

OPERATIONAL ARTILLERY IN THE KOREAN WAR

A Monograph

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ABSTRACT

OPERATIONAL ARTILLERY IN THE KOREAN WAR, by Major G. Kirk Alexander, 44 pages.

What were the principles of defensive artillery fire support used by large-unit commanders during the Korean War? Operational success in the Korean War largely depended on the United Nation's ability to provide adequate artillery fire support against the massive North Korean and Chinese forces. During the course of the conflict, what emerged were principles that contributed to the operational employment of artillery. The fundamental principles of defensive artillery fire support as employed by large unit commanders in the Korean War were mass, unity of command and security. Today as the U.S. Army updates its doctrine and ends the mission in Afghanistan; it is time to ask whether our current doctrine and organizations can execute these principles in against a near peer army in major combat operations.

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INTRODUCTION

Exhausted American soldiers lined the Naktong River in a series of observation posts to provide early warning and to direct and adjust artillery fire missions to disrupt the next enemy attack. Mindful of every errant noise, no one could be sure where or when the North Koreans would attempt another attack to dismantle the fragile Pusan perimeter, the final effort to buy time to allow the United Nations to build-up forces in Korea. The hot summer months and lack of rain had decreased the depth the river to a mere three feet in several areas, almost negating the river as a defensive obstacle for United Nations forces. The Naktong River defenders were aware of these conditions and anticipated a large-scale North Korean attack, nervously aware of the calm before the storm. As expected, incoming artillery rained in on the men and broke the silence, a standard precursor to a North Korean attack. Amidst the cloud of shrapnel, the defenders hurried to reinforce their positions with all available forces. According to plan, fire support officers executed designated artillery and air targets on likely enemy crossing points to increase their responsiveness. However, the plan did not account for every aspect of the enemy's attack. Forward observers, observation battalions and observation aircraft were all refining targets and adjusting calls for fire to compensate for this lack of predictability. Requests for indirect artillery support funneled into the fire support net monitored by the corps artillery headquarters. They maintained centralized control of all artillery units not under the control of the division to permit maximum integration of all available assets on the targets. Meanwhile, the artillerymen were hard at work slamming rounds into their howitzers and guns in an attempt to keep up with enemy offensive. The harsh Korean terrain thwarted any attempt to reposition the howitzers in response to the enemy threat. Regardless, they delivered massive amounts of artillery at an alarming rate, sometimes exceeding the howitzer's physical capacity resulting in damage to the tubes. North Korean soldiers struggled to maintain their formations and crossing sites, immediately noting the accuracy and effectiveness of the United Nation's volleys. Additionally, the North Koreans found

their own artillery under intense bombardment, which limited their ability to continue to the attack. As the North Koreans began to disperse and retreat from the Naktong, they presented the United Nation's artillery forward observers with additional targets of opportunity. Divisional artillery battalions and close air support attempted to finish the rest of the enemy forces. Unfortunately, just as the artillerymen were about to deliver another destructive volley, their position was attacked by an infiltration force that had slipped through the line. Transitioning to direct lay mode, the artillerymen attempted to depress the tubes to engage dismounted enemy breaching the defensive wire. As enemy armor, artillery and machine gun fire increased, the artillerymen abandoned their howitzers to take up defensive positions in nearby buildings. Ultimately, it was a lost cause. Forced to evacuate the firing point, the artillerymen left the howitzers to the North Koreans.¹

This depiction is representative of a number of the conflicts that took place along the Pusan defensive line between August 1, 1950 and September 1, 1950. Primarily, it describes the employment of artillery in the defense against an enemy with seemingly limitless manpower. United States artillery in the Korean War was a mix of towed and self-propelled howitzers and guns that delivered projectiles up to fifteen miles away upon designated targets.² The ability to employ these weapons at the most basic level hinged on the interaction of the three components

¹ Bevin Alexander, *Korea the First War We Lost* (New York: Hippocrene Books, 1993), 135-136, 140-142; Roy E. Appleman, *South to the Naktong North to the Yalu* (Washington, D.C.: U.S. Government Printing, 1961), 248, 282-283, 343.

² U.S. artillery in the Korean War in 1953 consisted of 105-mm. howitzer, truck and self-propelled; 155-mm. howitzer, tractor and self-propelled; 155-mm. gun, towed and self-propelled; 8-inch howitzer, tractor and self-propelled; and 240-mm. howitzer, tractor; Janice E. McKenney, *Organizational History of Field Artillery 1775-2003* (Washington, D.C.: United States Army Center of Military History, 2007), 201; Historically, guns were usually fired with low flat trajectories and solid shot, whereas howitzers fired at higher trajectories with solid shot, grapeshot and canister; McKenney, *Organizational History of Field Artillery 1775-2003*, 10-11.

of the artillery team: the observer that locates the target, the fire direction center that computes the data to engage the target, and the actual howitzer or gun team that executes the mission. Massed fires were concentrating the effects of more than one howitzer or gun on a single target. Artillery battalions of up to eighteen howitzers could coordinate these effects on a single target internally. However, on a larger scale, synchronizing multiple battalions in this way added another level of complexity. These massed effects did not simply happen in the Korean War; extensive target planning, adequate command and control structures to coordinate efforts and the flexibility to engage targets of opportunity with divisional and nondivisional artillery made them possible. Centralized control at the battalion and corps levels permitted the controlling authority to determine the most lucrative targets to engage with the full complement of artillery and close air support.³ Additionally, the survivability of artillery battalions was critical to ensure the availability of all battalions at any time. Security of artillery forces was lacking in the beginning of the conflict. During the Pusan defense, North Korean forces overran the United Nation's artillery positions several times, but United Nations forces fought to regain lost ground with the infantry. By 1951, the artillery battalions corrected or mitigated the majority of the security concerns.⁴ Despite the security shortfalls of the artillery in support of the Pusan perimeter, operational artillery remained highly effective at repelling the human wave attacks of North Korean forces.⁵

³ Centralized control is the higher echelon's ability to direct artillery missions for all units assigned or attached to the headquarters for control. "Corps artillery, division artillery, and field artillery group commanders retain centralized control of their subordinate units whenever the tactical situation, distance between units, terrain, and communications make it possible." U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques* (Washington, D.C.: United States Government Printing Office, 1953), 35.

⁴ U.S. Army, *Conference on Battle Employment of Artillery in Korea* (Fort Sill, OK: Artillery Center, 11 February 1952), 9.

⁵ Ibid.

The Korean War provides a unique window to examine the effective use of artillery in a high intensity conflict because of the unprecedented amount of artillery rounds fired per gun during the conflict.⁶ At times, the U.S. Army artillery fired five times the daily expenditure rates of World War II.⁷ This heavy rate of fire was necessary because of a number of factors. The nature of defensive fires in protection of dispersed outposts, particularly against the sheer number of North Korean and Chinese militants forced the United Nations forces to make up for their lack of artillery units through increased rates of fire for long durations. Additionally, in order for the United Nation's counter-fire to be effective against heavily fortified static North Korean and Chinese artillery positions, it resorted to precision fires that used high volumes of artillery to destroy these positions.⁸ Therefore, the United Nations forces had to evaluate their current methods for providing effective artillery support in response to these threats. During this process, leaders drew upon lessons from World War II, recommendations during the interwar period and adaptations during the Korean War conflict. In 2013, as the U.S. Army reorganizes after ten years of counter insurgency warfare and looks at returning to direct action missions, it is time to reevaluate our current ability to provide massed artillery against a near peer army in a high intensity conflict.

The surrender of the Japanese in World War II left a power vacuum in East Asia and specifically within the Korean peninsula. In 1945, the Allied terms in the Potsdam Declaration included an agreement that the United States and the Soviet Union would both take a role in

⁶ Stanford Research Institute, *Operational Data for Selected Field Artillery Units During World War II and The Korean War* (Stanford, CA: Stanford Research Institute, 1954), 1.

⁷ Peter J Lane, "Steel for Bodies: Ammunition Readiness During the Korean War" (master's thesis, Command and General Staff College, 2003), 27.

⁸ William Glenn Robertson, "The Korean War: The United Nations' Response to Heavy Bombardment." in *CSI Report No. 13: Tactical Responses to Concentrated Artillery*, by Combat Studies Institute (Fort Leavenworth, KS: U.S. Army Command and General Staff College, n.d.), 109-111.

facilitating the Japanese repatriation from Korea. Each side agreed to divide Korea at the 38th Parallel to simplify the process and establish clear terrestrial peacekeeping responsibilities. The Soviets oversaw operations in the north and the United States in the south. A joint commission between the Soviets and the United States attempted to establish goals for ultimately reunifying the country, but failed to attain an agreement. Within three years, North Korea became the Democratic People's Republic of Korea led by Kim Il Sung and the south established a democracy known as the Republic of Korea led by Syngman Rhee.⁹

As nationalists, both Syngman Rhee and Kim Il Sung ultimately wanted to reunite Korea under their regimes, by force if necessary. While the threat existed for either the Democratic People's Republic of Korea or the Republic of Korea to attempt to invade the other, the Republic of Korea was far less capable militarily. The Americans provided a small force of advisors that facilitated equipping and training the Republic of Korea Army, but the Soviets provided an advisory group as well as heavy weapons for the Korean People's Army. By April 3, 1948, Kim Il Sung began an all-out guerrilla war against the southern government.¹⁰ By all respects, there were indications that an engagement between the two governments was imminent; the question that remained was if the Republic of Korean Army was capable of defending.¹¹

⁹ Allan R. Millett, *The War for Korea, 1945-1950: A House Burning* (Lawrence, KS: University Press of Kansas, 2005), 45, 72-76; James F. Schnabel, *Policy and Direction: The First Year* (Washington, D.C.: U.S. Army Center of Military History, 1972), 6-12; James T. Patterson, *Grand Expectations, The United States, 1945-1974* (New York, NY: Oxford University Press, 1996), <https://read.amazon.com> (accessed April 24, 2013); George C Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776* (New York: Oxford University Press, 2008), 638-639.

¹⁰ The guerilla actions were known as the Cheju-Do and Yosu Rebellions. Millett, *The War for Korea, 1945-1950: A House Burning*, 142, 166.

¹¹ Millett, *The War for Korea, 1945-1950: A House Burning*, 135, 159, 186-187; Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776*, 638-639.

On June 25, 1950, North Korea launched an invasion across the 38th Parallel. U.S. President Harry S. Truman almost immediately responded with the commitment of air and naval forces to support the Republic of Korea's defense. Two days later, the UN Security Council passed a resolution to aid in the defense of South Korea and President Truman (without consulting Congress) approved the deployment of two Army divisions from Japan to Korea. He failed to get a congressional declaration of war though congress did little to stop the intervention. The North Korean assault continued and by June 28, Kim Il Sung's forces seized Seoul, the capital of South Korea. General Douglas MacArthur, nominated as commander of United Nations' military forces in Korea committed Task Force Smith, an unprepared force of approximately 500 men to delay the North Koreans while a larger force deployed to Pusan. In the ensuing battle with North Korean forces, Task Force Smith lost half of its combat force and withdrew under pressure. Fortunately, United Nation's air superiority provided a marked advantage to delay the north, but it became clear that a larger ground force would be required to stop the North Korean People's Army. The United Nations committed additional U.S. divisions to reinforce the delaying action, but they were forced east of the Naktong River into the Pusan defensive perimeter.¹²

Holding firm within the Pusan Perimeter, United Nation's forces under General MacArthur initiated an amphibious landing at Inchon on September 15, 1950 to regain Seoul and cut the supply lines of the North Korean forces in the south. This allowed the United Nation's forces to launch an offensive that eventually pushed North Korean forces back to the 38th Parallel. After crossing the 38th Parallel and conducting amphibious landings in the east, United Nation's forces decimated remaining North Korean forces and reunited the peninsula. This prompted

¹² Patterson, *Grand Expectations, The United States, 1945-1974*, <https://read.amazon.com> (accessed April 24, 2013); Appleman, *South to the Naktong North to the Yalu*, 21-249; Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776*, 639-641.

Chinese intervention, which launched three massive offensives against the United Nations' forces and eventually recaptured Seoul in early January 1951.¹³

Over the next month, United Nation's forces withdrew south of Wonju to Line D, approximately the Thirty-seventh Parallel. Able to hold this line, the United Nations conducted several counteroffensives and stopped the Chinese Fourth Offensive in mid-February.

Capitalizing on their momentum, the United Nation's forces conducted two more offensives that recaptured Seoul on March 14, 1951 and re-established the United Nations' front along the Thirty-eighth Parallel. Two more offensive operations allowed the United Nation forces to move thirty miles north of the Thirty-eighth Parallel to establish a defensive line along Phase Line Kansas to prepare for another Chinese offensive.¹⁴

The Chinese began their Fifth Offensive on April 22, 1951, resulting in some of the most extreme fighting of the Korean War. The offensive forced the United Nations' forces back to No Name Line, but ultimately they held there. On May 16, 1951, the Battle of the Soyang River and other battles along No Name Line forced the Chinese and North Korean forces to withdraw to the Thirty-eighth Parallel by May 21, 1951. United Nations' forces began a final summer offensive that pushed the Chinese and North Koreans back to beyond the Wyoming-Kansas Line where United Nations' forces held on June 22, 1951. Negotiations for an armistice began at Kaesong,

¹³ Patterson, *Grand Expectations, The United States, 1945-1974*, <https://read.amazon.com> (accessed April 24, 2013); Allan R. Millett, *The War for Korea, 1950-1951: They Came From the North* (Lawrence, Kansas: University Press of Kansas, 2010), 240; Walter G. Hermes, *Truce Tent and Fighting Front* (Washington, D.C.: Office of the Chief of Military History, United States Army, 1966), 10-14; Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776*, 640-642.

¹⁴ Patterson, *Grand Expectations, The United States, 1945-1974*, <https://read.amazon.com> (accessed April 24, 2013); Millett, *The War for Korea, 1950-1951: They Came From the North*, 384-387, 390-403, 411-416; Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776*, 642.

but took two years to complete. The final armistice signaled the end of active hostilities on July 27, 1953.¹⁵

This study examines the factors of operational artillery during the defense of the Pusan Perimeter, the defense along Soyang River in May 1951 and along the Thirty-eighth Parallel during the negotiations of the armistice.¹⁶ The initial references consulted for historical context during the course of this study were the narratives of the Cold War period. The first major historical book published on the Korean War was *South to the Naktong, North to the Yalu*, by Roy E. Appleman in 1961 that included the first six months of the war, June to November 1950. This was the first book in a series published by the U.S. Army Center for Military History that is the most comprehensive collection published during the Cold War era. This series also included *Truce Tent and Fighting Front*, by Walter G. Hermes in 1966 that covered the last two years of the war; *Policy and Direction: the First Year*, by James F. Schnabel in 1971 that covered the political context of the first year of the war; and *Ebb and Flow*, by Billy C. Mossman in 1988 that consisted of the next eight months of conflict, November 1950 to July 1951. Additionally, the Center for Military History resources included *Combat Actions in Korea*, by Russell A. Gugeler. This publication provided a comprehensive view of the Korean War by combining strategic context with tactical vignettes annotated through the history of the conflict. Also, two books written by leaders that participated in the war provide their unique perspective of the conflict: *The*

¹⁵ Patterson, *Grand Expectations, The United States, 1945-1974*, <https://read.amazon.com> (accessed April 24, 2013); Millett, *The War for Korea, 1950-1951: They Came From the North*, 429-431, 434, 443-453; Schnabel, *Policy and Direction: The First Year*, 397-405; Hermes, *Truce Tent and Fighting Front*, 479-507; Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776*, 644.

¹⁶ Operational artillery is the employment of nondivisional artillery assets to support the arrangement of tactical actions in time, space and purpose to achieve the operational or strategic objective.

Korean War, by Matthew B. Ridgeway, and *From Pusan to Panmunjom*, by Republic of Korea General Paik Sun Yup.¹⁷

Since the end of the Cold War, a number of historians have revisited the conflict. Allan R. Millett published two major works that accurately portrays the history and narrative of the Korean War from start to finish: *The War for Korea, 1945-1950: A House Burning* (2005) and *The War for Korea, 1950-1951: They Came From the North* (2010). Each of these books provided additional perspectives on the origins of the conflict, the impacts of combined arms and a more comprehensive Asian viewpoint. Contextually, James T. Patterson's book, *Grand Expectations, The United States 1945-1971* (1996) and George C. Herring's book, *From Colony to Superpower, U.S. Foreign Relations since 1776* (2008) provide the strategic framework to analyze the Korean War.¹⁸

In order to appreciate the operational aspects of artillery in the Korean War it was important to consult specific Army and Field Artillery references that informed the use of artillery as well as captured the lessons learned during the period. These included *U.S. War Department Field Manuals 6-20* (1953) and *6-100* (1944), which covered the contextual employment of the Field Artillery as well as *Field Manual 100-5, Field Service Regulations-Operations* (1949) that detailed the roles of the Field Artillery in Army operations. Three reports published by the Army between 1951 and 1954 provided the most specific analysis of artillery employment during the

¹⁷ Appleman, *South to the Naktong North to the Yalu*; Hermes, *Truce Tent and Fighting Front*; Schnabel, *Policy and Direction: The First Year*; Billy C. Mossman, *United States Army in the Korean War: Ebb and Flow November 1950-July 1951* (Washington, D.C.: U.S. Government Printing Office, 1990); Russell A. Gugeler, *Army Historical Series: Combat Actions in Korea* (Washington, D.C.: U.S. Army Center of Military History, 1987); Matthew B. Ridgeway, *The Korean War* (Garden City, N.Y.: Doubleday, 1967); Paik Sun Yup, *From Pusan to Panmunjom* (Dulles, Virginia: Potomac Books, Inc., 2000).

¹⁸ Millett, *The War for Korea, 1945-1950: A House Burning*; Millett, *The War for Korea, 1950-1951: They Came From the North*; Patterson, *Grand Expectations, The United States, 1945-1974*, <https://read.amazon.com> (accessed April 24, 2013); Herring, *From Colony to Superpower, U.S. Foreign Relations since 1776*.

conflict: *Battle of the Soyang River: An Analysis of Artillery Support, X Corps; Conference on the Battle Employment of the Field Artillery, 1950-1951*; and *A Study of the Employment and Effectiveness of the Artillery with the Eighth Army, October 1951-July 1953*. In 1950, *The Field Artillery Journal* (the professional journal to the U.S. Artillery corps) and the infantry's professional publication combined to form the *Combat Forces Journal*, which included numerous scholarly articles on the employment of artillery until 1956.¹⁹ For the organization of the Field Artillery prior to and during the Korean War, the U.S. Army Center for Military Histories *The Organizational History of Field Artillery 1775-2003*, by Janice E. McKenney was, by far, the best source for tracing changes in Artillery organization throughout the interwar period. Finally, while numerous books document the efforts of the U.S. Army in Korea, many times they summed up the effects of the artillery with a few short sentences such as "artillery was called in" or "artillery had devastating effects." These sources fail to neither appreciate nor accurately depict the use of artillery above the divisional level by being overly simplistic in their narratives.²⁰

Given the context of the Korean War and the implications of the interwar period, the operational artist faced certain challenges when employing fire support within the theater.²¹

¹⁹ David T. Zabecki, Patrecia Slayden Hollis, "History of Field Artillery Magazine." *Field Artillery Journal* (March-April 2007): 4-10.

²⁰ U.S. Department of the Army, *Field Manual 100-5: Field Service Regulations-Operations* (Washington, D.C.: United States Government Printing Office, August 1949), 37-52; U.S. War Department, *Field Manual 6-100: Field Artillery Tactics and Technique of Division Artillery and Higher Echelons* (Washington, D.C.: United States Government Printing Office, 1944); U.S. War Department, *Field Manual 6-20: Field Artillery Tactical Employment* (Washington, DC: United States Government Printing Office, 1953); U.S. Army, "Battle of the Soyang River: An Analysis of Artillery Support, X Corps Sector, 1 May–29 May 1951," July 30, 1951; U.S. Army, *Conference on Battle Employment of Artillery in Korea*; U.S. Army, Eighth Army, Artillery Officer, "A Study of the Employment and Effectiveness of the Artillery With the Eighth Army During the Period October 1951-July 1953" (Seoul, Korea, 1954); McKenney, *Organizational History of Field Artillery 1775-2003*.

²¹ Operational artists are commanders and their staffs that "use creative thinking... to design strategies, campaigns, and major operations and organize and employ military forces." Department of Defense, *Joint Publication 3-0 Joint Operations* (Washington, DC: Department of

Some argue that the successful employment of fire support in the Korean War was simple: sheer numbers was the answer. Bevin Alexander, in *Korea, The First War We Lost* made this point, “Americans excelled at this kind of war, in which the American preponderance in artillery, air power, and heavy firepower of all kinds was employed to its maximum. Americans always have been outstanding in swapping high expenditures of ammunition and bombs for casualties. In these circumstances, they stand like rocks.”²² This “American Way of War,” as defined by Russell Weigley was a typical description of annihilation warfare of the twentieth century.²³ Weigley argued that during the Korean War, reliance on the atomic bomb in a war of annihilation resulted in the armed forces lack of readiness for a limited war. When the North Koreans invaded the Republic of Korea, the United States was not capable of conducting a war of annihilation against a communist threat do to the size and state of the force. To compensate, McArthur relied on air support operations.²⁴ Aside from sheer numbers, anyone with experience in employing forces in a combat environment knows that it is much more complex than that. The ability to employ artillery in a war of annihilation requires adherence to specific principles to maximize the effectiveness of combat power at the right time and place. This monograph questions what were the principles of defensive artillery fire support used by large-unit commanders during the Korean War?

Defense, 2011), II-3.

²² Alexander, *Korea, the First War We Lost*, 122.

²³ “The American way of war” is the strategy of annihilation, “which seeks the overthrow of the enemy’s military power.” Russell F. Weigley, *The American Way of War: A History of the United States Military Strategy and Policy* (Bloomington: Indiana University Press, 1977), xxii.

²⁴ “The Korean War rescued NSC-68 from oblivion and made it the foundation of American strategy after all.” Weigley, *The American Way of War: A History of the United States Military Strategy and Policy*, 382-398.

The lessons from the Second World War validated the importance of artillery in modern conflict and presented a number of recommendations for improving its effects on the battlefield. The structure of the force and doctrine after World War II centered on the concept of unlimited warfare using overwhelming firepower of nuclear weapons.²⁵ Artillery officers recommended increasing the number of artillery pieces in the organic division artillery formations, reestablishing the corps artillery headquarters as the command and control element for synchronizing fires, and pushing for more self-propelled artillery.²⁶ However, the drawdown of the U.S. Army, the lack of training associated with the drain of experienced leaders, and overreliance on atomic weapons during the period before the Korean War hampered the implementation of these lessons.²⁷ Additionally, equipment and ammunition shortages compounded the problem. American military forces became accustomed with trading firepower for maneuver, preferring to remain static in the defense.²⁸ In some cases, the U.S. Army would have to relearn the lessons of World War II and in others find ways to take advantage of the Army at hand. Operational artists utilized artillery most effectively by massing divisional and nondivisional artillery forces to support the maneuver battalions, establishing the unity of command to facilitate massed fires and ensuring artillery survivability. The fundamental principles of defensive artillery fire support as employed by large unit commanders in the Korean War were mass, unity of command and security.

²⁵ Walter E. Kretchik, *U.S. Army Doctrine: From the American Revolution to the War on Terror* (Lawrence: University of Kansas Press, 2011), 164.

²⁶ Boyd L. Dastrup, *The Field Artillery: History and Sourcebook* (Westport, Connecticut: Greenwood Press, 1994), 243.

²⁷ John D. Dill, *Fire Support in the Pusan Perimeter* (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2000), 3.

²⁸ Robert A. Doughty, *The Evolution of US Army Tactical Doctrine, 1946-76* (Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 1979), 7-12.

MASS

On May 16, 1951, amidst the North Korean and Chinese Second Spring Offensive, the U.S. X Corps along with two Republic of Korea (ROK) Corps found themselves nose-to-nose along the Soyang River with a numerically superior force consisting of two Chinese Army Groups and two North Korean Corps.²⁹ The United Nations forces had just regained Seoul in March and repelled a communist attack against the South Korean capital in April. The X Corps occupied defensive positions along No Name Line and communist forces focused their attacks against them with over fifteen divisions. General James Van Fleet, then commander of the Eighth Army allocated an additional three battalions of corps artillery to General Ned Almond's X Corps giving him ten divisional artillery battalions, six battalions of corps artillery and five additional reinforcing artillery battalions. Van Fleet increased the daily rate of fire enabling some of the battalions to fire in excess of 10,000 rounds during a single engagement. An excess of 1,000 sorties of close air support complemented these fires, all coordinated to maximize effects.³⁰ As thousands of Chinese troops flooded the X Corps' sector, a barrage of massed artillery fires and close air support stopped the offensive cold in its tracks.

During the Battle of the Soyang River, heavy concentrations of massed fires stopped a numerically superior enemy on the offensive. Commanders were no longer limited to imposed ammunition restrictions and could finally maximize the number of rounds that the artillery fired.³¹ The combination of more rounds to fire and accurately concentrated artillery proved

²⁹ A Chinese Army Group consisted of 3 divisions and approximately 30,000 soldiers. A North Korean Corps consisted of 3 to 4 understrength divisions and approximately 17,000 soldiers.

³⁰ Millett, *The War for Korea, 1950-1951: They Came From the North*, 443-445; Gugeler, *Army Historical Series: Combat Actions in Korea*, 167; X Corps Artillery Report, "Battle of the Soyang River: An Analysis of Artillery Support, X Corps Sector, 1 May-29 May 1951."

³¹ Early ammunition restrictions were based on World War II expenditure rates and

extremely lethal. At the time of the Korean War, the 1949 Army Field Manual 100-5, *Operations* codified the concept of mass as a recognized principle of war. It defined mass as “the concentration of superior forces, on the ground, at sea, and in the air, at the decisive place and time, and their employment in a decisive direction” to create the conditions essential to victory.³² Applied to artillery, the concentration of effects from multiple artillery battalions as well as air support assets at the decisive place and time to provide an advantage over the enemy equaled massed fires. In order to concentrate and synchronize the effects of artillery and air support required detailed integrated fire planning, overlapping observation platforms and artillery mobility facilitated the defense. Behind the scenes of the United Nation’s response was a honed artillery machine forged from their experiences from the past year’s conflict and grounded in tested World War II doctrine.

There is a long history of synchronizing and concentrating artillery at the decisive place and time. Napoleon was notorious for his rapid maneuver and convergence of the mass of his army against a particular element of his foe, thus being stronger at the decisive point.³³ Clausewitz captured Napoleon’s actions in his revered work *On War*, “There is no higher and simpler law of strategy than that of keeping one’s forces concentrated.”³⁴ One would infer that in these descriptions “forces” could easily translate to firepower and thus the concentrated effects of artillery on the battlefield. Napoleon established massed fires as one of three roles for the artillery in combat. He would select a weak point along the enemy’s line and commit the majority of his

modified to compensate for the lack of available ammunition in theater. As more ammunition became available, United Nation’s forces were able to increase these rates.

³² U.S. Department of the Army, *Field Manual 100-5: Operations*, 22.

³³ David G. Chandler, *The Campaigns of Napoleon* (New York: Macmillan Publishing Co., Inc., 1966), 151.

³⁴ Carl Von Clausewitz, *On War*, Translated by Michael Howard, & Peter Paret (Princeton: Princeton University Press, 1989), 204.

artillery formations to reducing the weak point to allow his army to breach that defensive line.³⁵ For example, at Friedland, on June 14, 1807, Napoleon ordered his artillery to bound well ahead of the front lines to focus direct fire artillery against a disordered Russian flank. This maneuver brought the artillery to within sixty paces of the Russian Infantry line and destroyed their formation, including attempts to reinforce the line with cavalry.³⁶

During the American Civil War, both the Union and Confederate Armies found artillery best utilized in the defense.³⁷ At Gettysburg, the Confederates delivered an intense artillery barrage on the Union defenses to facilitate Major General George E. Pickett's charge. This artillery bombardment had little effect on the Union forces that were bunkered into their defensive positions. On the other hand, when the Confederates charged, they exposed their forces to Union artillery direct fires, which proved particularly effective. Due to the success of the Union defensive artillery, Pickett was ultimately too undermanned to breach the Union defenses.³⁸

Like the Civil War, World War I revalidated the effectiveness of artillery in defense and also strengthened the artillery role in the offense.³⁹ The advent of indirect fire, improved communication techniques and integration of fires advanced the artillery's ability to support maneuver.⁴⁰ The rolling artillery barrage became the preferred method of artillery employment in the offense. The barrage began at the enemy forward line and moved forward as the infantry

³⁵ Chandler, *The Campaigns of Napoleon*, 362-363.

³⁶ *Ibid.*, 578-579.

³⁷ McKenney, *Organizational History of Field Artillery 1775-2003*, 72-73.

³⁸ Herman Hattaway and Archer Jones, *A Military History of the Civil War, How the North Won*, (Chicago: University of Illinois Press, 1991), 408-409.

³⁹ McKenney, *Organizational History of Field Artillery 1775-2003*, 119.

⁴⁰ *Ibid.*, 95.

advanced. The synchronization of heavy and light artillery and mortars created depth within the barrage.⁴¹ The Third Infantry Division at the second battle of Marne River during the last German offense highlighted defensive artillery. On July 14, 1918, the Third Infantry Division held defensive positions along the Marne River to protect Paris and thwart the impending German Offensive. Early on the morning of July 15, the Germans opened with an intense artillery barrage against the division. Across the front, the division responded with planned artillery targets against German assembly and crossing points that prevented many German formations from ever conducting their attack. Additionally, as the Germans continued across the Marne, the Third Infantry Division's artillery continued to reduce their formations.⁴²

During the interwar period, the Army made significant advancements in artillery mobilization and fire direction techniques. Organizationally, as the Army implemented the triangular division, each infantry regiment had its own direct support artillery battalion and the artillery group emerged to control nondivisional artillery.⁴³ Doctrine emphasized combined arms warfare and the increasing role of the Army Air Forces.⁴⁴ In December 1944, during the German offensive through the Ardennes, the U.S. Army VII Corps occupied a fifty-mile front between the XVIII Airborne Division and the British XXX Corps. During the latter part of December, the Germans made multiple attempts to breach the line. The characterization of fire support during

⁴¹ Mark Ethan Groteleschen, *The AEF Way of War, The American Army and Combat in World War* (New York: Cambridge University Press, 2007), 114-115.

⁴² Center of Military History, United States Army, *American Armies and Battlefields in Europe* (Washington, D.C.: U.S. Government Printing Office, 1992), 60-63; Edward M. Coffman, *The War to End All Wars, The American Military Experience in World War I* (Lexington, KY: The University Press of Kentucky, 1986), 222-227.

⁴³ McKenney, *Organizational History of Field Artillery 1775-2003*, 158-177.

⁴⁴ Kretchik, *U.S. Army Doctrine: From the American Revolution to the War on Terror*, 148-151.

these battles was not only massing artillery against German positions, but integration of close air support and reliance on spotting planes for target acquisition.⁴⁵

At the time of the Korean War, there was no doctrinal definition of massed fires, but the clarification of the term emerged throughout the doctrine of the period.⁴⁶ The 1953 *War Department Field Manual 6-20, Artillery Tactics and Technics* (FM 6-20) described the use of artillery with respect to mass as a principle of employment: “The proper tactical and technical employment of artillery fire power exploits the principles of mass and maneuver. Artillery weapons and units are not physically massed in the manner implied for ground gaining arms; rather artillery is so employed as to provide the maximum capability for massing its *fires* when and where required to support the action of the ground gaining arms.”⁴⁷ Essentially, the artillery should concentrate as many artillery weapons as possible on targets that are decisive to the maneuver element. Converging the effects of artillery weapons is not the same as having overwhelming artillery firepower. *Field Manual 6-20* denied the notion that having the greatest number of artillery pieces equaled an advantage over the ability to concentrate artillery effects. “A large assemblage of artillery units is not a substitute for skillfully employed artillery and accurate artillery fire.”⁴⁸ The ability to converge multiple artillery units on a single target is what made the artillery so decisive in World War II and the Korean War. Specifically in Korea, the

⁴⁵ Hugh M. Cole, *The Ardennes: Battle of the Bulge* (Washington, DC: U.S. Government Printing Office, 1993), 423-428, 565-570; VII Corps, U.S. Army Staff, *Mission Accomplished: The Story of the VII Corps, United States Army, in the War Against Germany 1944-1945* (Bennington, Vermont: Merriam Press, 2005), 45-50.

⁴⁶ A doctrinal definition is a commonly understood and agreed upon description of a term or concept that appears in a military manual.

⁴⁷ Although published in 1953 as doctrine, the technique of massed fires was in use throughout the Korean War; U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 33.

⁴⁸ U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 33.

United Nations capitalized on synchronized artillery effects to make up for lack of artillery units and large maneuver forces initially unavailable in theater.⁴⁹ The relative lack of artillery in comparison to World War II led Army leaders to increase the amount of artillery fired from each system. Comparatively, hardly any other modern war had higher rates of fire to compensate for this shortfall.⁵⁰ These two elements of concentrated effects and increased firing rates directly led to the successes of the defensive battles of August and September 1950 of the Pusan perimeter and later at the Soyang River.⁵¹ The United Nation's ability to concentrate effects through massed artillery fires rested on integrated fire planning, target observation and artillery mobility. Each of these factors, though tactical in nature, combines to form massed fire, accurately concentrating the effects of multiple firing units at the right time and place with the purpose of supporting the decisive operations of maneuver.

Fire planning in the Korean War was not much different from that used in World War II. A fire plan was "the tactical plan for using the weapons of a unit so that their fire missions will be coordinated."⁵² Doctrinally, coordinating fire missions were essential to concentrated fires because it synthesized the current targeting intelligence, prioritized the engagement of these targets, forecasted the logistical requirements and synchronized the available artillery formations.⁵³ This process involved every member of the artillery team. The observers within the

⁴⁹ D.M. Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel* (Fort Leavenworth, KS: U.S. Government Printing Office, 2003), 2; U.S. Army, Conference on the Battle Employment of the Artillery 1950-1951 (1952), 5.

⁵⁰ Thomas S. Grodecki, "From Powder River to Soyang: The 300th Armored Field Artillery in Korea," (Washington, DC: Center of Military History), 71.

⁵¹ Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 7.

⁵² U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 136.

⁵³ *Ibid.*

maneuver battalions nominated and refined targets synchronized with maneuver for execution while the unit artillery headquarters took these targets and determined the best way to support their execution through positioning of unit formations, type of missions required to achieve the desired effects and the logistical support plan. These plans occurred at all levels with the subordinate plans feeding the higher operational picture.

One of the essential elements of fire planning was prearranged fires, “planned fire which is to be delivered at a specified time or for which a need for rapid delivery can be anticipated and for which firing data are prepared in advance and kept current.”⁵⁴ Essentially, these fires were pre-determined targets that were on call from the supported unit. To develop these targets, artilleryman analyzed aerial photos or actually observed the terrain, determined the most likely enemy avenue of approach and pre-coordinated the targets with maneuver.⁵⁵ This pre-coordination allowed for faster responsiveness and clearance of fires. In the defense, especially in Korea, prearranged fires on likely enemy avenues of approach delayed and reduced the effectiveness of enemy offensive operations against an established perimeter.⁵⁶

Ultimately, pre-planned artillery could not completely account for every place that the artillery units planned to engage the enemy. Often artillery targets emerged that were absent from the initial fire plan and required a certain amount of flexibility to engage. These targets were called targets of opportunity. Firing on targets of opportunity “involves essentially the same considerations as for prearranged fires; however, the fires are planned and targets attacked

⁵⁴ U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 138.

⁵⁵ McKenney, *Organizational History of Field Artillery 1775-2003*, 206.

⁵⁶ U.S. Army, *Conference on the Battle Employment of the Artillery 1950-1951 (1952)*, 4.

immediately as they arise.”⁵⁷ Artillery planners attempted to build this type of flexibility into the fire plan. Planners would designate supporting artillery units to provide fires specifically for targets of opportunity while others would provide prearranged fires.⁵⁸ Engaging targets of opportunity required an extensive communication network that linked the observers with the firing unit.⁵⁹ While these fires were more difficult to coordinate and less responsive, they provided the much needed flexibility to engage an ever-elusive target set.

Underpinning the execution of fire planning was the ability to acquire targets for both prearranged fires and targets of opportunity. The integration of forward observers at the tactical level and the observation battalions and observation aircraft at higher levels was essential to providing integrated targeting and accurate target locations for execution. Each of these elements played a unique role in synchronizing effective massed fire and providing accurate target data throughout the defenses in Korea. During the Korean conflict, forward observers were resident to the artillery formations with a section in the divisional artillery for each maneuver battalion.⁶⁰ Representing their maneuver elements, they refined and nominated targets for preplanned artillery fires and effectively integrated them into the defensive plans. These observers were skilled in calling fires for targets of opportunity as well as directing close air support. They served as a direct link between the maneuver battalions and the direct support artillery headquarters. Whereas the observers were the link with direct support artillery headquarters, the Observation Battalion was the link with nondivisional and Corps artillery headquarters.

⁵⁷ U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 140.

⁵⁸ *Ibid.*, 141.

⁵⁹ Dastrup, *The Field Artillery: History and Sourcebook*, 253.

⁶⁰ McKenney, *Organizational History of Field Artillery 1775-2003*, 190.

Observation battalions provided additional observation capabilities beyond what the forward observers provided. During World War II, the corps observation battalions provided limited coverage due to the wide frontages and robust corps zones. Post-war organization increased the number of observation batteries in the battalions from two to three as well as provided a counter-mortar radar platoon to each battery to better meet the requirements for wide front.⁶¹ Observation battalions were responsible for six principle missions: Location of hostile artillery, registration and adjustment of friendly artillery, collection of information, conduct and coordination of corps artillery survey operations, comparative calibration of friendly artillery, and provision of ballistic meteorological data for friendly artillery and for sound ranging.⁶² These roles were essential to three of the five requirements for accurate predictive fires: Accurate gun location, accurate target location and accurate meteorological data. Additionally, counter-battery fires through radar acquisition provided targets of opportunity at enemy artillery systems.⁶³ Unfortunately, the First Field Artillery Observation Battalion would be the only one available in theater until 1953.⁶⁴ This left the forward observers and observation aircraft to do most of the observation.

Observation aircraft were also vital to determining artillery targets of opportunity. The North Koreans were so effective at blending in with the terrain and camouflaging themselves that often the only way to find them was through slow moving observation aircraft.⁶⁵ This type of

⁶¹ McKenney, *Organizational History of Field Artillery 1775-2003*, 194.

⁶² U.S. Department of the Army, *Field Manual 6-120: The Field Artillery Observation Battalion and Batteries* (Washington, D.C.: United States Government Printing Office, 1951), 1-3.

⁶³ Robertson, "The Korean War: The United Nations' Response to Heavy Bombardment," 113.

⁶⁴ McKenney, *Organizational History of Field Artillery 1775-2003*, 200.

⁶⁵ John C. Chapin, *Fire Brigade: U.S. Marines in the Pusan Perimeter* (Honolulu:

observation was not new to the Korean War, but improved radio communication between the aircraft and maneuver elements aided in the responsiveness and availability of aerial observation for all patrols.⁶⁶ Preplanned targeting and accurate target acquisition alone did not ensure massed artillery fires, ultimately artillery planners had to position the guns most effectively to support these functions.

The Korean topography was not ideal for quickly moving artillery units and supplies throughout the battlefield. The harsh landscape, inadequate improved roads, and extreme weather conditions restricted maneuver and limited logistical support.⁶⁷ The ability to quickly mass fires and protect the artillery laid in the flexibility of the artillery formations to meet the challenges posed by the terrain. Tactical mobility was the ability of the artillery formations to keep up with maneuver and traverse the terrain to maintain direct support artillery fires for maneuver.⁶⁸ Strategic mobility was the ability to quickly reposition artillery formations throughout the theater of operations to support the decisive operation, as well as providing the logistical train associated with drastically repositioning forces.⁶⁹ Strategic and tactical mobility in the Korean War required a mix of self-propelled and towed systems. Self-propelled artillery was a huge advantage for tactical mobility in the Korean War because of its ability to traverse rough terrain over the large

University Press of the Pacific, 2004), 21.

⁶⁶ U.S. Army, Conference on the Battle Employment of the Artillery 1950-1951 (1952), 4.

⁶⁷ Schnabel, *Policy and Direction: The First Year*, 1.

⁶⁸ A.C. Bole Jr., "Towed Versus Self-Propelled Artillery in the Period Prior to 1955: An Historical Investigation of the Argument in the United States Army," (Fort Leavenworth: Command and General Staff College, 1966), 14.

⁶⁹ While A.C. Bole uses the terms tactical and strategic mobility to define the characteristics of artillery mobility at the time, strategic mobility can also be understood as operational maneuver today. A.C. Bole Jr., "Towed Versus Self-Propelled Artillery in the Period Prior to 1955: An Historical Investigation of the Argument in the United States Army," 15.

fronts.⁷⁰ However, towed systems were lighter, easier to emplace and conceal, and were generally perceived as more strategically mobile.⁷¹ The static nature of the defense in Korea coupled with the rugged terrain led to relying on the tactical mobility of the self-propelled systems that only existed in the nondivisional artillery formations. This allowed the corps the flexibility and mobility to quickly reinforce and augment divisional massed fires throughout the conflict. The mobility and range of self-propelled artillery made it possible to engage targets from greater distances and then quickly withdraw before coming into direct contact with the enemy.⁷² Unfortunately, these systems were in short supply during the Korean War.

Up to April 1951, ammunition shortages restricted the number of rounds that artillery units could fire daily. When the Army lifted this restriction in May 1951, the artillery was finally able to operate at full capacity. The Battle of the Soyang River in May 1951, illustrated the effects of unconstrained massed fires in the defense. Fire planning in the battle supported the deliberate defense. Artillery Fire Support Officers planned prearranged fires for known concentrations of enemy forces, likely avenues of approach and bridges across the Soyang. Artillery headquarters selected artillery units for execution of these fires in accordance with the plan. When the Chinese attacked on May 12, the artillery units targeted enemy groups of 200 to 500 men with concentrated fires and had tremendous effects. The observation plan for the Battle of the Soyang River consisted of an integration of forward observers assigned to the infantry battalions, terrestrial observation points and observation aircraft. The division artillery had direct control over observation aircraft that provided persistent observation throughout the divisional

⁷⁰ A.C. Bole Jr., "Towed Versus Self-Propelled Artillery in the Period Prior to 1955: An Historical Investigation of the Argument in the United States Army," 54-55.

⁷¹ *Ibid.*, 49.

⁷² Grodecki, "From Powder River to Soyang: The 300th Armored Field Artillery in Korea," 67-68.

zones as well as assigned to support platoon patrols to mitigate the lack of forward observers to meet all of the patrol requirements during defense preparations. During the preparation of the defense of the Soyang River, the vast area between the main defensive line and the concentration of Chinese forces during the defense required combat patrols to operate well ahead of the defensive line to maintain contact with the enemy. The artillery battalions established advanced positions outside of the defensive lines in order to support these patrols. These positions necessitated the tactical mobility of the battalions to occupy and withdraw quickly in support of the maneuver formations. Ultimately, these conditions led to lessons learned in the employment of massed fire.⁷³

The Battle of Soyang River reinforced the lessons of massed fires learned throughout the Korean War. Fire planning had changed little since World War II. What emerged during the Korean War was the emphasis on flexibility within the fire plan to execute massed fires at targets of opportunity. One of the keys to the United Nation Force's success in Korean War was their ability to mass fires on targets of opportunity. Both sides of the conflict had the ability to mass fires through prearrangement, only the United Nation Forces could accurately mass fires on targets of opportunity.⁷⁴ Therefore, the flexibility of massing fires on targets of opportunity provided the United Nations forces with a marked advantage in this respect. Additionally, integration of all observational platforms was critical to executing massed fires and the terrain reinforced the importance of the tactical mobility of self-propelled artillery. While neither MacArthur nor Ridgeway would ever receive all the artillery that they requested for the theater,

⁷³ U.S. Army, Conference on the Battle Employment of the Artillery 1950-1951 (1952), 2-3.

⁷⁴ Robertson, "The Korean War: The United Nations' Response to Heavy Bombardment," 109.

they would make use of what they had.⁷⁵ Artillery leaders accomplished the effects of massed fires in Korea through preplanned and synchronized targeting at the divisional and nondivisional levels; the flexibility to mass fires on targets of opportunity through accurate target locating and mobility to position artillery forces to achieve those devastating effects.

UNITY OF COMMAND

Nondivisional artillery battalions were in high demand throughout the duration of the Korean conflict because of the need to reinforce existing divisional artillery battalions and provide flexibility for the corps.⁷⁶ As the Army scrambled to fulfill this need, what became noticeable was the lack of continuity in the command and control of the nondivisional elements. In July 1950, the 92nd Armored Field Artillery Battalion left its parent unit, the 2nd Armored Division, to deploy as a separate battalion of the 5th Field Artillery Group, the only acting corps artillery headquarters in Korea at the time. Throughout the year, the 92nd Field Artillery Battalion participated in the Inchon amphibious assault, the Iwon amphibious landing and the X Corps' defense in the northeastern sector of the peninsula after the Chinese intervention. The battalion's missions ranged from serving under direct centralized control by the 5th Field Artillery Group to an artillery reinforcement for the divisions under decentralized control. The battalion never maintained a habitual relationship with one command for longer than a month. This was the normal life of a nondivisional artillery battalion in Korea.⁷⁷

During the Korean War, Field Manual 100-5 defined unity of command as "that unity of effort which is essential to the decisive application of the full combat power of the available

⁷⁵ Allan R Millett, *The War for Korea, 1950-1951: They Came From the North*, 153-154.

⁷⁶ *Ibid.*, 153-154.

⁷⁷ Leon F. Lavoie, *History of the 92nd Armored Field Artillery Battalion*, <http://92ndafa.homestead.com/historylavoie.html> (accessed April 25, 2013), 1-35.

forces.”⁷⁸ Additionally, “unity of effort is furthered by full cooperation between the elements of command.”⁷⁹ The first definition linked the ability to mass fires on the battlefield to the control of the artillery commander and the second with the ability of artillery and maneuver commanders to synchronize these effects. Artillery in Korea required an organizational command structure that allowed artillerymen to synchronize efforts and mass fires within their span of control while also meeting the needs of maneuver. To support the maneuver requirements, artillery commanders assigned specific roles or missions to the artillery units that explained the relationship of their support to the maneuver unit.⁸⁰ Another aspect of unity of command was the command relationships between artillery commanders and their supported unit commanders.⁸¹ Organizationally, the Army classified artillery battalions as divisional battalions and nondivisional battalions. Divisional artillery battalions were “organic, assigned, or attached to the division.”⁸² Nondivisional artillery units formed a pool of battalions that the Army combined and

⁷⁸ U.S. Department of the Army, *Field Manual 100-5: Operations*, 22.

⁷⁹ *Ibid.*

⁸⁰ “Direct support artillery has the mission of supporting a specific unit of a command... Direct support artillery is not attached to the supported unit, it remains under the command of the higher artillery commander, but its fires are not taken away from the supported unit except by the authority of the division or force commander... General support artillery has the mission of supporting the force as a whole. Units with such a mission are held under the command of the artillery commander thus making immediately available to the force commander a reserve of fire with which to influence the action... A reinforcing mission requires the reinforcing artillery unit to augment the fires of the reinforced artillery unit on call.” U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 37.

⁸¹ “When the artillery is assigned or attached to the force (supported unit), the artillery officer is both a subordinate command and a special staff officer of the force (supported unit) commander. When artillery is neither assigned nor attached to the force but is supporting the force, the artillery commander’s relationship to the force commander is both that of an advisor and that of an independent commander obliged to render continuous effective fire support in accordance with his assigned mission.”; U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, (Washington, D.C.: United States Government Printing Office, 1953), 10.

⁸² U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 8.

centrally controlled by a group or corps headquarters or decentrally controlled by assigning them supporting roles within a division. This required nondivisional artillery battalions to move throughout the Korean theater, being assigned to different corps or groups in direct support, general support and reinforcing roles for all echelons from corps to battalion. These roles helped ensure a mutual understanding of responsibility of artillery commanders and their supporting relationship with the maneuver commanders. While this provided flexibility for allocating artillery resources, what was missing was a lasting relationship between nondivisional artillery battalions and their higher headquarters as well as their supported maneuver headquarters.⁸³

In World War II, a divisional field artillery headquarters consisted of four battalions; three of which provided direct support to each regimental combat team and the fourth battalion provided general support. The idea was to minimize the number of organic artillery battalions in the division in order to create a larger pool of nondivisional artillery battalions for operational flexibility.⁸⁴ The way that the Army organized the nondivisional artillery battalions changed throughout the war. Initially, the Army organically grouped nondivisional battalions into a fixed artillery brigade. The brigade consisted of a headquarters and headquarters battery, an observation battalion and three field artillery regiments. The rigid structure of the nondivisional artillery brigade and the administrative and logistical ties to the artillery regiments disrupted the Army's ability to provide operational flexibility in the employment of nondivisional assets.⁸⁵ To correct this deficiency, the Army deconstructed the fixed brigade and regimental system to create self-

⁸³ Grodecki, "From Powder River to Soyang: The 300th Armored Field Artillery in Korea," 72-74, 90.

⁸⁴ McKenney, *Organizational History of Field Artillery 1775-2003*, 159; Kent Roberts Greenfield, Robert R. Palmer, and Bell I. Wiley, *United States Army in World War II, The Army Ground Forces, The Organization of Ground Combat Troop* (Washington, D.C.: U.S. Government Printing Office, 1987), 277.

⁸⁵ Russell A. Weathersby, "The Field Artillery Group in Support of the Corps and Field Army, 1942-1953." Thesis (U.S. Army Command and General Staff School, 1966), 1.

sustaining nondivisional artillery battalions. It designated artillery groups to controlled three to four of these self-sustaining artillery battalions and attached to group to the corps artillery headquarters. The group concept allowed the number of battalions directly supporting the corps to fluctuate, grow and contract as required. If necessary, the artillery battalions assigned to the group became a pool that the divisions used to draw additional support. Essentially, this decentralized the control of artillery battalions to the divisions with little retention at the corps level for a given mission. The flexibility of the group let the corps artillery headquarters consolidate artillery within the corps for a specific mission, such as the break out of Normandy, but then distribute them back to the divisions to maximize their use. The group organization worked well in World War II to allow commanders to readily redistribute artillery forces, but it disrupted unity of command because there were no habitual relationships between the nondivisional battalions, the groups, and the corps.⁸⁶

In the period following World War II, artillery leaders searched for ways for maintain the flexibility of the group concept while minimizing disruption to command and control. One of the major discussions during this period was how to organize the nondivisional artillery units, there was little change to divisional artillery organization. The flexibility of the group concept in World War II competed with the ability to exercise adequate command and control because it disrupted the command relationships between the corps and division artillery commanders.⁸⁷ The Army identified this issue during World War II and the War Department attempted to fix it by issuing a document that promoted maintaining battalions habitually with a specific group, but it did little to

⁸⁶ McKenney, *Organizational History of Field Artillery 1775-2003*, 157, 159, 164-165, 176-177, 179; Weathersby, "The Field Artillery Group in Support of the Corps and Field Army, 1942-1953," 69-72; J.B.A. Bailey, *Field Artillery and Firepower* (Philadelphia, PA: Taylor & Francis, Inc., 2009), 312-313, 324.

⁸⁷ Dastrup, *The Field Artillery: History and Sourcebook*, 241-242.

influence current Army practice.⁸⁸ Prior to the Korean War, artillery officers recommended creating an artillery division to organize nondivisional battalions that had their own organic artillery divided into groups and regiments that allowed the corps the flexibility to reallocate groups without losing continuity.⁸⁹ However, when the Army implemented the reforms, they assigned organic artillery battalions to the group, but only semi-permanently attached the group to corps. The corps could then attach the group to a division in a supporting role. Ultimately, the Army assigned nondivisional battalions permanently for continuity and decreased fluctuation, while retaining flexibility within the corps. The result was a combination of the fixed brigade and WWII group concepts. This did not always happen, but it was better in the Korean War than in World War II. This was the only change to the organization of nondivisional artillery; the group remained the primary organizational method of employing nondivisional artillery.⁹⁰

Aside from organizational changes, a key part of unity of command in the Korean War was the command responsibilities of the artillery commanders. Generally, in armies, corps, divisions and task forces the senior artilleryman was the commander of the organically assigned artillery units as well as the artillery officer on the special staff of the supported unit to advise the commander and staff on artillery matters and fire support coordination.⁹¹ Doctrinally, artillery

⁸⁸ McKenney, *Organizational History of Field Artillery 1775-2003*, 179; Weathersby, "The Field Artillery Group in Support of the Corps and Field Army, 1942-1953," 91-92.

⁸⁹ "Sixty-seven of the eighty-two representatives at the artillery conference in March 1946 at Fort Sill agreed that an artillery division should replace the corps nondivisional artillery organization and recommended that corps artillery be organized with a HHB, an observation battalion, and a minimum number of organic battalions to be determined by future studies. They also recommended that all nondivisional artillery battalions be organized into permanent groups or regiments of mixed or similar caliber weapons." McKenney, *Organizational History of Field Artillery 1775-2003*, 194; The General Board, United States Forces, European Theater, "Study of the Organization and Equipment of Field Artillery Units, Study Number 59." 1945, 47-48.

⁹⁰ McKenney, *Organizational History of Field Artillery 1775-2003*, 195.

⁹¹ U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 10.

commanders only had command authority over the battalions that were organic to their headquarters. With the new group concept, this meant that corps artillery commanders did not have direct command over the group artillery and the groups did not have direct command over the divisional artillery.⁹² This did not alleviate the artillery commander's responsibility to synchronize the effects of artillery within their maneuver headquarters, regardless of the echelon. One of the major developments during the interwar period to assist in this synchronization was the fire support coordination center.

Doctrine required army, corps, division and task force artillery commanders at each level to "establish and supervise the fire support coordination center as fire support coordinator for the command."⁹³ Therefore, during the Korean War, artilleryman established formal fire support coordination centers at all corps and division fire direction centers, and subordinate artilleryman carried the concept to the infantry regimental and battalion levels.⁹⁴ In the fire support coordination center, artilleryman planned and synchronized air support, naval gunfire and artillery and responded to targets of opportunity with the available means. This allowed units to de-conflict close air support and artillery fires and integrated the artillery observer into the process of determining the best asset to engage a given target.⁹⁵

⁹² U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 10.

⁹³ *Ibid.*, 13.

⁹⁴ McKenney, *Organizational History of Field Artillery 1775-2003*, 205.

⁹⁵ Dastrup, *The Field Artillery: History and Sourcebook*, 259; Wallace, Jr., "For Battlefield Teamwork: Fire Support Coordination Center," *Combat Forces Journal*, May 1953, 24-26; Carl W. Schaad, "Fire Support Coordination," *Combat Forces Journal*, Sep 1952, 39-41; Eighth Army, *A Study of the Employment and Effectiveness of the Artillery with the Eighth Army during the period, October 1951-July 1953*, 7-8.

At the beginning of the Korean War, during the “Pusan Perimeter” defense, the only available artillery units were divisional artillery units.⁹⁶ Even as nondivisional artillery battalions entered the theater, they were attached as general support or reinforcing units for the divisions, only adding to the span of control for the division artillery commander. Artillerymen could only mass fires at the division level due to the absence of a corps artillery headquarters and the lack of nondivisional artillery battalions and often, due to the wide dispersion of units, this was difficult to accomplish. Each corps was authorized an artillery officer and small staff, but they had no command authority or capability to adequately synchronize fires across the corps.⁹⁷

Initially, the X Corps utilized the 5th Field Artillery Group as its corps artillery headquarters due to the lack of a corps artillery staff.⁹⁸ During the initial phases of the Korean, the 5th Field Artillery Group served as the best example of employing and controlling nondivisional battalions. They controlled their two organic battalions directly as well as synchronized the artillery efforts within X Corps. During the push to the Chinese border, they decentralized artillery employment to the divisions in order to keep up with the offense. As the Chinese launched offenses to push the X Corps back to the 38th Parallel, the 5th Field Artillery Group centralized the control of artillery to maximize the effectiveness of the withdrawal.⁹⁹ I Corps Artillery was the first official corps artillery headquarters to arrive in theater in February

⁹⁶ Weathersby, “The Field Artillery Group in Support of the Corps and Field Army, 1942-1953,” 126; McKenney, *Organizational History of Field Artillery 1775-2003*, 196-197; Schnabel, *Policy and Direction: The First Year*, 90-92.

⁹⁷ Weathersby, “The Field Artillery Group in Support of the Corps and Field Army, 1942-1953,” 126-127; U.S. Department of the Army, The Artillery School, “Report of the Artillery School Representative, AFF Observer Team No. 2, Concerning Korean Campaign, September to October 1950, Inclusive,” 27 November 1950, 134-141.

⁹⁸ Weathersby, “The Field Artillery Group in Support of the Corps and Field Army, 1942-1953,” 128-129.

⁹⁹ *Ibid.*, 130.

1951 and by March IX Corps Artillery arrived.¹⁰⁰ As more nondivisional battalions entered the theater, corps artillery commanders and their staffs could better reallocate and control how the attached units would support the overall corps fire plans. As the nature of the war transitioned to more of a static defense, artillery commanders placed even more emphasis on centrally coordinating and allocating nondivisional artillery to best disrupt the communist attacks.¹⁰¹

Unity of command of artillery forces in Korea centered on the flexible organizational structure of the groups, the command authorities and responsibilities of the artillery commanders and the mission roles of the individual artillery battalions. Organizationally, the artillery group concept worked because it provided some continuity in command to the nondivisional artillery battalions while retaining the flexibility to move nondivisional units between corps and divisions. The concept still required a corps artillery headquarters to nest the nondivisional and divisional fire plans within the maneuver fire planning. Synchronization of artillery forces across the theater of operations required fire support coordination centers at all levels to coordinate artillery and integrate air support across a wide front. These centers served as the medium for more effective command and control.

SECURITY

By September 1950, the North Koreans had confined the United Nations Forces to the Pusan Perimeter and were pressing to disrupt the defense along the Naktong River. The 35th Infantry Regiment of the 25th Infantry Division was the division's right flank and the division was responsible for the southwestern portion of the Pusan Perimeter. On September 3, 1950, North Korean Forces launched an attack against the 35th Infantry line. The 64th Field Artillery Battalion

¹⁰⁰ Weathersby, "The Field Artillery Group in Support of the Corps and Field Army, 1942-1953," 133.

¹⁰¹ *Ibid.*, 133-135.

was in direct support of the 35th Infantry and had established localized defenses around each of the battery position areas because they were keenly aware that they were responsible for their own defenses given the likelihood of enemy infiltration. Early that morning, the first sergeant of A Battery, 64th Field Artillery noticed a small element of men moving towards their position. Before he could identify the element, they opened machine gun fire on the United State's position. Additional fires from all directions accompanied the initial attack. Before the men of A Battery could respond, the enemy killed five men, injured one and destroyed the battery communications switchboard. At this point, A Battery's howitzers stopped all fire missions as the machine gun fire turned on their positions. By the time that A Battery returned machine gun fire, they realized that it was too late; the North Korean had completely infiltrated its position. Some of the howitzers responded with direct fire against the infiltrators, but to no avail. The howitzers were lost until recovered later that morning.¹⁰²

This example was not the first time that the enemy overran a United Nations' artillery formation in the Korean. The 63rd Field Artillery Battalion experienced the same type of event in July 1950, south of the Kum River.¹⁰³ In fact, artillery units were overrun close to a dozen times during the first nine months of the war.¹⁰⁴ With the limited amount of artillery deployed to theater, this became an operational level problem. The impact of the linear nature of World War II conditioned artillery units to rely on the safety of contiguous front. This left artillery units unprepared to defend against the threat of North Koreans and Chinese infiltration that required

¹⁰² Gugeler, *Army Historical Series: Combat Actions in Korea*, 31-38.

¹⁰³ Appleman, *South to the Naktong North to the Yalu*, 126-128; Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 3-5.

¹⁰⁴ Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 1.

mutually supporting defensive positions.¹⁰⁵ By the end of the Korean War, the U.S. Army artillery units learned valuable lessons in protecting their vulnerable formations.

Walter Kretchik, an expert on the Army's military doctrine argued, "Offensive-minded combined-arms warfare" characterized operations during World War II.¹⁰⁶ The relatively linear battlefield left most artillery battalions with adequate protection from their maneuver brothers. The offensive nature of the war meant that few artillery units had participated in a protracted defense.¹⁰⁷ However, even in World War II, the Japanese used infiltration tactics against artillery battalions. In August 1944, Brigadier General Harold R. Barker wrote, "One of the most difficult problems for the artillery to solve in jungle warfare is the security and defense of battery positions, CPs, rear installations, lines of communication, and supply routes."¹⁰⁸ Unfortunately, the United Nations artillery in Korea would have to learn this lesson again.

At the beginning of the Korean War, doctrine developed during World War II favored the offensive nature of warfare to annihilate the enemy. This did not fit well within the defensive nature of the limited war in Korea.¹⁰⁹ By 1953, artillery doctrine described the defense of an artillery position in terms of the batteries responsibility to protect their position. "All units

¹⁰⁵ Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 1, 5; Dastrup, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 228-229, 242-243, 247, 25; Edward T. Klett, Jr., "Solving the 6400-mil Nemesis," *Combat Forces Journal* (July 1951), 34; Robert F. Cocklin, "Artillery in Korea," *Combat Forces Journal* (August 1951), 23.

¹⁰⁶ Kretchik, *U.S. Army Doctrine: From the American Revolution to the War on Terror*, 158; McMeen, Scott R. "Field Artillery Doctrine Development 1917-1945." Fort Leavenworth: Command and General Staff College, 1991, 48.

¹⁰⁷ Doughty, *The Evolution of U.S. Army Tactical Doctrine 1946-76*, 8.

¹⁰⁸ Harold R. Barker, "Artillery Operations of the New Georgia Campaign." *Field Artillery Journal* (August 1944): 530-536.

¹⁰⁹ Kretchik, *U.S. Army Doctrine: From the American Revolution to the War on Terror*, 164-165.

prepare their positions for defense against enemy ground attack with particular attention to antitank defense. Units must be prepared to counter airborne attacks, guerrilla action, and infiltration.” Additionally, the manual advocated training artillery units in infantry tactics and delivery of artillery direct fire in support of the battery defense, though it was only specific to airborne operations.¹¹⁰ In jungle warfare, FM 6-20 recommended mutually supporting battery defenses as well as co-location with the infantry reserve for additional defensive firepower.¹¹¹ Ultimately, the defense of the battery position was the responsibility of the artillerymen. Artillery commanders understood the need to develop mutually supporting battery positions and integrating them with maneuver, but the lack of training in this respect during the interwar period made this difficult to accomplish.¹¹²

During the Korean War, North Korean and Chinese infiltration tactics exploited the weakness of artillery defenses and the breadth of the United Nation’s defense.¹¹³ “Infiltrating enemy units frequently occupied positions to the Americans’ rear, striking command posts, support units or artillery positions.”¹¹⁴ The United Nations attempted to defend the entire defensive line and this resulted in the lack of defensive depth to counterattack.¹¹⁵ In all, United

¹¹⁰ U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 93.

¹¹¹ U.S. Department of the Army, *Field Manual 6-20: Artillery Tactics and Techniques*, 102.

¹¹² Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 5.

¹¹³ Dastrup, *The Field Artillery: History and Sourcebook*, 255; Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 3.

¹¹⁴ Doughty, *The Evolution of U.S. Army Tactical Doctrine 1946-76*, 7-8.

¹¹⁵ *Ibid.*, 9.

Nation's forces lost over forty artillery pieces in this manner.¹¹⁶ Later, the United Nations' built more depth into their defenses and integrated the artillery position defense with maneuver forces. By the end of the conflict, the vulnerability of artillery formations was exposed and mitigation measures adapted. The Army learned two major lessons: Batteries must be able to defend themselves and the battalion must integrate a mutually supporting defense plan with maneuver. General Almond expanded on these areas adding, "Automatic weapons within artillery units must be ready at all times to defend their positions whether on the move or in position. Destruction of artillery units is a primary enemy objective. All units must stress defense against infiltration tactics, train for anti-guerrilla measures and be prepared for all-around defense."¹¹⁷ Despite accounting for these aspects in doctrine, the Army must train effectively in these principles to prevent reinventing the wheel.

CONCLUSION

The elements of mass, unity of effort and security characterized effective defensive operational artillery employment during the Korean War. Massing artillery fires was a complex process that was more than just providing overwhelming firepower. The ability to synchronize the effects of multiple divisional and nondivisional artillery battalions within the corps, groups, and divisions required a command and control relationship structure that facilitated a coordinated artillery defense. Faced with an enemy that favored infiltration tactics and the overall nature of defensive operations across a wide non-linear front, the United Nations recognized the importance of adequately securing artillery positions. Today, applying these same characteristics

¹¹⁶ Giangreco, *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*, 3.

¹¹⁷ U.S. Army, *Conference on the Battle Employment of the Artillery 1950-1951* (1952), 9.

to the Army's current ability to provide adequate fire support in major combat operations provides key insight into its preparation for future wars.

The concept of massed fires was not new to the Korean conflict. However, technological advances in the interwar period contributed to improved methods of target acquisition and communication between observers and the guns. The necessity to compensate for the lack of artillery units with concentrated fires honed the artillery system to prioritize prearrangement of targets in the defense. Target acquisition improvements allowed United Nations' forces to engage targets of opportunity more readily. Additionally, the need to reallocate and redistribute nondivisional artillery battalions required strategic and tactical mobility to respond to the Communist threat. Ultimately, the United Nation's advantage over North Korean and Chinese forces was their ability to mass fires on targets of opportunity.

Unity of command for artillery units during the Korean War reflected the desire to combine the flexibility of the group concept of World War II while providing continuity for nondivisional battalions within the groups. The corps centralized control during static defensive operations and decentralized control to the divisions during offensive maneuver. During the defensive, centralized control allowed commanders to better synchronize the effects of massed fires and allowed the corps flexibility to respond to the largest threats. These concepts will be essential to coordinating artillery units in the future especially without an artillery headquarters above the brigade level.

Security of artillery units in the beginning of the Korean War was woefully inadequate. In the beginning of the conflict, artillerymen expected conflict to be similar to the linear battle during World War II. However, due to the enemy tactics of infiltration, they quickly realized that the artillery battalions had to defend themselves. Integrated battery defense plans nested within the maneuver defense improved throughout the conflict. Ultimately, by the end of the conflict, artillery battalions adjusted their methods to respond to security challenges.

Today, artillery doctrine still addresses each of the areas. The characterizations of mass are increased lethality, longer ranges, better target acquisition technology, and precision munitions. It could be said that advent of precision guiding munitions has somewhat changed the concept of massed fires by reducing the reliance on multiple artillery units to achieve desired effects. Regardless, the army's current artillery organization lacks the ability to integrate multiple battalions at the division level and higher. The absence of a division artillery headquarters and groups of nondivisional artillery battalions make integrating artillery fires across a broad front more difficult. Additionally, years of counterinsurgency operations and reliance on the security resident with forward operating bases has degraded the readiness of artillery battalions to provide their own security.

The fact that contemporary doctrine addresses the aspects of mass, unity of command and security does not mean that the artillery units can actually perform the concepts well. Much like during the start of the Korean War, the current U.S. Army's ability to execute all doctrinal artillery tasks such as massed fires is lacking. This is not necessarily for the same reasons as during the Korean War. Sound written doctrine does not necessarily mean that the army's artillery units can actually execute it. The last decade of counterinsurgency operations have certainly influenced the artillery's ability to mass fires above the battalion level. Today, someone could argue that the artillery is unprepared to mass fires against a near peer army in a high intensity conflict. The degradation in the artillery's ability to mass fires and secure itself is due to the last ten years of conflict and adequate training can fix it. The aspect of unity of command, however, is a completely different problem.

Effective unity of command for artillery units must be able to accomplish a number of functions. Commanders must be able to control subordinate artillery elements and the artillery must be organized to effectively integrate with maneuver and synchronize the concentration of artillery throughout the entire theater of operations. The major change in unity of command since

the Korean War for divisional artillery is the elimination of the division artillery headquarters from the current army structure. In fact, there is no command headquarters for artillery units above the brigade level. The Army eliminated the division artillery and transferred the role of synchronizing divisional artillery fires to the Chief of Field Artillery in the division headquarters and above. However, the Chief of Field Artillery has no command authority over any artillery battalions.

In conclusion, the elements of artillery during the Korean contributed to the United Nation's success in the Korean War. Mass, unity of command and security each went through an evolution throughout the war and have continued to evolve through today. However, as the Army concludes operations in Iraq and Afghanistan, it is time to reevaluate each of these elements in terms of the next projected conflict. Artillerymen must ask themselves if they are prepared to execute these functions in a similar situation such as Korea. Has the artillery trained enough at massing fires above the battalion level? Is the Army's current unity of command adequate to synchronize the artillery of multiple divisions? And, do artillery battalions know how to adequately secure their formations in a high intensity conflict?

BIBLIOGRAPHY

Books

- Alexander, Bevin. *Korea the First War We Lost*. New York: Hippocrene Books, 1993.
- Appleman, Roy E. *South to the Naktong North to the Yalu*. Washington, D.C.: U.S. Government Printing, 1961.
- Bailey, J.B.A. *Field Artillery and Firepower*. Philadelphia, PA: Taylor & Francis, Inc., 2009.
- Blair, Clay. *The Forgotten War: America in Korea 1950-1953*. New York: Anchor Books, 1987.
- Bowers, William T., ed. *Striking Back: Combat in Korea, March-April 1951*. Lexington, KY: The University Press of Kentucky, 2010.
- Center of Military History, United States Army. *American Armies and Battlefields in Europe*. Washington, D.C.: U.S. Government Printing Office, 1992.
- Chandler, David G. *The Campaigns of Napoleon*. New York: Macmillan Publishing Co., Inc., 1966.
- Chapin, John C. *Fire Brigade: U.S. Marines in the Pusan Perimeter*. Honolulu: University Press of the Pacific, 2004.
- Clausewitz, Carl Von. *On War*. Translated by Michael Howard, & Peter Paret. Princeton: Princeton University Press, 1989.
- Coffman, Edward M. *The War to End All Wars, The American Military Experience in World War I*. Lexington, KY: The University Press of Kentucky, 1986.
- Cole, Hugh M. *The Ardennes: Battle of the Bulge*. Washington, DC: U.S. Government Printing Office, 1993.
- Collins, J. Lawton. *War in Peacetime: The History and Lessons of Korea*. Boston: Houghton Mifflin, 1969.
- Dastrup, Boyd L. *The Field Artillery: History and Sourcebook*. Westport, Connecticut: Greenwood Press, 1994.
- Doughty, Robert A. *The Evolution of U.S. Army Tactical Doctrine 1946-76*. Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, 1979.
- . *The Evolution of US Army Tactical Doctrine, 1946-76*. Fort Leavenworth, Kansas: Combat Studies Institute, U.S. Army Command and General Staff College, 1979.
- Fehrenbach, T.R. *This Kind of War: the Classic Korean War History - Fiftieth Anniversary Edition*. Washington, D.C.: Potomac Books Inc., 2001.
- Giangreco, D.M. *Korean War Anthology: Artillery in Korea: Massing Fires and Reinventing the Wheel*. Fort Leavenworth, KS: U.S. Government Printing Office, 2003.

- Greenfield, Kent Roberts, Robert R. Palmer, and Bell I. Wiley. *United States Army in World War II, The Army Ground Forces, The Organization of Ground Combat Troops*. Washington, D.C.: U.S. Government Printing Office, 1987.
- Groteleschen, Mark Ethan. *The AEF Way of War, The American Army and Combat in World War I*. New York: Cambridge University Press, 2007.
- Gugeler, Russell A. *Army Historical Series: Combat Actions in Korea*. Washington, D.C.: U.S. Army Center of Military History, 1987.
- Hanson, Thomas E. *Combat Ready?: The Eighth U.S. Army on the Eve of the Korean War*. College Station, TX: Texas A&M University Press, 2010.
- Hattaway, Herman, and Archer Jones. *A Military History of the Civil War, How the North Won*. Chicago: University of Illinois Press, 1991.
- Hermes, Walter G. *Truce Tent and Fighting Front*. Washington, D.C.: Office of the Chief of Military History, United States Army, 1966.
- Herring, George C. *From Colony to Superpower, U.S. Foreign Relations since 1776*. New York: Oxford University Press, 2008.
- Hopkins, William B. *One Bugle, No Drums: the Marines at Chosin Reservoir*. Chapel Hill, N.C.: Algonquin Books, 1986.
- Kretchik, Walter E. *U.S. Army Doctrine, From the American Revolution to the War on Terror*. Lawrence, Kansas: University Press of Kansas, 2011.
- Lavoie, Leon F. *History of the 92nd Armored Field Artillery Battalion*. n.d., <http://92ndafa.homestead.com/historylavoie.html> (accessed April 25, 2013).
- McKenney, Janice E. *Organizational History of Field Artillery 1775-2003*. Washington, D.C.: United States Army Center of Military History, 2007.
- Millett, Allan R. *The War for Korea, 1945-1950: A House Burning*. Lawrence, KS: University Press of Kansas, 2005.
- . *The War for Korea, 1950-1951: They Came From the North*. Lawrence, KS: University Press of Kansas, 2010.
- Mossman, Billy C. *United States Army in the Korean War: Ebb and Flow November 1950-July 1951*. Washington, D.C.: U.S. Government Printing Office, 1990.
- Naveh, Shimon. *In Pursuit of Military Excellence: The Evolution of Operational Theory*. Portland: Frank Cass Publishers, 1997.
- Patterson, James T. *Grand Expectations, The United States 1945-1971*. New York: Oxford University Press, 1996.
- Ridgway, Matthew B. *The Korean War*. Garden City, N.Y.: Doubleday, 1967.

- Robertson, William Glenn. "The Korean War: The United Nations' Response to Heavy Bombardment." Chap. 6 in *CSI Report No. 13: Tactical Responses to Concentrated Artillery*, by Combat Studies Institute, 107-117. Fort Leavenworth, KS: U.S. Army Command and General Staff College, n.d.
- Sandler, Stanley. *The Korean War: An Interpretive History (Warefare and History)*. London: Routledge, 1999.
- Schnabel, James F. *Policy and Direction: The First Year*. Washington, D.C.: U.S. Army Center of Military History, 1972.
- Stanford Research Institute. *Operational Data for Selected Field Artillery Units During World War II and The Korean War*. Research, Stanford, CA: Stanford Research Institute, 1954.
- Stokesbury, James L. *A Short History of the Korean War*. New York: Harper Perennial, 1990.
- Terry, Addison. *The Battle for Pusan: a Korean War Memoir*. Novato, CA: Presidio Press Inc., 2000.
- The General Board, United States Forces, European Theater. "Study of the Organization and Equipment of Field Artillery Units, Study Number 59." 1945.
- U.S. Army. *Battle of the Soyang River: An Analysis of Artillery Support, X Corps Sector, 1 May - 29 May*. Mimeo, July 30, 1951.
- . *Conference on the Battle Employment of the Artillery 1950-1951*. 1952.
- U.S. Army, Eighth Army, Artillery Officer. *A Study of the Employment and Effectiveness of the Artillery With the Eighth Army During the Period October 1951-July 1953*. Seoul, Korea, 1954.
- U.S. Department of Defense. *Joint Publication 1-02: Department of Defense Dictionary of Military and Associated Terms*. Washington, D.C.: U.S. Department of Defense, 2010.
- . *Joint Publication 3-0: Joint Operations*. Washington, D.C.: U.S. Department of Defense, 2011.
- U.S. Department of the Army. *Field Manual 100-5: Operations*. Washington, D.C.: United States Government Printing Office, August 1949.
- . *Field Manual 6-120: The Field Artillery Observation Battalion and Batteries*. Washington, D.C.: United States Government Printing Office, 1951.
- U.S. War Department. *Field Manual 6-100: Field Artillery Tactics and Technique of Division Artillery and Higher Echelons*. Washington, D.C.: United States Government Printing Office, 1944.
- . *Field Manual 6-20: Field Artillery Tactical Employment*. Washington, DC: United States Government Printing Office, 1953.

VII Corps, U.S. Army Staff. *Mission Accomplished: The Story of the VII Corps, United States Army, in the War Against Germany 1944-1945*. Bennington, Vermont: Merriam Press, 2005.

Weigley, Russell F. *The American Way of War: A History of the United States Military Strategy and Policy*. Bloomington: Indiana University Press, 1977.

Yup, Paik Sun. *From Pusan to Panmunjom*. Dulles, Virginia: Potomac Books, Inc., 2000.

Articles

"Any Hour, Any Weather." *Time* 57, no. 9 (February 26, 1951): 31.

Appleman, Roy E. "At the Bowling Alley." *Time* (September 4, 1950): 21-22.

"Artillery Conference at the Field Artillery School." *Field Artillery Journal* (May 1946): 273-75.

Click, Ralph M. "Armored Artillery in the Team." *Field Artillery Journal* (July-August 1949): 168-71.

Dorr, Robert F. "In Korean War, artillery put up 'wall of steel.'" *Army Times* 65, no. 21 (December 13, 2004): 44.

"The Field Artillery Observation Battalion." Parts 1-2. *Field Artillery Journal* (November-December 1948): 252-57; (January-February 1949): 14-20.

Gillmore, William N. "Airborne Artillery." *Field Artillery Journal* (November-December 1947): 348-54.

Glenn, Russell W. "No More Principles of War?" *Parameters* (Spring 1998): 48-66.

Hercz, Arthur R. "On Target Acquisition . . . Again." *Field Artillery Journal* (November-December 1975): 35-41.

Hibbs, Louis E. "Report on the Field Artillery Conference." *Field Artillery Journal* (July 1946): 407-13.

"'King of Battle': Artillery in Korea." *Vfw* 97, no. 9 (June 2010): 32-34.

Rand, H. P. "Meet the FA Observation Battalion." *Combat Forces Journal* (February 1953): 24-27.

Seaton III, James B. "Past is Prologue." *Marine Corps Gazette* 88, no. 10 (October 2004): 48.

Watson, Mark S. "Ammunition Expenditures in Korea." *Ordnance* (September-October 1952): 251-54.

Zabecki, David T., Hollis, Patrecia Slayden, "History of Field Artillery Magazine." *Field Artillery Journal* (March-April 2007): 4-10.

Monographs

- Bole Jr., A. C. "Towed Versus Self-Propelled Artillery in the Period Prior to 1955: An Historical Investigation of the Argument in the United States Army." Fort Leavenworth: Command and General Staff College, 1966.
- Dill, John D. "Fire Support in the Pusan Perimeter." Fort Leavenworth: School of Advanced Military Studies, 2000.
- Dill, John D. "Political Restrictions on Operational Fires in the Post World War II Environment." Fort Leavenworth: School of Advanced Military Studies, 2001.
- Grodecki, Thomas S. "From Powder River to Soyang: The 300th Armored Field Artillery in Korea." Washington, DC: Center of Military History.
- Lane, Peter J. "Steel for Bodies: Ammunition Readiness During the Korean War." Fort Leavenworth: Command and General Staff College, 2003.
- McMeen, Scott R. "Field Artillery Doctrine Development 1917-1945." Fort Leavenworth: Command and General Staff College, 1991.
- Schneider, James J. *Vulcan's Anvil: The American Civil War and the Foundation of the Operational Art*. Theoretical Paper No. 4. Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2004.
- Weathersby, Russell A. "The Field Artillery Group in Support of the Corps and Field Army, 1942-1953." Thesis, Fort Leavenworth, KS: U.S. Army Command and General Staff School, 1966.
- Woodhouse, Dale B. "Operational Lessons Learned in the Korean War." Fort Leavenworth: School of Advanced Military Studies, 2011.
- Ziegler, Thomas G. "Operational Art Requirements in the Korean War." Fort Leavenworth: School of Advanced Military Studies, 2012.