemy had seen of US Tanks in the Helmand Province.

- Unit deployed from January 2011 through July 2011. Seven months is the standard deployment time for a Marine tank company.

2) Delta Co, 1ST Tank Battalion Marines relieved a coalition infantry unit in January 2011 (Danish).

3) Delta Co relieved by Alpha Co, 2ND Marine Tank Battalion in July 2011.

4) 1ST Marine Tank Battalion deploys another company to Helmand sometime in 2012.

5) Strikes against the Marine Tanks.

- Most engagements occurred at 1000 to 3800 meters when enemy maneuvered on and engaged dismounted patrols.
- Some RPG attacks conducted from about 1500m (no effects). Enemy would not get closer. Infrequent small arms directed at the tanks.
- Multiple attempts to engage tanks with mortars and 82mm recoilless rifles fired in indirect fire mode.
- IEDs became the weapon of choice by the enemy once the Marine Tanks began Infantry support

6) Infantry and Armor.

- D Co and their infantry company counterparts had gone through joint IN/AR operations training prior to deployment but not together.
- First time they operated together was during initial combat operations.
- Infantry quick to learn what the tanks could bring to the fight to include breeching of structures by main gun. Tank quickly became the platform of choice to provide direct fire in support of the infantry companies (120mm).
- Infantry utilized tank precision direct fire to avoid the collateral damage associated with indirect fire. Use of indirect fire by the Marines rare. D Co only called for illumination.
- Infantry platoons equipped with small arms (M4, SAW, M203). Tanks provided ability to see & engage at ranges beyond the capability of the infantry.
- Tank platoons conducted support by fire, attack by fire, clearing, disrupting, interdicting, counter – IED, route security patrols, mechanical breaching, battle position/force protection, and limited route clearance.

7) Tank Lethality.

- Multiple direct fire engagements in support of infantry. Use of main gun primarily against structures and groups of personnel at extended ranges. Main gun engagements primarily to breech structures allowing dismounted infantry to enter and clear.
- Tank Platoons in direct coordination with forward air controllers providing 10-digit grids to targets. Resulted in precision air support to the infantry and armor.
- Mutual support with Marine sniper teams spotting, identifying, and destroying targets.
- Support to civilian contractor paving Route 611. More paving done in three weeks than previous four months when tanks were present. Enemy activity on route ceased.
- Infantry company commander's platform of choice as quick reaction force. Tanks lethality, ability to rapidly traverse the terrain got them into the fight faster, always resulting in the immediate withdrawal of the enemy.
- Effective in executing route security missions. Excellent observation capabilities and imposing presence enhanced security of large sections of routes linking combat outposts as well as platform speed and extended range optics made the platoons successful at interdicting and deterring IED emplacement.

Operational Readiness/Logistics: Effects of maintenance and logistics in support of the tanks and the mission.

1) Tanks.

- Delta Co drew 17 total tanks. Ten were airlifted from Kuwait and arrived in early December 2010. Seven were shipped via sealift from a Marine Corps Depot in Albany, GA. These tanks did not arrive till late December 2010.
- On average, 13 of 14 non-mission capable at -10 standard during operations in support of the infantry.
- Most tanks operated in significant degraded mode (Circle X on road arms, hubs and most suspension components).
- Average of 72 hours between platform refuel.

2) Maintenance.

- FSR support almost nonexistent. Restricted to Camp Leatherneck.
- Company deployed with 18 tank mechanics (many acted as loaders).
- Tanks in battle positions most of the time during February & March 2011. Crews restricted to conducting maintenance and resupply outside the wire. Beginning in April, crews were able to return to COPs for refit and repair while maintaining an OPTEMPO outside the wire of 24 to 48 hours.
- Majority of maintenance was conducted while the tanks were still operating in the battle space.
- Tank mechanics also successfully repaired MRAPs with no formal training.
- Most repairs a result of IED strikes. Tank either towed or short tracked to get to repair site if possible. Repairs usually complete within 12 hours if parts were available.

3) Recovery.

- No issues with recovery operations.
- M88A2 assigned to first and third platoons plus one in the combat trains.
- No tank ever became stuck.
- Tanks used to help recover wheeled vehicles.

4) Redeployment.

- The 17 tanks were turned over to Company A 2nd Tank Battalion during RIP/TOA. These 17 tanks were the only ones in Afghanistan besides the 2 FST tanks at Camp Leatherneck.

5) Parts.

- Parts flow bad. Wait time for parts was an average of 30 days. Some parts never came.
- Marines using a manual system to input requests. Frequently resulted in cancelled requests or parts not ordered at all. Logistics support request could only be accomplished via email, BFT, MIRC or phone.
- Lack of parts available in the battle space was compounded by the geographic disparities between the RCT, Delta Company LNO and the Company (-).
- All logistical support was "pushed" by the tank company combat trains to the tanks in the battle space.
- Parts not prepositioned and unit brought no replacement parts.
- Tanks were not configured as briefed. They were lacking ENFM, EAPU and TIS modification for the tank commander's sight.

6) Ammunition.

- Due to the fear of collateral damage, canister was not used. Enemy never got within canister range.
- Appearance of the Abrams Tank coupled with the 120mm ammunition shaped the battlefield. Enemy aware of the capabilities of the main gun ammunition and preferred to cease hostile operations to include leaving the area when the tank appeared in their battle space.

7) Special Tools.

- Lack of special tools to include ground hop kits and FUPP slings.
- Platoons operating in separate areas. Company initially had only one set of special tools. All three locations eventually received special tool kits.

Platform Operations: How the tank was used in offensive and defensive operations

1) Offensive Operations.
   - Infantry company commanders were initially hesitant to clear tank commanders for main gun engagements.
   - Once the infantry realized that the tank could engage the enemy in a timely and accurate manner, tanks became the primary option for fire support over air and other PGM firing agencies.
   - Successfully used in mutual support of Marine sniper teams.
2) Defensive operations.
   - Tanks maintained battle positions to over watch infantry companies and repair sites when not on active patrol.
   - Tanks became the Infantry Commanders weapon of choice at the Quick Reaction Force (QRF).

Summary

The performance of the Abrams Platform in the Helmand Province greatly enhanced the capabilities of the Marine infantry units they supported. The direct fire, mobility, survivability, communications and enhanced optical capabilities of the tank allowed the infantry to close with and destroy the enemy with minimal friendly causalities. The Marines face significant issues with regards to maintenance and logistics. Despite these challenges, Delta Company, 1st Tank Battalion, successfully showed that they were able to decisively bring the fight to the enemy, destroy them, and help secure the province for current and future coalition forces and the civilian population.

Editor: The Marines discovered multiple uses for tanks in Afghanistan. Indeed, the basic mission types proved similar to those performed by tanks in the Pacific Theater of Operations in World War II, the Korean War, and the Vietnam War. The principal limit to the use of the tank's firepower, survivability, and mobility stemmed from operational readiness and fuel supply—not hostile action or terrain. Indeed, the experience of the Marine tanks reaffirmed the ability of tanks to operate in most operational environments. Their presence facilitated dismounted operations, provided security, enabled precision firepower that reduced the risk of civilian casualties, and deterred hostile activities. Supply and maintenance challenges proved significant but hardly insurmountable, especially with an increased emphasis upon crew-level maintenance. The Canadians also found a need for tanks and employed them with success. For a description of their experiences, which proved similar to those of the Marines, see Major Trevor Cadieu, CD, "Canadian Armour in Afghanistan," *Canadian Army Journal*, Vol. 10.4 (Winter 2008), 5-25.

Armor Branch Medal of Honor Recipients

Civil War

Adams, Private James F., Company D, 1st West Virginia Cavalry

Anderson, Private Charles W., Company K, 1st New York (Lincoln) Cavalry

Anderson, Sergeant Everett W., Company M, 15th Pennsylvania Cavalry

Anderson, Corporal Thomas, Company I, 1st West Virginia Cavalry

Arnold, Captain Abraham K., 5th U.S. Cavalry

Bates, Sergeant Norman F., Company E, 4th Iowa Cavalry

Baybutt, Private Philip, Company A, 2d Massachusetts Cavalry

Beaumont, Major and Assistant Adjutant General Eugene B., Cavalry Corps, Army of the Mississippi

Bebb, Private Edward J., Company D, 4th Iowa Cavalry

Benjamin, Corporal John F., Company M, 2d New York Cavalry

Betts, Lieutenant Colonel Charles M., 15th Pennsylvania Cavalry

Bickford, Corporal Henry H., Company E, 8th New York Cavalry

Bieger, Private Charles, Company D, 4th Missouri Cavalry

Birdsall, Sergeant Horatio L., Company B, 3d Iowa Cavalry

Blackmar, Lieutenant Wilmon W., Company H, 1st West Virginia

Bliss, Captain George N., Company C, 1st Rhode Island Cavalry

Blunt, First Lieutenant John W., Company K, 6th New York Cavalry

Boehm, Second Lieutenant Peter M., Company K, 15th New York Cavalry

Bonebrake, Lieutenant Henry G., Company G, 17th Pennsylvania Cavalry

Boon, Captain Hugh P., Company B, 1st West Virginia Cavalry

Bourke, Private John G., Company E, 15th Pennsylvania Cavalry

Boury, Sergeant Richard, Company C, 1st West Virginia

Bowen, Corporal Chester B., Company I, 19th New York Cavalry (1st New York Dragoons)

Brewer, Private William J., Company C, 2d New York Cavalry

Bringle, Corporal Andrew, Company F, 10th New York Cavalry

Bruner, Private Louis J., Company H, 5th Indiana Cavalry

Bruton (Braton), Captain Christopher C., Company C, 22d New York Cavalry

Burke, Private Thomas, Company A, 5th New York Cavalry

Cadwell, Sergeant Luman L., Company B, 2d New York Veteran Cavalry

Caldwell, Sergeant Daniel, Company H, 13th Pennsylvania Cavalry

Calkin, First Sergeant Ivers S., Company M, 2d New York Cavalry

Campbell, Private James A., Company A, 2d New York Cavalry

Capehart, Major Charles E., 1st West Virginia Cavalry

Capehart, Colonel Henry, 1st West Virginia Cavalry

Capron, Sergeant Horace Jr., Company G, 8th Illinois Cavalry
Carey, Sergeant James L., Company G, 10th New York Cavalry
Carman, Private Warren, Company H, 1st New York (Lincoln) Cavalry
Carr, Colonel Eugene A., 3d Illinois Cavalry
Chandler, Quartermaster Sergeant Stephen E., Company A, 24th New York Cavalry
Clancy, Sergeant James T., Company C, 1st New Jersey Cavalry
Cockley, First Lieutenant David L., Company L, 10th Ohio Cavalry
Cole, Corporal Gabriel, Company I, 5th Michigan Cavalry
Collins, Corporal Harrison, Company A, 1st Tennessee Cavalry
Compson, Major Hartwell B., 8th New York Cavalry
Cosgriff, Private Richard H., Company L, 4th Iowa Cavalry
Crocker, Private Ulric L., Company M, 6th Michigan Cavalry
Crowley, Private Michael, Company A, 22d New York Cavalry
Cunningham, First Sergeant Francis M., Company H, 1st West Virginia Cavalry
Custer, Second Lieutenant Thomas W., Company B, 6th Michigan Cavalry
Davidsizer, Sergeant John A., Company A, 1st Pennsylvania Cavalry
Davis, Major Charles C., 7th Pennsylvania Cavalry
Di Cesnola, Colonel Louis P., 4th New York Cavalry
Dodds, Sergeant Edward E., Company C, 21st New York Cavalry
Donaldson, Sergeant John, Company L, 4th Pennsylvania Cavalry
Dorley, Private August, Company B, 1st Louisiana Cavalry
Dougherty, Private Michael, Company B, 13th Pennsylvania Cavalry
Downey, Private William, Company B, 4th Massachusetts Cavalry
Duffey, Private John, Company B, 4th Massachusetts Cavalry
Dunlavy, Private James, Company D, 3d Iowa Cavalry
Elliott, Sergeant Alexander, Company A, 1st Pennsylvania Cavalry
Elliott, Sergeant Russell C., Company B, 3d Massachusetts Cavalry
Elise, First Sergeant William, Company K, 3d Wisconsin Cavalry
Evans, Private Coron D., Company A, 3d Indiana Cavalry
Fanning, Private Nicholas, Company B, 4th Iowa Cavalry
Farnsworth, Sergeant Major Herbert E., 10th New York Cavalry
Ferrier, Sergeant Daniel T., Company K, 2d Indiana Cavalry
Fox, Sergeant Henry M., Company M, 5th Michigan Cavalry
Furness, Captain Frank, Company F, 6th Pennsylvania Cavalry
Galloway, Commissary Sergeant John, 8th Pennsylvania Cavalry
Gause, Corporal Isaac, Company E, 2d Ohio Cavalry
Gifford, Private David L., Company B, 4th Massachusetts Cavalry \

Goheen, First Sergeant Charles A., Company G, 8th New York Cavalry
Goodrich, First Lieutenant Edwin, Company D, 9th New York Cavalry
Grebe, Captain M.R. William, Company F, 4th Missouri Cavalry
Gribben, Lieutenant James H., Company C, 2d New York Cavalry
Gwynne, Private Nathaniel, Company H, 13th Ohio Cavalry
Hadley, Sergeant Cornelius M., Company F, 9th Michigan Cavalry
Hanford, Private Edward R., Company H, 2d U.S. Cavalry
Harris, First Lieutenant Moses, 1st U.S. Cavalry
Hart, Private William E., Company B, 8th New York Cavalry
Harvey, Corporal Harry, Company A, 22d New York Cavalry
Hastings, Captain Smith H., Company M, 5th Michigan Cavalry
Hays, Private John H., Company F, 4th Iowa Cavalry
Healey, Private George W., Company E, 5th Iowa Cavalry
Hedges, First Lieutenant Joseph, 4th U.S. Cavalry
Heermance, Captain William L., Company C, 6th New York Cavalry
Hickey, Sergeant Dennis W., Company E, 2d New York Cavalry
Higby, Private Charles, Company F, 1st Pennsylvania
Hills, Private William G., Company E, 9th New York Cavalry
Hoffman, Corporal Henry, Company M, 2d Ohio Cavalry
Holmes, Private William T., Company A, 3d Indiana Cavalry
Holton, First Sergeant Charles M., Company A, 7th Michigan Cavalry
Hooper, Corporal William B., Company L, 1st New Jersey
Houlton, Commissary Sergeant William, 1st West Virginia Cavalry
Hughey, Corporal John, Company L, 2d Ohio Cavalry
Hunterson, Private John C., Company B, 3d Pennsylvania Cavalry
Jordan, Corporal Absalom, Company A, 3d Indiana Cavalry
Kelly, Sergeant Daniel, Company G, 8th New York Cavalry
Kelly, Private Thomas, Company A, 6th New York Cavalry
Kenyon, Sergeant John S., Company D, 3d New York Cavalry
Kenyon, Private Samuel P., Company B, 24th New York Cavalry
Kerr, Captain Thomas R., Company C, 14th Pennsylvania Cavalry
Kimball, Private Joseph, Company B, 2d West Virginia
Kuder, Second Lieutenant Andrew, Company G, 8th New York Cavalry
Ladd, Private George, Company H, 22d New York Cavalry
Landis, Chief Bugler James P., 1st Pennsylvania Cavalry
Lanfare, First Lieutenant Aaron S., Company B, 1st Connecticut Cavalry
Larimer, Corporal Smith, Company G, 2d Ohio Cavalry

Leslie, Private Frank, Company B, 4th New York Cavalry
Locke, Private Lewis, Company A, 1st New Jersey
Lonsway, Private Joseph, Company D, 20th New York Cavalry
Lorish, Commissary Sergeant Andrew J., 19th New York Cavalry (1st New York Dragoons)
Lucas, Private George W., Company C., 3d Missouri Cavalry
Lyman, Quartermaster Sergeant Joel H., Company B, 9th New York Cavalry
Lyon, Corporal Frederick A, Company A, 1st Vermont Cavalry
Madison, Sergeant James, Company E, 8th New York Cavalry
Mandy, First Sergeant Harry J., Company B, 4th New York Cavalry
Marsh, Private Charles H., Company D, 1st Connecticut Cavalry
McElhinny, Private Samuel O., Company A, 2d West Virginia Cavalry
McEnroe, Sergeant Patrick H., Company D, 6th New York Cavalry
McKeever, Private Michael, Company K, 5th Pennsylvania Cavalry
McWhorter, Commissary Sergeant Walter F., Company E, 3d West Virginia Cavalry
Meach, Farrier George E., Company I, 6th New York Cavalry
Meyer, Captain Henry C., Company D, 24th New York Cavalry
Miller, Private Frank, Company M, 2d New York Cavalry
Miller, Private John, Company H, 8th New York Cavalry
Miller, Captain William E., Company H, 3d Pennsylvania Cavalry
Morgan, Corporal Richard H., Company A, 4th Iowa Cavalry
Morris, Sergeant William, Company C, 1st New York (Lincoln) Cavalry
Myers, Private William H., Company A, 1st Maryland Cavalry
Neville, Captain Edwin M., Company C, 1st Connecticut Cavalry
Niven, Second Lieutenant Robert, Company H, 8th New York Cavalry
Norton, Second Lieutenant Elliott M., Company H, 6th Michigan Cavalry
Norton, Lieutenant John R., Company M, 1st New York (Lincoln) Cavalry
Norton, Sergeant Llewellyn P., Company L, 10th New York Cavalry
O'Brien, Private Peter, Company A, 1st New York (Lincoln) Cavalry
O'Connor, Private Timothy, Company E, 1st U.S. Cavalry
Packard, Private Loron F., Company E, 5th New York Cavalry
Palmer, Musician George H., 1st Illinois Cavalry
Palmer, Colonel William J., 15th Pennsylvania Cavalry
Parks, Private Henry Jeremiah, Company A, 9th New York Cavalry
Payne, Corporal Irvin C., Company M, 2d New York Cavalry
Peirsol, Sergeant James K., Company F, 13th Ohio Cavalry
Pitman, Sergeant George J., Company C, 1st New York (Lincoln) Cavalry
Platt, Private George C., Troop H, 6th U.S. Cavalry

Pond, Private George F., Company C, 3d Wisconsin Cavalry
Pond, First Lieutenant James B., Company C, 3d Wisconsin Cavalry
Porter, Commissary Sergeant Ambrose, Company D, 12th Missouri Cavalry
Porter, Sergeant William, Company H, 1st New Jersey Cavalry
Powell, Major William H., 2d West Virginia Cavalry
Power, Private Albert, Company A, 3d Iowa Cavalry
Preston, First Lieutenant and Commissary Noble D., 10th New York Cavalry
Putnam, Sergeant Edgar P., Company D, 9th New York Cavalry
Ranney, Assistant Surgeon George E., 2d Michigan Cavalry
Read, Lieutenant Morton A., Company D, 8th New York Cavalry
Reynolds, Private George, Company M, 9th New York Cavalry
Rhodes, Private Julius D., Company F, 5th New York Cavalry
Richardson, Private William R., Company A, 2d Ohio Cavalry
Riley, Private Thomas, Company D, 1st Louisiana Cavalry
Robinson, Private James H., Company B, 3d Michigan Cavalry
Rodenbough, Captain Theophilus F., Captain, 2d U.S. Cavalry
Rohm, Chief Bugler Ferdinand F., 16th Pennsylvania Cavalry
Rowand, Private Archibald H. Jr., Company K, 1st West Virginia
Rutherford, First Lieutenant John T., Company L, 9th New York Cavalry
Sagelhurst, Sergeant John C., Company B, 1st New Jersey Cavalry
Savacool, Captain Edwin F., Company K, 1st New York (Lincoln) Cavalry
Scanlan, Private Patrick, Company A, 4th Massachusetts Cavalry
Schmal, Blacksmith George W., Company M, 24th New York Cavalry
Schmidt, First Sergeant Conrad, Company K, 2d U.S. Cavalry
Schoonmaker, Colonel James M., 14th Pennsylvania Cavalry
Schorn, Chief Bugler Charles, Company M, 1st West Virginia Cavalry
Schwenk, Sergeant Martin, Company B, 6th U.S. Cavalry
Scofield, Quartermaster Sergeant David H., Company K, 5th New York Cavalry
Seward, Wagoner Griffin, Company G, 8th U.S. Cavalry
Shahan, Corporal Emisire, Company A, 1st West Virginia Cavalry
Shepherd, Private William, Company A, 3d Indiana Cavalry
Shields, Private Bernard, Company E, 2d West Virginia Cavalry
Slusher, Private Henry C., Company F, 22d Pennsylvania Cavalry
Smith, Colonel Charles H., 1st Maine Cavalry
Southard, Sergeant David, Company C, 1st New Jersey Cavalry
Sova, Saddler Joseph E., Company H, 8th New York Cavalry
Sowers, Private Michael, Company L, 4th Pennsylvania Cavalry

Spillane, Private Timothy, Company C, 16th Pennsylvania Cavalry
Spurling, Lieutenant Colonel Andrew B., 2d Main Cavalry
Stewart, First Sergeant George W., Company E, 1st New Jersey Cavalry
Streile, Private Christian, Company I, 1st New Jersey Cavalry
Swan, Private Charles A., Company K, 4th Iowa Cavalry
Sweeney, Private James, Company A, 1st Vermont Cavalry
Taylor, First Lieutenant Anthony, Company A, 15th Pennsylvania Cavalry
Thaxter, Major Sidney W., 1st Maine Cavalry
Thomas, Major Hampton S., 1st Pennsylvania Veteran Cavalry
Thomson, First Lieutenant Clifford, Company A, 1st New York (Lincoln) Cavalry
Tibbets, Private Andrew W., Company I, 3d Iowa Cavalry
Titus, Sergeant Charles, Company H, 1st New Jersey Cavalry
Toban, Sergeant James W., Company C, 9th Michigan Cavalry
Tobie, Sergeant Major Edward P., 1st Maine Cavalry
Tompkins, Sergeant Aaron B., Company G, 1st New Jersey Cavalry
Tompkins, First Lieutenant Charles H., 2d U.S. Cavalry
Traynor, Corporal Andrew, Company D, 1st Michigan Cavalry
Tribe, Private John, Company G, 5th New York Cavalry
Tweedale, Private John, Company B, 15th Pennsylvania Cavalry
Vanderslice, Private John M., Company D, 8th Pennsylvania Cavalry
Walsh, Corporal John, Company D, 5th New York Cavalry
Ward, Private Nelson W., Company M, 11th Pennsylvania
Warfel, Private Henry C., Company A, 1st Pennsylvania Cavalry
Wells, Chief Bugler Thomas M., 6th New York Cavalry
Weston, Major John F., 4th Kentucky Cavalry
Whitaker, Captain Edward W., Company E, 1st Connecticut Cavalry
Wilson, Sergeant Charles E., Company A, 1st New Jersey Cavalry
Winegar, Lieutenant William W., Company B, 19th New York Cavalry (1st New York Dragoons)
Woodbury, Sergeant Eri D., Company E., 1st Vermont Cavalry
Woods, Private Daniel A., Company K, 1st Virginia Cavalry
Young, Sergeant Andrew J., Company F, 1st Pennsylvania Cavalry
Young, Sergeant Cavalry M., Company L, 3d Iowa Cavalry

Indian Wars

Alchesay, Sergeant, Indian Scouts,
Anderson, Private James, Company M, 6th U.S. Cavalry
Aston, Private Edgar R., Company L, 8th U.S. Cavalry

Austin, Sergeant William G., Company E, 7th U.S. Cavalry
Ayers, Private James F., Company H., 6th U.S. Cavalry
Babcock, First Lieutenant John B., 5th U.S. Cavalry
Bailey, Sergeant James E., Company E, 5th U.S. Cavalry
Bancroft, Private Neil, Company A, 7th U.S. Cavalry
Barrett, First Sergeant Richard, Company A, 1st U.S. Cavalry
Beauford, First Sergeant Clay, Company B, 5th U.S. Cavalry
Bergerndahl, Private Frederick, Band, 4th U.S. Cavalry
Bertram, Corporal Heinrich, Company B, 8th U.S. Cavalry
Bessey, Corporal Charles A., Company A, 3d U.S. Cavalry
Bishop, Sergeant Daniel, Company A, 5th U.S. Cavalry
Blair, First Sergeant James, Company I, 1st U.S. Cavalry
Blanquet, Indian Scouts
Bowden, Corporal Samuel, Company M, 6th U.S. Cavalry
Bowman, Sergeant Alonzo, Company D, 6th U.S. Cavalry
Boyne, Sergeant Thomas, Company C, 9th U.S. Cavalry
Bradbury, First Sergeant Sanford, Company L, 8th U.S. Cavalry
Branagan, Edward, Company F, 4th U.S. Cavalry
Brant, Private Abram B., Company D, 7th U.S. Cavalry
Bratling, Corporal Frank, Company C, 8th U.S. Cavalry
Brett, Second Lieutenant Lloyd M, 2d U.S. Cavalry
Brogan, Sergeant James, Company G, 6th U.S. Cavalry
Brophy, Private James, Company B, 8th U.S. Cavalry
Brown, Sergeant James, Company F, 5th U.S. Cavalry
Burke, Farrier Patrick J., Company B, 8th U.S. Cavalry
Burnett, Second Lieutenant George R., 9th U.S. Cavalry
Callen, Private Thomas J., Company B, 7th U.S. Cavalry
Canfield, Private Heth, Company C, 2d U.S. Cavalry
Carpenter, Captain Louis H., Company H, 10th U.S. Cavalry
Carr, Private John, Company G, 8th U.S. Cavalry
Carroll, Private Thomas, Company L, 8th U.S. Cavalry
Carter, Private George, Company B, 8th U.S. Cavalry
Carter, Second Lieutenant Robert G., 4th U.S. Cavalry
Carter, First Lieutenant William H., 6th U.S. Cavalry
Chapman, Scout Amos, 6th U.S. Cavalry
Cheever, First Lieutenant Benjamin H. Jr., 6th U.S. Cavalry
Chiquito, Indian Scouts

Clark, Private Wilfred, Company L, 2d U.S. Cavalry
Clark, Second Lieutenant Powhatan H., 10th U.S. Cavalry
Cody, Scout William F., 3d U.S. Cavalry
Comfort, John W., Company A, 4th U.S. Cavalry
Connor, John, Company H, 6th U.S. Cavalry
Corcoran, Corporal Michael, Company E, 8th U.S. Cavalry
Co-rux-te-chod-ish (Mad Bear), Sergeant, Pawnee Scouts, U.S. Army
Craig, Sergeant Samuel H., Company D, 4th U.S. Cavalry
Crandall, Private Charles, Company B, 8th U.S. Cavalry
Crist, Sergeant John, Company L, 8th U.S. Cavalry
Criswell, Sergeant Banjamin C., Company b, 7th U.S. Cavalry
Cruse, Second Lieutenant Thomas, 6th U.S. Cavalry
Cubberly, Private William G., Company L, 8th U.S. Cavalry
Cunningham, Corporal Charles, Company B, 7th U.S. Cavalry
Daily, Private Charles, Company B, 8th U.S. Cavalry
Daniels, Sergeant James T., Company L, 4th U.S. Cavalry
Dawson, Trumpeter Michael, Company H, 6th U.S. Cavalry
Day, Second Lieutenant Matthias W., 9th U.S. Cavalry
Day, First Sergeant William L., Company E, 5th U.S. Cavalry
Deary, Sergeant George, Company L, 5th U.S. Cavalry
Deetline, Private Frederick, Company D, 7th U.S. Cavalry
Denny, Sergeant John, Company C, 9th U.S. Cavalry
Dickens, Corporal Charles H., Company G, 8th U.S. Cavalry
Dixon, Scout William, 6th U.S. Cavalry
Dodge, Captain Francis S., Troop D, 9th U.S. Cavalry
Donahue, John L., Company G, 8th U.S. Cavalry
Donavan, Sergeant Cornelius, Company E, 8th U.S. Cavalry
Dougherty, Blacksmith William, Company B, 8th U.S. Cavalry
Dowling, Corporal James, Company B, 8th U.S. Cavalry
Eldridge, Sergeant George H., Company C, 6th U.S. Cavalry
Elsatsoosu, Corporal, Indian Scouts
Elwood, Private Edwin L., Company G, 8th U.S. Cavalry
Emmet, Second Lieutenant Robert Temple, 9th U.S. Cavalry
Factor, Private Pompey, Indian Scouts
Falcott, Sergeant Henry, Company L, 8th U.S. Cavalry
Farren, Private Daniel, Company B, 8th U.S. Cavalry
Feaster, Private Mosheim, Company E, 7th U.S. Cavalry

Ferrari, Corporal George, Company D, 8th U.S. Cavalry
Fichter, Private Hermann, Company F, 3d U.S. Cavalry
Foley, Sergeant John H., Company B, 3d U.S. Cavalry
Folly, Private William H., Company B, 8th U.S. Cavalry
Foran, Private Nicholas, Company L, 8th U.S. Cavalry
Forsyth, First Sergeant Thomas H., Company M, 4th U.S. Cavalry
Foster, Sergeant William, Company F, 4th U.S. Cavalry
Gardiner, Private Peter W., Company H, 6th U.S. Cavalry
Gardner, Private Charles, Company B, 8th U.S. Cavalry
Garland, Corporal Harry, Company L, 2d U.S. Cavalry
Garlington, First Lieutenant Ernest A., 7th U.S. Cavalry
Gates, Bugler George, Company F, 8th U.S. Cavalry
Gay, Private Thomas H., Company B, 8th U.S. Cavalry
Geiger, Sergeant George, Company H, 7th U.S. Cavalry
Georgian, Private John, Company G, 8th U.S. Cavalry
Given, Corporal John J., Company K, 6th U.S. Cavalry
Glavinski, Blacksmith Albert, Company M, 3d U.S. Cavalry
Glover, Sergeant T.B., Troop B, 2d U.S. Cavalry
Glynn, Private Michael, Company F, 5th U.S. Cavalry
Godfrey, Captain Edwin S., Captain, 7th U.S. Cavalry
Golden, Sergeant Patrick, Company B, 8th U.S. Cavalry
Goldin, Private Theodore W., Troop G, 7th U.S. Cavalry
Goodman, Private David, Company L, 8th U.S. Cavalry
Greaves, Corporal Clinton, Company C, 9th U.S. Cavalry
Green, Sergeant Francis C., Company K, 8th U.S. Cavalry
Green, Major John, 1st U.S. Cavalry
Gresham, First Lieutenant John C., 7th U.S. Cavalry
Grimes, Sergeant Edward P., Company F, 5th U.S. Cavalry
Gunther, Corporal Jacob, Company E, 8th U.S. Cavalry
Hall, Private John, Company B, 8th U.S. Cavalry
Hall, First Lieutenant William P., 5th U.S. Cavalry
Hamilton, Private Frank, Company E, 8th U.S. Cavalry
Hamilton, Private Mathew H., Company G, 7th U.S. Cavalry
Hanley, Sergeant Richard P., Company C, 7th U.S. Cavalry
Harding, Blacksmith Mosher A., Company G, 8th U.S. Cavalry
Harrington, Private John, Company H, 6th U.S. Cavalry
Harris, Sergeant Charles D., Company D, 8th U.S. Cavalry

Harris, Private David W., Company A, 7th U.S. Cavalry
Harris, Private William M., Company D, 7th U.S. Cavalry
Haupt, Corporal Paul, Company L, 8th U.S. Cavalry
Heartery, Private Richard, Company D, 6th U.S. Cavalry
Heise, Private Clamor, Company B, 8th U.S. Cavalry
Higgins, Private Thomas P., Company B, 8th U.S. Cavalry
Hill, Sergeant Frank E., Company E, 5th U.S. Cavalry
Hill, First Sergeant James M., Company A, 5th U.S. Cavalry
Hillock, Private Marvin C., Company B, 7th U.S. Cavalry
Himmelsback, Private Michael, Company C, 2d U.S. Cavalry
Hinemann, Sergeant Lehmann, Company L, 1st U.S. Cavalry
Hobday, Private George, Company A, 7th U.S. Cavalry
Holden, Private Henry, Company D, 7th U.S. Cavalry
Hooker, Private George, Company K, 5th U.S. Cavalry
Hoover, Bugler Samuel, Company A, 1st U.S. Cavalry
Hornaday, Private Simpson, Company H, 6th U.S. Cavalry
Howze, Second Lieutenant Robert L., Company K, 6th U.S. Cavalry
Hubbard, Private Thomas, Company C, 2d U.S. Cavalry
Huff, Private James W., Company L, 1st U.S. Cavalry
Huggins, Captain Eli L., 2d U.S. Cavalry
Hutchinson, Sergeant Rufus D., Company B, 7th U.S. Cavalry
Hyde, Sergeant Henry J., Company M, 1st U.S. Cavalry
Jackson, Captain James, 1st U.S. Cavalry
Jetter, Sergeant Bernhard, Company K, 7th U.S. Cavalry
Jim, Sergeant, Indian Scouts
Johnson, Sergeant Henry, Company D, 9th U.S. Cavalry
Jones, Farrier William H., Company L, 2d U.S. Cavalry
Jordan, Sergeant George, Company K, 9th U.S. Cavalry
Kay, Private John, Company L, 8th U.S. Cavalry
Keating, Corporal Daniel, Company M, 6th U.S. Cavalry
Keenan, Trumpeter Bartholomew T., Company G, 1st U.S. Cavalry
Keenan, Private John, Company B, 8th U.S. Cavalry
Kelley, Private Charles, Company G, 1st U.S. Cavalry
Kelsay, Indian Scouts
Kerr, Captain John B., 6th U.S. Cavalry
Kerrigan, Sergeant Thomas, Company H, 6th U.S. Cavalry
Kilmartin, Private John, Company F, 3d U.S. Cavalry

Kirk, First Sergeant John, Company L, 6th U.S. Cavalry
Kirkwood, Sergeant John A., Company M, 3d U.S. Cavalry
Kitchen, Sergeant George K., Company H, 6th U.S. Cavalry
Knaak, Private Albert, Company B, 8th U.S. Cavalry
Knight, Sergeant Joseph F., Troop F, 6th U.S. Cavalry
Kosoha, Indian Scouts
Kyle, Corporal John, Company M, 5th U.S. Cavalry
Larkin, Farrier David, Company F, 4th U.S. Cavalry
Lawrence, Private James, Company B, 8th U.S. Cavalry
Lawton, Sergeant John S., Company D, 5th U.S. Cavalry
Lenihan, Private James, Company K, 5th U.S. Cavalry
Leonard, Sergeant Patrick J., Company C, 2d U.S. Cavalry
Leonard, Private William, Company L, 2d U.S. Cavalry
Lewis, Private William B., Company L, 2d U.S. Cavalry
Little, Bugler Thomas, Company B, 8th U.S. Cavalry
Lohnes, Private Francis W., Company H, 1st Nebraska Veteran Cavalry
Lowthers, Private James, Company H, 6th U.S. Cavalry
Loyd, Sergeant George, Company I, 7th U.S. Cavalry
Lytle, Sergeant Leonidas S., Company C, 8th U.S. Cavalry
Machol, Private, Indian Scouts
Mahers, Private Herbert, Company F, 8th U.S. Cavalry
Mahoney, Private Gregory, Company E, 4th U.S. Cavalry
Martin, Sergeant Patrick, Company G, 5th U.S. Cavalry
Matthews, Corporal David A., Company E, 8th U.S. Cavalry
May, Sergeant John, Company L, 6th U.S. Cavalry
McBride, Private Bernard, Company B, 8th U.S. Cavalry
McBryar, Sergeant William, Company K, 10th U.S. Cavalry
McCabe, Private William, Company E, 4th U.S. Cavalry
McCarthy, First Sergeant Michael, Troop H, 1st U.S. Cavalry
McClernand, Second Lieutenant Edward J., 2d U.S. Cavalry
McDonald, Corporal James, Company B, 8th U.S. Cavalry
McGann, First Sergeant Michael A., Company F, 3d U.S. Cavalry
McKinley, Private Daniel, Company B, 8th U.S. Cavalry
McMasters, Corporal Henry A., Company A, 4th U.S. Cavalry
McMillan, Sergeant Albert W., Company E, 7th U.S. Cavalry
McNally, First Sergeant James, Company E, 8th U.S. Cavalry
McNamara, First Sergeant William, Company F, 4th U.S. Cavalry

McVeagh, Private Charles H., Company B, 8th U.S. Cavalry
Meaher, Corporal Nicholas, Company G, 1st U.S. Cavalry
Mechlin, Blacksmith Henry W.B., Company H, 7th U.S. Cavalry
Merrill, Sergeant John, Company F, 5th U.S. Cavalry
Miller, Private Daniel H., Company F, 3d U.S. Cavalry
Miller, Private George W., Company B, 8th U.S. Cavalry
Mitchell, Corporal John J., Company L, 8th U.S. Cavalry
Moquin, Corporal George, Company F, 5th U.S. Cavalry
Moran, Private John, Company F, 8th U.S. Cavalry
Morgan, Second Lieutenant George H., 3d U.S. Cavalry
Moriarity, Sergeant John, Company E, 8th U.S. Cavalry
Morris, First Sergeant James L., Company C, 8th U.S. Cavalry
Morris, Corporal William W., Company H, 6th U.S. Cavalry
Mott, Sergeant John, Company F, 3d U.S. Cavalry
Moylan, Captain Myles, 7th U.S. Cavalry
Murphy, Private Edward, Company G, 1st U.S. Cavalry
Murphy, Corporal Edward F., Company D, 5th U.S. Cavalry
Murphy, Private Jeremiah, Company M, 3d U.S. Cavalry
Murphy, Corporal Philip, Company F, 8th U.S. Cavalry
Murphy, Corporal Thomas, Company F, 8th U.S. Cavalry
Murray, Sergeant Thomas, Company B, 7th U.S. Cavalry
Myers, Sergeant Fred, Company K, 6th U.S. Cavalry
Nannasaddie, Indian Scouts
Nantaje (Nantahe), Indian Scouts
Neal, Private Solon D., Company L, 6th U.S. Cavalry
Neder, Private Adam, Company A, 7th U.S. Cavalry
Neilon, Sergeant Frederick S., Company A, 6th U.S. Cavalry
Newman, First Sergeant Henry, Company F, 5th U.S. Cavalry
Nihill, Private John, Company F, 5th U.S. Cavalry
Nolan, Richard J., Company I, 7th U.S. Cavalry
O'Callaghan, Sergeant John, Company B, 8th U.S. Cavalry
Oliver, First Sergeant Francis, Company G, 1st U.S. Cavalry
O'Neill, Corporal William, Company I, 4th U.S. Cavalry
O'Regan, Private Michael, Company B, 8th U.S. Cavalry
Orr, Private Moses, Company A, 1st U.S. Cavalry
Osborne, Sergeant William, Company M, 1st U.S. Cavalry
O'Sullivan, Private John, Company I, 4th U.S. Cavalry

Paine, Private Adam, Indian Scouts
Parnell, First Lieutenant William R., 1st U.S. Cavalry
Payne, Trumpeter Isaac, Indian Scouts
Pengally, Private Edward, Company B, 8th U.S. Cavalry
Pennsyl, Sergeant Josiah, Company M, 6th U.S. Cavalry
Phife, Sergeant Lewis, Company B, 8th U.S. Cavalry
Philipsen, Blacksmith Wilhelm O, Troop D, 5th U.S. Cavalry
Phillips, Private Samuel D., Company H, 2d U.S. Cavalry
Phoenix, Corporal Edwin, Company E, 4th U.S. Cavalry
Platten, Sergeant Frederick, Company H, 6th U.S. Cavalry
Poppe, Sergeant John A., Company F, 5th U.S. Cavalry
Porter, Farrier Samuel, Company L, 6th U.S. Cavalry
Pratt, Blacksmith James, Company I, 4th U.S. Cavalry
Pym, Private James, Company B, 7th U.S. Cavalry
Raerick, Private John, Company L, 8th U.S. Cavalry
Ragnar, First Sergeant Theodore, Company K, 7th U.S. Cavalry
Rankin, Private William, Company F, 4th U.S. Cavalry
Reed, Private James C., Company A, 8th U.S. Cavalry
Richman, Private Samuel, Company E, 8th U.S. Cavalry
Roach, Corporal Hampton M., Company F, 5th U.S. Cavalry
Robbins, Private Marcus M., Company H, 6th U.S. Cavalry
Robinson, First Sergeant Joseph, Company D, 3d U.S. Cavalry
Roth, Private Peter, Company A, 6th U.S. Cavalry
Rowalt, Private John F., Company L, 8th U.S. Cavalry
Rowdy, Sergeant, Company A, Indian Scouts
Roy, Sergeant Stanislaus, Company A, 7th Cavalry
Russell, Private James, Company G, 1st U.S. Cavalry
Ryan, First Sergeant Dennis, Company I, 6th U.S. Cavalry
Sale, Private Albert, Company F, 8th U.S. Cavalry
Schnitzer, Wagoner John, Troop G, 4th U.S. Cavalry
Schroeter, Private Charles, Company G, 8th U.S. Cavalry
Scott, Private George D., Company D, 7th U.S. Cavalry
Scott, Private Robert B., Company G, 8th U.S. Cavalry
Shaffer, Private William, Company B, 8th U.S. Cavalry
Sharpless, Corporal Edward C., Company H, 6th U.S. Cavalry
Shaw, Sergeant Thomas, Company K, 9th U.S. Cavalry
Sheerin, Blacksmith John, Company C, 8th U.S. Cavalry

Shingle, First Sergeant John H., Troop 1, 3d U.S. Cavalry
Smith, Sergeant Andrew J., Company G, 8th U.S. Cavalry
Smith, Corporal Charles E., Company H, 6th U.S. Cavalry
Smith, Corporal Cornelius C., Company K, 6th U.S. Cavalry
Smith, Private George W., Company M, 6th U.S. Cavalry
Smith, Private Otto, Company K, 8th U.S. Cavalry
Smith, Private Theodore F., Company G, 1st U.S. Cavalry
Smith, Private Thomas, Company G, 1st U.S. Cavalry
Smith, Private Thomas J., Company G, 1st U.S. Cavalry
Smith, Private William, Company G, 8th U.S. Cavalry
Smith, Private William H., Company G, 1st U.S. Cavalry
Snow, Trumpeter Elmer A., Company M, 3d U.S. Cavalry
Spence, Private Orizoba, Company G, 8th U.S. Cavalry
Springer, Private George, Company G, 1st U.S. Cavalry
Stance, Sergeant Emanuel, Company F, 9th U.S. Cavalry
Stanley, Private Eben, Company A, 5th U.S. Cavalry
Stanley, Corporal Edward, Company F, 8th U.S. Cavalry
Stauffer, First Sergeant Rudolph, Company K, 5th U.S. Cavalry
Steiner, Saddler Christian, Company G, 8th U.S. Cavalry
Stickoffer, Sadler Julius H., Company L, 8th U.S. Cavalry
Stivers, Private Thomas W., Company D, 7th U.S. Cavalry
Stokes, First Sergeant Alonzo, Company H, 6th U.S. Cavalry
Strayer, Private William H., Company B, 3d U.S. Cavalry
Strivson, Private Benoni, Company B, 8th U.S. Cavalry
Sullivan, Private Thomas, Company G, 1st U.S. Cavalry
Sullivan, Private Thomas, Company E, 7th U.S. Cavalry
Sumner, Private James, Company G, 1st U.S. Cavalry
Sutherland, Corporal John A., Company L, 8th U.S. Cavalry
Taylor, Sergeant Bernard, Company A, 5th U.S. Cavalry
Taylor, First Sergeant Charles, Company D, 3d U.S. Cavalry
Taylor, Corporal Wilbur N., Company K, 8th U.S. Cavalry
Tea, Sergeant Richard L., Company H, 6th U.S. Cavalry
Thomas, Sergeant Charles L., Company E, 11th Ohio Cavalry
Thompson, Private George W., Company C, 2d U.S. Cavalry
Thompson, Sergeant John, Company G, 1st U.S. Cavalry
Thompson, Private Peter, Company C, 7th U.S. Cavalry
Tolan, Private Frank, Company D, 7th U.S. Cavalry

Toy, First Sergeant Frederick E., Company C, 7th U.S. Cavalry
Tracy, Private John, Company G, 8th U.S. Cavalry
Trautman, First Sergeant Jacob, Company I, 7th U.S. Cavalry
Turpin, First Sergeant James H., Company L, 5th U.S. Cavalry
Varnum, Captain Charles A., Company B, 7th U.S. Cavalry
Veuve, Farrier Ernest, Company A, 4th U.S. Cavalry
Voit, Saddler Otto, Company H, 7th U.S. Cavalry
Vokes, First Sergeant Leroy H., Company B, 3d U.S. Cavalry
Von Medem, Sergeant Rudolph, Company A, 5th U.S. Cavalry
Walker, Private Allen, Company C, 3d U.S. Cavalry
Walker, Private John, Company D, 8th U.S. Cavalry
Walley, Private Augustus, Company I, 9th U.S. Cavalry
Ward, Private Charles H., Company G, 1st U.S. Cavalry
Warrington, First Lieutenant Lewis, 4th U.S. Cavalry
Watson, Corporal James C., Company I, 6th U.S. Cavalry
Watson, Private Joseph, Company F, 8th U.S. Cavalry
Weaher, Private Andrew J., Company B, 8th U.S. Cavalry
Weiss, Private Enoch R., Company G, 1st U.S. Cavalry
Welch, Sergeant Charles H., Company D, 7th U.S. Cavalry
Welch, Sergeant Michael, Company M, 6th U.S. Cavalry
West, First Lieutenant Frank, 6th U.S. Cavalry
Widmer, First Sergeant Jacob, Company D, 5th U.S. Cavalry
Wilder, First Lieutenant Wilber E., 4th U.S. Cavalry
Wilkens, First Sergeant Henry, Company L, 2d U.S. Cavalry
Williams, First Sergeant Moses, Company I, 9th U.S. Cavalry
Wills, Private Henry, Company C, 8th U.S. Cavalry
Wilson, Private Benjamin, Company M, 6th U.S. Cavalry
Wilson, Sergeant William, Company I, 4th U.S. Cavalry
Wilson, Corporal William O., Company I, 9th U.S. Cavalry
Windolph, Private Charles, Company H, 7th U.S. Cavalry
Windus, Bugler Claron A., Company L, 6th U.S. Cavalry
Winterbottom, Sergeant William, Company A, 6th U.S. Cavalry
Witcome, Private Joseph, Company B, 8th U.S. Cavalry
Woodall, Sergeant Zachariah, Company I, 6th U.S. Cavalry
Woods, Sergeant Brent, Company B, 9th U.S. Cavalry
Wortman, Sergeant George G., Company B, 8th U.S. Cavalry
Yount, Private John P., Company F, 3d U.S. Cavalry

Ziegner, Private Hermann, Company E, 7th U.S. Cavalry

War with Spain 1898

Baker, Sergeant Major Edward L. Jr., 10th U.S. cavalry

Bell, Private Dennis, Troop H, 10th U.S. Cavalry

Church, Assistant Surgeon James Robb, 1st U.S. Volunteer Cavalry

Heard, First Lieutenant John W., 3d U.S. Cavalry

Lee, Private Fitz, Troop M, 10th U.S. Cavalry

Thompkins, Private William H., Troop G, 10th U.S. Cavalry

Wanton, Private George H., Troop M, 10th U.S. Cavalry

Philippine Insurrection 1899-1902

Batson, First Lieutenant Matthew A., 4th U.S. Cavalry

Henderson, Sergeant Joseph, Troop B, 6th U.S. Cavalry

Kennedy, Second Lieutenant John T., 6th U.S. Cavalry

McGrath, Captain Hugh J., 4th U.S. Cavalry

Miller, First Lieutenant Archie, 6th U.S. Cavalry

Mosher, Second Lieutenant Louis C., Philippine Scouts

Nisperos, Private Jose B., 34th Company, Philippine Scouts

Quinn, Private Peter H., Company L, 4th U.S. Cavalry

Wilson, Second Lieutenant Arthur H., 6th U.S. Cavalry

Vera Cruz 1914

Gaujot, Captain Julien E., Troop K, 1st U.S. Cavalry

World War I

Call, Corporal Donald M, 344th Tank Battalion, Tank Corps

Roberts, Corporal Harold W., Company A, 344th Tank Battalion, Tank Corps

World War II*

Boyce, Second Lieutenant George W.G. Jr., 112th Cavalry Regimental Team

Burr, Staff Sergeant Herbert H., Company C, 41st Tank Battalion, 11th Armored Division

Burt, Captain James M., Company B, 66th Armored Regiment, 2d Armored Division

Christensen, Second Lieutenant Dale Eldon, Troop E, 112th Cavalry Regiment

Dietz, Staff Sergeant Robert H., Company A, 38th Armored Infantry Battalion, 7th Armored Division

Fields, First Lieutenant James H., 10th Armored Infantry, 4th Armored Division

Fowler, Second Lieutenant Thomas W., 1st Armored Division

Gammon, Staff Sergeant Archer T., Company A, 9th Armored Infantry Battalion, 6th Armored Division

Harris, Second Lieutenant James L., 756th Tank Battalion

Hendrix, Private James R., Company C, 53d Armored Infantry Battalion, 4th Armored Division

Kelly, Corporal Thomas J., Medical Detachment, 48th Armored Infantry Battalion, 7th Armored Division

Kisters, Second Lieutenant Gerry H., 2d Armored Division

Knight, First Lieutenant Jack L., 124th Cavalry Regiment, Mars Task Force

Lee, First Lieutenant Daniel W., Troop A, 117th Cavalry Reconnaissance Squadron

Minue, Private Nicholas, Company A, 6th Armored Infantry Battalion, 1st Armored Division

Rivers, Staff Sergeant Ruben, Company A, 761st Tank Battalion

Sadowski, Sergeant Joseph J., 37th Tank Battalion, 4th Armored Division

Thorne, Corporal Horace M., Troop D, 89th Cavalry Reconnaissance Squadron, 9th Armored Division

Turner, Private First Class George B., Battery C, 499th Armored Field Artillery Battalion, 14th Armored Division

Whittington, Sergeant Hulon B., 41st Armored Infantry Regiment, 2d Armored Division

Zussman, Second Lieutenant Raymond, 756th Tank Battalion

* 1st Cavalry Division Medal of Honor recipients are not listed here, since the division was organized and employed as an infantry rather than an armor or cavalry formation.

Korean War*

Kouma, Master Sergeant Ernest R., Company A, 72d Tank Battalion

Turner, Sergeant First Class Charles W., 2d Reconnaissance Company, 2d Infantry Division

* 1st Cavalry Division Medal of Honor recipients are not listed here, since the division was organized and employed as an infantry rather than an armor or cavalry formation.

Vietnam

Alvarado, Specialist Fourth Class Leonard, Company D, 2d Battalion, 12th Cavalry, 1st Cavalry Division (Airmobile)

Duran, Sergeant Jesus, Company E, 2d Battalion, 5th Cavalry, 1st Cavalry Division (Airmobile)

Fritz, Captain Harold A., Troop A, 1st Squadron, 11th Armored Cavalry Regiment

Johnson, Specialist Fifth Class Dwight H., Company B, 1st Battalion, 69th Armor, 4th Infantry Division

Marm, First Lieutenant Walter Joseph Jr., Company A, 1st Battalion, 7th Cavalry, 1st Cavalry Division (Airmobile)

McKibben, Sergeant Ray, Troop B, 7th Squadron (Airmobile), 17th Cavalry

McWethy, Specialist Fifth Class Edgar Lee Jr., company B, 1st Battalion, 5th Cavalry, 1st Cavalry Division (Airmobile)

Monroe, Private First Class James H., Headquarters and Headquarters Company, 1st Battalion, 8th Cavalry, 1st Cavalry Division (Airmobile)

Patterson, Sergeant Robert Martin, Troop B, 2d Squadron, 17th Cavalry

Port, Sergeant William D., Company C, 5th Battalion, 7th Cavalry, 1st Cavalry Division (Airmobile)

Poxon, First Lieutenant Robert Leslie, Troop B, 1st Squadron, 9th Cavalry, 1st Cavalry Division (Airmobile)

Santiago-Colon, Specialist Fourth Class Hector, Company B, 5th Battalion, 7th Cavalry, 1st Cavalry Division (Airmobile)

Skidgel, Sergeant Donald Sidney, Troop D, 1st Squadron, 9th Cavalry, 1st Cavalry Division (Airmobile)

Sprayberry, Captain James M., Company D, 5th Battalion, 7th Cavalry, 1st Cavalry Division (Airmobile)

Steindam, First Lieutenant Russell A., Troop B, 3d Squadron, 4th Cavalry, 25th Infantry Division

Stewart, Staff Sergeant Jimmy G., Company B, 2d Battalion, 12th Cavalry, 1st Cavalry Division (Airmobile)

Taylor, Captain James Allen, Troop B, 1st Cavalry, Americal Division

Wickam, Corporal Jerry Wayne, Troop F, 2d Squadron, 11th Armored Cavalry Regiment

Yano, Sergeant First Class Rodney J.T., Air Cavalry Troop, 11th Armored Cavalry Regiment

Afghanistan

Carter, Specialist Ty M., B Troop, 3d Squadron, 61st Cavalry Regiment, 4th Brigade Combat Team, 4th Infantry Division

Monti, Sergeant First Class Jared C., Headquarters and Headquarters Troop, 3d Squadron, 71st Cavalry Regiment, 3d Brigade Combat Team, 10th Mountain Division

Romesha, Staff Sergeant Clinton L., Bravo Troop, 3d Squadron, 61st Cavalry Regiment, 4th Brigade Combat Team, 4th Infantry Division