

# Decisive Combined Arms Maneuver And Atomic Fires: The Emergent Role Of The Artillery

A Monograph

by

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2016

**REPORT DOCUMENTATION PAGE**

Form Approved  
OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Service Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

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<b>1. REPORT DATE (DD-MM-YYYY)</b> 04-18-2016		<b>2. REPORT TYPE</b> SAMS Monograph		<b>3. DATES COVERED (From - To)</b> JUL 2015 - MAY 2016	
<b>4. TITLE AND SUBTITLE</b> Decisive Combined Arms Maneuver And Atomic Fires: The Emergent Role Of The Artillery				<b>5a. CONTRACT NUMBER</b>	
				<b>5b. GRANT NUMBER</b>	
				<b>5c. PROGRAM ELEMENT NUMBER</b>	
<b>6. AUTHOR(S)</b> MAJ Wayne A. Fogel III				<b>5d. PROJECT NUMBER</b>	
				<b>5e. TASK NUMBER</b>	
				<b>5f. WORK UNIT NUMBER</b>	
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> Advanced Military Studies Program				<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b> CGSC	
				<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>	
<b>12. DISTRIBUTION/AVAILABILITY STATEMENT</b> Approved for Public Release; Distribution Unlimited					
<b>13. SUPPLEMENTARY NOTES</b>					
<b>14. ABSTRACT</b> The purpose of this monograph is to provide context for the examination of doctrine as it evolves during and following a period of conflict. To accomplish this, the lenses of anticipation, adaptation, and emergence are applied to the US Army Field Artillery's role through a chronological historical case study of US Army Field Artillery doctrine from 1919-1954. This is done by using the Interwar Period that lead to the 1939 doctrine, the European and Pacific Theater experiences in World War II, and the time period leading up to and through the Korean War. This analysis focuses on the FM 6-20 Artillery Tactics and Technique and the FM 100-5 Field Service Regulations, and the iterations published between 1939 and 1954. By utilizing the overarching doctrine and examining the understanding of that doctrine as it applied at the time, along with political aspects that affected the strategic aims, an understanding of how the new doctrine developed emerges. It is possible, then, to extract the implications of the assumptions originally made and how they influenced the requirements for Field Artillery in performing their doctrinal role.					
<b>15. SUBJECT TERMS</b> U.S. Counterinsurgency Operations, Philippine Insurgency and Terrorism					
<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b> 51	<b>19a. NAME OF RESPONSIBLE PERSON</b> MAJ Wayne A. Fogel III
<b>a. REPORT</b> U	<b>b. ABSTRACT</b> U	<b>c. THIS PAGE</b> U			<b>19b. TELEPHONE NUMBER (Include area code)</b>

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Monograph Approval Page

Name of Candidate: MAJ Wayne A. Fogel III

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## Abstract

Decisive Combined Arms Maneuver And Atomic Fires: The Emergent Role Of The Artillery, by MAJ Wayne A. Fogel III, USA, 50 pages.

The purpose of this monograph is to provide context for the examination of doctrine as it evolves during and following a period of conflict. To accomplish this, the lenses of anticipation, adaptation, and emergence are applied to the US Army Field Artillery's role through a chronological historical case study of US Army Field Artillery doctrine from 1919-1954. This is done by using the Interwar Period that lead to the 1939 doctrine, the European and Pacific Theater experiences in World War II, and the time period leading up to and through the Korean War. This analysis focuses on the FM 6-20 *Artillery Tactics and Technique* and the FM 100-5 *Field Service Regulations*, and the iterations published between 1939 and 1954. By utilizing the overarching doctrine and examining the understanding of that doctrine as it applied at the time, along with political aspects that affected the strategic aims, an understanding of how the new doctrine developed emerges. It is possible, then, to extract the implications of the assumptions originally made and how they influenced the requirements for Field Artillery in performing their doctrinal role.

This monograph concludes that following the Korean War, the recognition of a need for more artillery in heavier calibers emerged. This resulted in the advent of artillery's role as both an atomic capability and a contributor to combined arms maneuver, providing a more comprehensive anticipation for future combat through long-range conventional and atomic fires than was previously described in doctrine.

## Contents

Acknowledgements.....	v
Acronyms.....	vi
Introduction.....	1
Section 1: Artillery as King: Decisive in Methodical Battle to Decisive, Combined Arms Maneuver 1919-1945.....	11
Section 2: The King Dethroned: The Artillery Returns to the Barracks 1945-1950.....	25
Section 3: The Return of the King: Decisive in Korea to the Atomic Effect 1950-1954.....	35
Conclusion.....	44
Bibliography.....	47

## **Acknowledgements**

This monograph is a product of the combined efforts of many during this academic year at the School of Advanced Military Studies. Peers and instructors throughout have taught me to think critically and creatively while challenging my understanding and visualization of the world. I would like to thank Dr. G. Stephen Lauer for his motivation and guidance in the study and development of this topic. Finally, I would like to thank my wife, Nicole, for her encouragement, serenity and assistance throughout the year.

## **Acronyms**

FM	Field Manual
KPA	Korean People's Army
US	United States

## Introduction

Historical examples clarify everything and also provide the best kind of proof in the empirical sciences. This is particularly true of the art of war.

—Carl Von Clausewitz, *On War*

Following World War II, the United States military entered into a period of transition that was unique in the history of the organization. The Nation had become a dominant power on the international military field; punctuating this dominance with the victories achieved during the war with the utilization of aerial delivered atomic weapons. As the only atomic capable nation, it formed the first modern superpower on the world stage, with a military prepared to conduct operations accordingly. This condition shaped decisions across the force and in doctrine, and each sub-culture within the organization of the military worked to adapt this new worldview into their role.

The United States Army Field Artillery was one of the sub-cultures affected by the development of the national superpower status. Going into the war, the artillery community had an understanding of their role based on lessons learned from World War I and the incorporation of the doctrinal approach of methodical battle. This approach “prized fire power over all else,” enabling a rapid transition from the defense to the offense where the enemy would “succumb to a methodical advance.”<sup>1</sup> Actions in World War II altered this perception, and the Field Artillery community identified the need to incorporate the lessons from the war and adapt. They understood that these decisions required implementation into doctrine, and the advent of the aerial

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<sup>1</sup> Michael A. Bonura, *Under the Shadow of Napoleon: French Influence on the American Way of Warfare from the War of 1812 to the Outbreak of WWII* (New York: New York University Press, 2012), 212.



delivered atomic weapons and other maneuver war fighting philosophies influenced these decisions.<sup>2</sup>

This was not the first time that the Field Artillery community faced the problem of enacting new doctrine. Following World War I, the Field Artillery community based the anticipation of their role in the next conflict on the successful results in the Great War. While there were changes to their role in World War II, following the war the artillery community fell back on beliefs that they could adapt their role in a similar manner as they had during the Interwar Period, from 1919 to 1941, again focusing on their success in the war with the emergence of combined arms maneuver. The expansion of influence on a global scale was not the primary foundation shaping their new role or doctrinal decisions; rather success in battle provided a majority of the emphasis in the doctrinal response.<sup>3</sup>

The separation of the Air Force from the Army was a pivotal event in the development of doctrine and understanding of the role of the Army. The Army held the view that strategic bombing was not alone capable of providing the “sole determinant of the outcome in future battle.”<sup>4</sup> The Army believed that any conflict would require a ground force, and that the ground force would provide a strategic link through their tactical actions.<sup>5</sup> The theory that enabled this belief was destruction of enemy forces was possible through the tactical capability of the Field Artillery. As a result, artillery emerged as an arm capable of influencing the course of combat; it

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<sup>2</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, by Dr. Boyd L. Dastrup (Fort Monroe: Office of the Command Historian, 1992), 236-241.

<sup>3</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, by Janice E. McKenney (Washington, DC: Center of Military History, 2007), 189.

<sup>4</sup> Raymond S. McLain, “The Army’s Role: A 1949 Perspective.” *Military Review* (January 1949): 11, accessed February 20, 2016, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p124201coll1/id/905/rec/23>.

<sup>5</sup> Ibid.

achieved this effect through tactical actions, linking the capability of the artillery to the outcome of the conflict. The lenses of anticipation, adaptation, and emergence pertain to the development of this doctrine.

The first lens of anticipation applies to the role of the artillery at the start of each time-period. The definition of anticipation for this study is the expectation and prediction of required action for the force in future engagements. The next lens of adaptation applies to the changes in artillery's role resulting from actions or events in each time-period. For this analysis, the definition of adaptation is the process of altering the anticipated approach due to actions or events that occur in a specific time-period. The final lens of emergence of artillery's role reconciles the assumptions and capabilities because of the course of events or technological advancement. For the purpose of this analysis, the definition of emergence is the outgrowth of a new approach based on conditions that confirm or deny the assumptions used for adaptation, resulting in a new anticipation.<sup>6</sup>

This monograph examines the problem of anticipation, adaptation, and emergence of artillery's role through a chronological historical case study of US Army Field Artillery doctrine from 1939-1954 using the Interwar Period that lead to the 1939 doctrine, the European and Pacific Theater experiences in World War II, and time period leading up to and through the Korean War. This analysis focuses on the FM 6-20 *Artillery Tactics and Technique* and the FM 100-5 *Field Service Regulations*, and the iterations published between 1939 and 1954. By utilizing the overarching doctrine and examining the understanding of that doctrine as it applied at the time, along with political aspects that affected the strategic aims, an understanding of how the new doctrine developed emerges. It is possible, then, to extract the implications of the

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<sup>6</sup> G. Stephen Lauer, "The Tao of Doctrine: Contesting an Art of Operations," paper presented at the School of Advanced Military Studies, Fort Leavenworth, KS, August 24, 2015, 2-3.

assumptions originally made and how they influenced the requirements for Field Artillery in performing their doctrinal role.

The lessons learned from World War I resulted in tactical doctrine in 1939 that did not provide a link to the aim of the operation or the war in the actions of the artillery. At this time, the FM 6-20 *Field Artillery Field Manual Tactics and Technique* focused specifically on tactical employment. The manual did not prescribe a specific role for the artillery; rather it provided tactics and characteristics for the employment of Field Artillery under the third section. In this section it defines artillery tactics as “the art of disposing artillery troops, material, ammunition, and means of signal communication in the presence of the enemy, and the directing of artillery fire in combat so as to carry out most effectively the mission assigned.”<sup>7</sup> Further defining its role and characteristics as “an army of relatively long-range combat,” but “limited by its inability to act otherwise than by fire action.”<sup>8</sup> It further classified fires similar to what had been experienced in World War I, categorizing them under concentrations or barrages. The specific focus on methodical battle techniques of barrages, concentrations, long-range employment, and limitations in action reinforces the anticipation that artillery was a supporting capability of the force, underpinned by the expectation of linear battlefields that characterized combat in World War I.<sup>9</sup>

During the course of World War II, the US Army shifted its emphasis to decisive action and focused on combined arms, adapting the assumptions made for future combat. In the 1944 publishing of FM 6-20 *Field Artillery Tactical Employment*, the artillery replaced the definition of artillery tactics with a defined role:

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<sup>7</sup> Field Manual (FM) 6-20, *Field Artillery Field Manual Tactics And Techniques* (Washington, DC: Government Printing Office, 1940), 69.

<sup>8</sup> Ibid., 69-70.

<sup>9</sup> Ibid., 97.

Field artillery is a supporting arm. It contributes to the action of the entire force by giving depth to combat by counterbattery fire, fire on hostile reserves, fire to restrict movements in rear areas, and fire to disrupt command agencies.<sup>10</sup>

This definition provides the first link in artillery doctrine beyond tactical employment to combined arms maneuver through contributing to the action of the entire force, while still placing the artillery as a supporting arm. While rolling barrages were still in tactical doctrine, the artillery had an emergent requirement to provide flexibility and mobility. The lessons of combined arms, drawn from the battlefields of Europe, were the primary focus of this emergence and new anticipation for future combat roles.<sup>11</sup>

In 1948, the Field Artillery community published a new FM 6-20 *Field Artillery Tactics And Techniques*. This emergence of doctrine was a result of both a remaining focus on a combined arms maneuver and a response to the adapted impact of aerial delivered atomic weapons on reducing the role of the Army. By this time, the Air Force had become an independent service, separate from the Army, resulting in artillery as the US Army's only organic means of influencing the battlefield beyond that immediate fight. With this framework, the artillery emerged as a strategic link for the force and blended aspects of prior publishing of the manual by removing the definition of the role of the artillery and replacing it with characteristics and missions. The characteristics applied to a combined arms battlefield by defining artillery as "a supporting arm and is not capable of independent action," but still addressed the link to outcome of the conflict by further stating that artillery is "a powerful means of influencing the course of combat."<sup>12</sup> The mission of the artillery was:

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<sup>10</sup> Field Manual (FM) 6-20, *Field Artillery Tactical Employment* (Washington, DC: Government Printing Office, 1944), 1.

<sup>11</sup> FM 6-20, *Field Artillery Tactical Employment*, 1.

<sup>12</sup> Field Manual (FM) 6-20, *Field Artillery Tactics and Techniques* (Washington, DC: Government Printing Office, 1948), 2.

- a. It supports infantry (armored) units by fire, neutralizing or destroying those targets which are most dangerous to the supported arms.
- b. It gives depth to combat by counterbattery fire, by fire on hostile reserve, by restricting movements in rear areas, and by disrupting hostile command agencies.<sup>13</sup>

The focus on combined arms battlefields and depth reinforced the dual expectations for artillery throughout the remainder of the manual with only minor referencing to anything other than the tactical actions that occurred in the European theater. The ability to influence the course of combat while a part of the combined arms effort provided the link to the new anticipation that conventional artillery fires provided a greater than tactical impact to the Army's operations.<sup>14</sup>

In 1953, the Army published a new FM 6-20 *Artillery Tactics and Technique* due to the emergence of experience from the Korean War and the development of atomic capable surface-to-surface fires. The heavy focus on combined arms and European theater-specific tactics from World War II had diminished the capability of the artillery in providing the role required on the battlefield at the outset of the war. The doctrinal response was a more encompassing manual, addressing echelons above the battalion with an expanded role as well as a tactical response to the firing unit's security; it did this by addressing missions and capabilities of the artillery and incorporating a section on security. As in the 1948 FM 6-20, the 1953 manual once again provided two missions for the artillery, but this time changed portions of both:

- (1) It supports the other arms by fire, neutralizing or destroying those targets which are the most dangerous to the supporting arms.
- (2) It gives depth to combat and isolates the battlefield by counterfire, by fire on hostile reserves, by restricting movement in rear areas, and by disrupting hostile command facilities and other installations.<sup>15</sup>

By combining this mission with the defined characteristic of "a powerful means of influencing the course of combat," artillery recognized their link to the outcome of the conflict and combined

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<sup>13</sup> FM 6-20, *Field Artillery Tactics and Techniques*, 2-3.

<sup>14</sup> Ibid.

<sup>15</sup> Field Manual (FM) 6-20. *Artillery Tactics and Technique* (Washington, DC: Government Printing Office, 1953), 5.

arms maneuver.<sup>16</sup> Additionally this manual provides for the incorporation of atomic fires stating that, “the tactical advantage gained through the use of atomic weapons should be fully and expeditiously exploited through maneuver.”<sup>17</sup> Finally, the recognition that firing units would need to provide specific security in order to maintain effective artillery fire provided the response to an enemy that recognized the powerful effect produced by and importance of the artillery.<sup>18</sup> This emergence resulted in the understanding that artillery, with their atomic capability, was an instigator of, not an aid to, maneuver.<sup>19</sup>

In order to analyze these changes, this monograph includes a review of multiple sources to understand the decisions made to establish the doctrine at the time of its contemporary publishing. For an understanding of what shaped the decisions that drove successive publishing, this paper draws on the analysis done by Dr. Boyd Dastrup’s *Cedat Fortuna Peritis: A History of the Field Artillery School*<sup>20</sup> and *King of Battle: A Branch History of the US Army’s Field Artillery*<sup>21</sup>, J.B.A. Bailey’s *Field Artillery and Fire Power*<sup>22</sup>, Bruce Gundmundsson’s *On Artillery*<sup>23</sup>, and Allan Millett’s *The War for Korea, 1950-1951: They Came From the North*.<sup>24</sup>

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<sup>16</sup> FM 6-20, *Artillery Tactics and Technique*, 6.

<sup>17</sup> *Ibid.*, 121.

<sup>18</sup> *Ibid.*, 53.

<sup>19</sup> George C. Reinhart, “Notes on the Tactical Employment of Atomic Weapons,” *Military Review* (September 1952): 29, accessed February 19, 2016, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p124201coll1/id/855/rec/6>.

<sup>20</sup> Boyd L. Dastrup, *Cedat Fortuna Peritis: A History of the Field Artillery School* (Fort Leavenworth, KS: Combat Studies Institute Press, 2011), v-vii.

<sup>21</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army’s Field Artillery*, xi-xii.

<sup>22</sup> J.B.A Bailey, *Field Artillery and Firepower* (Oxford: The Military Press, 1989), 3-7.

<sup>23</sup> Bruce I. Gundmundsson, *On Artillery* (Westport, CT: Praeger Publishers, 1993), vii-viii.

These sources provide a comprehensive review of the history of the field artillery. In addition to these sources, this paper reviews the reports done by General John Pershing in the *Final Report of General John J. Pershing, Commander-in-Chief, American Expeditionary Forces*<sup>25</sup> and S.L.A Marshall's *On Heavy Artillery: American Experience in Four Wars*.<sup>26</sup> It also provides a review of several military and field artillery journals from the 1920-1955, most notably Arthur Cassels' "An Artillery Study Made in the A.E.F."<sup>27</sup> and Lieutenant General Raymond McLain's "The Army's Role: A 1949 Perspective."<sup>28</sup> In addition to these are several dissertations and theses on doctrine and capabilities such as Scott McMeen's "Field Artillery Doctrine Development 1917-1945"<sup>29</sup> and Roger Nimps "Harry S. Truman and the "Revolt of the Admirals."<sup>30</sup> These works in concert provide an interpretation to the changes in the FM 6-20 and the FM 100-5, linking anticipation, adaptation, and emergence of artillery's role as it arises from the specific wording provided in doctrine.

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<sup>24</sup> Allan R. Millett, *The War for Korea, 1950-1951: They Came From the North*, (Lawrence, KS: University Press of Kansas, 2010), 1-17.

<sup>25</sup> John J. Pershing, *Final Report of General John J. Pershing, Commander-in-Chief, American Expeditionary Forces* (Washington, DC: Government Printing Office, 1920), 5.

<sup>26</sup> United States Army Material Systems Analysis Agency, *On Heavy Artillery: American Experience in Four Wars*, by S.L.A. Marshall (Aberdeen: Aberdeen Proving Grounds, MD, 1976), 2-3.

<sup>27</sup> Arthur F. Cassels, ed., "An Artillery Study Made in the A.E.F.," *The Field Artillery Journal* (March-April 1920): 93, accessed March 25, 2016, [http://sill-www.army.mil/firesbulletin/archives/1920/MAR\\_APR\\_1920/MAR\\_APR\\_1920\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1920/MAR_APR_1920/MAR_APR_1920_FULL_EDITION.pdf).

<sup>28</sup> McLain, "The Army's Role: A 1949 Perspective," 3.

<sup>29</sup> Scott R. McMeen, "Field Artillery Doctrine Development 1917-1945," Master's thesis, US Army Command and General Staff College, 1991, accessed August 14, 2015, <http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll2/id/1355>, iii.

<sup>30</sup> Roger L. Nimps, "Harry S. Truman and the "Revolt of the Admirals": The Presidency and National Security Policy," Master's thesis, School of The Ohio State University, 1986, 1-12.

Section 1 of this analysis begins with the study of the anticipated artillery role and capability as it pertained to future conflicts, analyzing doctrine and the methodology resulting from World War I from 1919-1941. This provides an understanding of the doctrinal approach of methodical battle at the outset of World War II and the beliefs on the role of artillery. It then analyzes capstone artillery doctrine, describing artillery's anticipated role in future conflict. It then reviews the adaptation of artillery's role in combined arms, mechanized, decisive maneuver during operations in World War II from 1941-1945. The analysis provides a view on the adapted doctrinal approach of the force, the application of that adaptation to each theater, and the lessons derived from the European and the Pacific theater. It completes with the emergence of new doctrine, describing the anticipation of future conflict.

Section 2 reviews the adaptation and reduction of artillery's role following World War II, from 1945 to 1950, focusing on the changes implemented across the force. It starts with a view of the strategic implications of aerial delivered atomic warfare through the vantage point of senior leaders, and how those views reduced the importance of artillery. It then looks at the restructuring and reorganization of the force and the diminished capabilities due to the changes implemented. This section finishes with the emergence of artillery's role and accompanied doctrine because of those changes. This section concludes at the outbreak of the Korean War, anchoring the anticipation that was prevalent in force on the nature of the next conflict.

Section 3 addresses the emergent role of the artillery resulting from operations in the Korean War and the technological advancement in atomic-capable surface fires. This starts with a view of the preparedness of the force as well as the relevance and effectiveness of the doctrinal approach in the Korean War. It then looks at the adaptation required based on emerging technology and assumptions on future wars, and ends with an analysis of the emergent role and doctrine, including atomic strategic effects, based on lessons from the war and the advent of atomic-capable surface-to-surface artillery fires in anticipation for future war.



The conclusion addresses the future use of anticipation, adaptation, and emergence in the study of doctrinal evolution. This starts with a review of the context for the monograph. It then provides a summary of the case studies, highlighting the evolution of artillery's role. It ends with a stated applicability and relevance to the lenses in the context of studying future doctrinal evolutions.

## **Section 1: Artillery as King: Decisive in Methodical Battle to Decisive, Combined Arms Maneuver 1919-1945**

Following the November 1918 armistice, while many Americans were seeking isolation and a desire for continued peace, the War Department began to capture lessons, and implement changes to the force and doctrine in order to remain prepared for war.<sup>31</sup> This section analyzes the lessons derived from World War I, starting with the contemporary thought on methodical battle and how it influenced and limited the role of the artillery. It then moves into a study of how that role would be placed into action based on the understanding of effectiveness in World War I, and an analysis of the doctrine generated because of these observations and thoughts, describing the anticipated role of the artillery. It then describes the application and adaptation of doctrine in both theaters of the war, and completes with the emergence of new doctrine and the anticipated role of the artillery in future conflict.

The Army's experience in World War I was limited in comparison to their Allied counterparts, however the US Army's experience had reinforced the French tactics of methodical battle. The French had developed a response to the German army offensive strategy, where they utilized firepower to destroy enough of an advancing enemy in an elastic defense in order to then transition to the offense and initiate a methodical advance. The US Army utilized these tactics, focusing on aggressive attacks supported by artillery fire. These front lines would advance behind well-coordinated rolling barrages and preparatory fires, designed specifically to protect the advancing infantry. The intellectual framework of methodical battle resulted in success where the coordination with the artillery "served to increase the effectiveness of the infantry attack, not replace it."<sup>32</sup>

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<sup>31</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 179.

<sup>32</sup> Michael A. Bonura, *Under the Shadow of Napoleon*, 202-212.

Artillery emerged from World War I with a supporting capability that provided a critical role to the infantry as part of methodical battle. The Army's experience of World War I was that "when commanders applied artillery fire correctly, the results were devastating."<sup>33</sup> While success in the war was achieved when there was overwhelming artillery support present, it required careful coordination and planning to properly execute. It took time to move artillery pieces forward as well as thoroughly coordinate the fire support plan, as communication between the infantry and artillery was often non-existent in battle. The only means to communicate were runners and telephone wire, both of which were susceptible to enemy fire and proved to be ineffective at times and often insufficient. A prime example of this experience was the American attack at Cantigny, where the 1st Division's artillery was used in preparatory and rolling barrages that first isolated and destroyed German positions, then maintained a steady rate of fire that hit 100 meters in front of the infantry assault moving forward every two minutes.<sup>34</sup> General Pershing acknowledged this assault as being an example where artillery was "so dense that the enemy was overwhelmed and quickly submerged by the rapid onslaught of the Infantry."<sup>35</sup>

For the artillery, the role of mobility and mass were their essential task and critical to success in methodical battle. This translated into tactics of lining up artillery pieces hub to hub in order to magnify the effect of massed fire.<sup>36</sup> The artillery community used these lessons to develop an anticipation of methodical battle that required a mobile and open warfare mindset categorized by heavily coordinated fires. As a result, the artillery community emphasized the

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<sup>33</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, 120.

<sup>34</sup> *Ibid.*, 120-121.

<sup>35</sup> Pershing, *Final Report of General John J. Pershing, Commander-in-Chief, American Expeditionary Forces*, 51.

<sup>36</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, 121.

need to shift observed fires around the battlefield in order to provide fires for maneuver forces where and when they needed it, while abandoning the thought of employing unobserved fire in future conflicts.<sup>37</sup> The post-war study conducted by the American Expeditionary Forces concluded “all the artillery of the Army should be mobile Field Artillery, organized, trained and habituated to work, in open warfare, with troops of the other arms, and living in close association with them.”<sup>38</sup>

In 1939, the Army published the FM 100-5, *Tentative Field Service Regulation, Operations* maintaining the fundamental elements of methodical battle.<sup>39</sup> It stated the role of the field artillery was to enable the maneuver of the force with the two primary missions. These missions are supporting Infantry and Cavalry by engaging the targets that are the most dangerous to them, and providing depth to the battlefield through “counterbattery fire, by attacking hostile reserves, and by dislocating the enemy’s communication systems and agencies of command.”<sup>40</sup> The 1940 version of the FM 101-5, *Staff Officers’ Field Manual: The Staff and Combat Orders*, afforded the general staff with guidelines for employment of subordinate forces. The manual provides staff a checklist that during the attack and defense the general mission of the artillery was placement in a “locality where mass of fires can be concentrated” and “assignment of support missions.”<sup>41</sup> The verbiage on artillery confined it to the anticipated support role that focused on massing of fires as part of methodical battle.

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<sup>37</sup> Boyd L. Dastrup, *Cedat Fortuna Peritis: A History of the Field Artillery School*, 80.

<sup>38</sup> Cassels, ed., “An Artillery Study Made in the A.E.F.,” 108.

<sup>39</sup> Michael A. Bonura, *Under the Shadow of Napoleon*, 231.

<sup>40</sup> Field Manual (FM) 100-5, *Tentative Field Service Regulation, Operations* (Washington, DC: Government Printing Office, 1939), 10-11.

<sup>41</sup> Field Manual (FM) 101-5. *Staff Officers’ Field Manual, The Staff and Combat Orders* (Washington, DC: Government Printing Office, 1940), 54-58.

Artillery doctrine echoed this anticipation of tactical employment in the 1940 publishing of FM 6-20 *Field Artillery Field Manual Tactics and Technique*. While this manual did not prescribe a specific role for the artillery, it provided tactics and characteristics for employment. It defined artillery tactics in term of positions for the artillery force and supply system that enable the “directing of artillery fire in combat so as to carry out most effectively the mission assigned” with characteristics of “long-range combat” but “limited by its inability to act otherwise than by fire action.”<sup>42</sup> These employment considerations strengthened the methodical battle approach where artillery did not have an anticipated independent role in combat but that it was in a support role against enemy elements, in counterbattery fire, or in a very limited role of distant interdiction and destruction fire.<sup>43</sup> The definitions noted above are located in the third chapter of the FM 6-20, buried behind strictly lower level tactics descriptions. This is critical to understanding the use of the artillery arm, as this manual provided the overarching framework for artillery employment, yet it focuses heavily on small unit tactical actions. This focus on small unit action, coupled with the employment considerations and tactics, reinforced artillery as a supporting capability of the force.<sup>44</sup> Doctrine at multiple levels was responding to the anticipation of methodical battle similar to World War I, with verbiage that anticipated a continuation of the support role for artillery.

While this anticipation of doctrine was developed, the Army began expanding in response to the perceived threat growing in Europe. The field artillery response, aligned with the lessons from World War I, saw the essential role of the artillery was to support the infantry and provide counter-battery fire as the principal mission.<sup>45</sup> Reinforcing this was an understanding that

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<sup>42</sup> FM 6-20, *Field Artillery Field Manual Tactics And Techniques*, 69-70.

<sup>43</sup> *Ibid.*, 118-119.

<sup>44</sup> *Ibid.*, 69-119.

<sup>45</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 208.

“movement and intense fire are the two mediums by which the artillery fills its role; it knows no others.”<sup>46</sup> These observations drove the Army to grow the American field artillery force in response to meet the requirements of methodical battle. When the United States entered the war, the artillery had grown by over four hundred batteries. The force expansion delivered on an understanding that the artillery was critical to providing a response to the growing threat.<sup>47</sup>

While this expansion was occurring, Germany invaded Poland and France in 1939 and 1940, and the German success contradicted the anticipated framework of methodical battle. The US Army attributed the defeats of both countries to the success of the German form of combat, referred to as *Blitzkrieg*. The German approach combined the effects of “air-power, tanks, and the vindicated infantry-artillery combat team” in a way that displayed the inferior nature of the French form of methodical battle and encouraged the US Army to adapt their way of warfare.<sup>48</sup> In observing the German tactics, US artillerymen noted that the role of the German artillery was annihilation of enemy forces as a means to contribute to the victory of the infantry.<sup>49</sup> Reinforcing this role was the observation of the effectiveness of German field artillery tactics, which primarily focused on the silencing of Polish batteries during the German invasion in 1939. In studying the German tactics, artillerymen found resonance in maneuver warfare, observing that for the German artillery movement was the principle element of war and that “only by mobile warfare

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<sup>46</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 208.

<sup>47</sup> *Ibid.*

<sup>48</sup> Michael A. Bonura, *Under the Shadow of Napoleon*, 246.

<sup>49</sup> A. P. Garnier, “The German Artillery in Combat,” trans. by Ralph McT. Pennell, *The Field Artillery Journal* (January – February 1939): 30, originally published as an article in *Le Revue d'Artillerie* (August 1938), accessed February 20, 2016, [http://sill-www.army.mil/firesbulletin/archives/1939/JAN\\_FEB\\_1939/JAN\\_FEB\\_1939\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1939/JAN_FEB_1939/JAN_FEB_1939_FULL_EDITION.pdf).

can any decisive results be obtained.”<sup>50</sup> Again drawing from the German experience prior to the United States’ entry in WWII it was observed that “the artillery is, as it has always been, one of the principal and indispensable arms in attaining that great objective: preparing the road for the victory of the infantry.”<sup>51</sup> These observations resulted in a required adaptation to the anticipated framework of methodical battle.

While the US Army began work on adapting its approach in doctrine, it was developing a more streamlined form of command and control for the artillery. This was a result of the improvements in weapon systems and communications. By 1940, the field artillery community recommended and received concurrence from the General Staff G-3 to rearm Divisional Artillery with the 105mm howitzer in place of the 75mm howitzer for Direct Support missions which focus on supporting infantry and cavalry units. They did this while maintaining the 155mm howitzer battalions with the Division for the General Support role to provide for the Division as a whole.<sup>52</sup> This decision was a result of the need to have a howitzer that “provided a high rate of fire, a projectile more powerful than that of the 75mm gun, good mobility, and a trajectory sufficient to fire over personnel and tanks while in close support.”<sup>53</sup> Additionally, the increased use of radio and telephone on the battlefield enabled the disbanding of headquarters elements that no longer played a role in controlling artillery fire. The Army reorganized the Divisions, dissolving and replacing the multiple regimental artillery headquarters within each with a single Division

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<sup>50</sup> T. L. Crystal, Jr., “The Secret German Weapon,” *The Field Artillery Journal* (June 1941): 400, accessed March 25, 2016, [http://sill-www.army.mil/firesbulletin/archives/1941/JUN\\_1941/JUN\\_1941\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1941/JUN_1941/JUN_1941_FULL_EDITION.pdf).

<sup>51</sup> W. S. Nye, ed., “The Value of Artillery in Modern War,” *The Field Artillery Journal* (May 1941): 288, originally published as an article in *Information Bulletin No. 160* (January 1941), accessed March 25, 2016, [http://sill-www.army.mil/firesbulletin/archives/1941/MAY\\_1941/MAY\\_1941\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1941/MAY_1941/MAY_1941_FULL_EDITION.pdf).

<sup>52</sup> FM 100-5, *Tentative Field Service Regulation, Operations*, 11.

<sup>53</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, 158.

Artillery headquarters that enabled responsive support to maneuver units. Along with the headquarters adjustments, the firing units streamlined their weapons system capabilities to match their redefined role. Each Division's artillery complement went from 4,363 officers and men with seventy-two howitzers to 2,685 with forty-eight howitzers. Despite the reduction in numbers, the streamlining of the force combined with the greater firepower of the weapon systems provided a powerful capability that was more mobile and easier to control.<sup>54</sup>

The Army captured the results of their observations and changes in the force in the FM 100-5, *Field Service Regulations, Operations* published in 1941. This manual was the result of adaptation and codified the new approach to the "tactics of the combined arms."<sup>55</sup> This manual describes artillery as the arm that "contributes to the action of the entire force through the fire support which it renders other arms."<sup>56</sup> While the description of the capabilities and mission remain essentially the same to the 1939 publishing, the major shift away from methodical battle came not in verbiage added to the manual, but in the removed sections. The 1941 manual removed the discussion of the need to centralize control of the artillery at the highest possible level at all times. Rather, this manual advises the commander to "attach artillery to the infantry (cavalry) (armored) units which it is to assist."<sup>57</sup> Further, while it allows for massed groupings of firing units, typified in methodical battle, it describes this method as an exception based on requirement, rather than a prescribed method. For both the Army and artillery the expansion of the force, the improvements in mobility and command and control, and observations of German

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<sup>54</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, 152-160.

<sup>55</sup> Field Manual (FM) 100-5, *Field Service Regulations, Operations* (Washington, DC: Government Printing Office, 1941), ii.

<sup>56</sup> *Ibid.*, 8.

<sup>57</sup> *Ibid.*, 9.



tactics culminated in the adaptation of combined arms maneuver as the new intellectual framework of warfare.<sup>58</sup>

Upon entry into the war, the artillery faced a problem that mirrored the adapted doctrinal approach of combined arms in the European theater. In this theater, artillery primarily focused on the use of massed and counterbattery fires, adopting the support role. For the maneuver forces, while attacking, the primary mission for artillery was to cover assaulting forces, and in the defense it was to provide direct and protection fires. For self-defense, the plan was to rely upon counterbattery fires to neutralize the enemy fire capability, but to do so with less ammunition than was required during World War I because of the increased effectiveness of the weapons and target acquisition.<sup>59</sup> The increased capability of radio communications developed in the Interwar Period enabled observers to communicate with the newly formed artillery fire direction centers. This permitted battalions to distribute their forces across the battlefield, while still enabling synchronization and rapid massing of fires. This use of this technological revolution, coupled with further improvement of self-propelled and towed artillery firing capability during the war, allowed field artillery to adapt their doctrinal assumptions and disperse their firing pieces in order to provide greater protection from counter-battery fire. This initiated the thought of maximizing the use of ammunition and integration into a combined arms approach.<sup>60</sup> These experiences led Major General John Crane to note, “The keynote of all battle experience reports on artillery employment during this time has been flexibility.”<sup>61</sup>

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<sup>58</sup> Michael A. Bonura, *Under the Shadow of Napoleon*, 254.

<sup>59</sup> Bailey, *Field Artillery and Firepower*, 204.

<sup>60</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 197-198.

<sup>61</sup> John A. Crane, “What Makes an Army an Army,” *The Field Artillery Journal* (November 1944): 745, originally published as an article in *The Military Review*, accessed March 26, 2016, [http://sill-www.army.mil/firesbulletin/archives/1944/NOV\\_1944/NOV\\_1944\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1944/NOV_1944/NOV_1944_FULL_EDITION.pdf).

The adapted synergetic relationship between the improvements in weapons and communications coupled with the plan for employment proved to be successful. The lessons observed in the German invasion of France in 1940 combined with subsequent US experience in battle resulted in commanders hailing the effectiveness of the artillery in combat operations. Mobility, flexibility, and adaptability due to motorization and improvements in command and control enhanced the traditional principles of massing artillery fires, producing effective and responsive fire support. During operations in North Africa, Lieutenant General Omar Bradley, commander of II Corps at the time, credited the effectiveness of massed fires with the successful outcome at Gafsa and El Guettar. As the fighting moved into Italy, in the mountains of Cassino, corps and division artillery assets were able to coordinate and mass fires to “hit all known and suspected enemy batteries within sixty minutes.”<sup>62</sup> This enabled an overmatch of the German force in following operations that allowed for Allied artillery to fire between “twenty and thirty rounds for every one the enemy shot.”<sup>63</sup>

On the battlefields of France, artillery remained focused on massed fires to enable maneuver and counterbattery fires. Preliminary fires before that assault demonstrated this tactic, rather than the tactic of a rolling barrage, which was common in World War I. These fires proved successful in the requirement to neutralize the enemy force.<sup>64</sup> The massing of fires, as reported by US Forces, European Theater post-war reports, provided a devastating effect on the battlefield that enabled infantry and armor units to “take objectives without serious loss of life or injury.”<sup>65</sup>

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<sup>62</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 211-215.

<sup>63</sup> Ibid.

<sup>64</sup> Bailey, *Field Artillery and Firepower*, 205-207.

<sup>65</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 226.

In the Pacific theater, the artillery faced a tactical problem with a limited capability to align with doctrine in the applied approach. This resulted in the use of techniques that reinforced the doctrinal approach emphasizing massed fires, but on a smaller scale than was possible in the European theater. Due to restricted maneuver space, the plan in the Pacific was to utilize small fronts and close ranges with the same weapon systems as the European theater, but utilizing massing of fires in order to enable infantry attacks, similar to the doctrinal approach of methodical battle. From the outset of initial combat operations, infiltration and encirclement tactics by the enemy necessitated additional different techniques. The Japanese emphasized the use of these tactics, which required the field artillery to respond with 360-degree firing capability. In this approach, a firing unit would position a battery of guns in formations to allow concentric 180-degree arcs to provide protective fires, limiting the amount of massed fires provided in a specific direction. In addition to the techniques that limited the amount of massed fires, operational planning required artillerymen to account for the density of the foliage and the proximity of the fighting. This resulted in a requirement to utilize high-angle fires in order to achieve the required support. Pre-war doctrine recommended against the use of artillery in jungle environments because of the terrain limitations and the restrictions it placed on firing units. Despite this conflict in doctrine, this adapted form of employment, combined with additional supporting non-artillery fires, was necessary to plan the successful outcome of operations.<sup>66</sup>

The campaign specific techniques in the Pacific paid off, as high-angle fire was ultimately capable of high rates of accuracy and was cited as being demoralizing to the enemy's will. As opposed to the European fronts, commanders often struggled with the requirement to ration ammunition because of ship to shore logistics. While this rarely had an impact on campaigns as units often had enough ammunition for each engagement, it was a cause for concern

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<sup>66</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 226-232.

if operations continued for longer periods or required greater expenditures of ammunition. These techniques in jungle operations provided the link to artillery's doctrine role and enabled planning with continued emphasis on the importance of massing fires to destroy the enemy.<sup>67</sup>

The primary problem artillery faced with their doctrinal approach in the Pacific was the terrain. The battlefields were typically restricted in size, concentrating both action and limiting the ability to maneuver at the same time. In addition to this problem, artillery units had difficulty in finding sufficient space to deploy and move across island battlefields. At times, ammunition resupply required hand-carrying rounds through miles of jungle in order to reach the firing units. The lack of roads also affected movement. Often the assaulting force that the artillery supported was required to build roads on which the artillery would maneuver. The result was a limited ability to provide the amount of fires typified in the European theater. Jungle terrain further obstructed target acquisition and accuracy at longer ranges. This resulted in the smaller-scale and more decentralized operations in order to be effective. Rarely were operations able to concentrate more than 100 guns in an operation, and ammunition expenditures remained small when those numbers were present. Despite efforts by the artillery community to employ the tactics described in the preceding paragraph, artillery simply could not match the firepower produced by naval gunfire and close air support. This caused artillery to play a comparatively minor role in the Pacific theater.<sup>68</sup>

In both theaters of war, field artillery found resonance in the massing of fires to enable maneuver and defeat the enemy. The increased capability of weapon systems and the employment of the fire direction center combined with an increased capability of observers and communication systems enabled the success of massing. The movement of weapon systems

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<sup>67</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 226-232.

<sup>68</sup> Bailey, *Field Artillery and Firepower*, 227-233.

across the battlefield was systematic; artillery followed the advancing force of the infantry and armor, and characterized their contribution to the battlefield by demonstrating superiority in firepower. This success in employment reinforced artillery's role in combined arms maneuver. The artillery community applied these similarities to emergent doctrine and trained in the schoolhouse in a way that recognized the similar tactics, and downplayed the different techniques that were required in the battles of the Pacific.<sup>69</sup>

Because of the fighting in World War II, higher-level doctrine emerged with a response that framed the role of artillery for future conflicts.<sup>70</sup> The FM 100-5, *Field Service Regulations, Operations*, rewritten in 1944, reaffirmed the role of artillery as a supporting arm, but one that is critical to the combined arms fight. It reasserted the two primary missions of the artillery with the same verbiage from the 1941 writing. However, the 1944 manual describes artillery as contributing "to the action of the entire force through the fire support which it renders other arms." The shift from the 1941 publishing was the use of the word "action" in place of "movement." These definitions imply that the role of artillery was no longer one of an arm that enabled the physical changing of location, which was a more typical view from World War I, but rather it is now capable of supporting the process of other arms. Direct supporting fires, counterbattery fires, and long-range interdiction fires achieved this capability. In this way, doctrine anticipated that in future conflict artillery needed to provide the type of combined arms fires it had in World War II, specifically on the European front, because that is where other than direct supporting fires primarily took place, in order to enable the action of other arms in combined arms warfare.<sup>71</sup>

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<sup>69</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 236.

<sup>70</sup> Lauer, "The Tao of Doctrine: Contesting an Art of Operations," 2-3.

<sup>71</sup> Field Manual (FM) 100-5, *Field Service Regulations, Operations* (Washington, DC: Government Printing Office, 1944), 11.

Artillery doctrine again echoed and reinforced the emergence of higher-level doctrine in application of the requirement to enable action and combined arms warfare. In the 1944 FM 6-20 *Field Artillery Tactical Employment* a defined role of the artillery replaced the definition of tactics for the first time. The manual reaffirms the role of field artillery as a supporting arm that “contributes to the action of the entire force by giving depth to combat by counterbattery fire, fire on hostile reserves, fire to restrict movements in rear areas, and fire to disrupt command agencies.”<sup>72</sup> While these words continue on the same line of thought as the FM 100-5, the additional significant change was its location in the FM 6-20. The writers of this manual placed the definition in the first paragraph of the first section, which further goes on to describe the characteristics of the artillery. Additionally, while the 1940 FM 6-20 focused on tactics, the updated version focused on tactical employment. The 1944 version of the FM 6-20 is primarily devoted to the planning and employment of fires in support of combined arms. By doing this, the manual displays a shift in mentality from strictly tactical fires to supporting the action of the force on a broader scale in a limited way.<sup>73</sup> This provides further indication that the European theater shaped the future role of the artillery, as artillery proved capable of completing their combined arms mission in that theater, while it was not able to support the depth of combined arms warfare in the Pacific.

The results of the war shaped artillery doctrine and provided an emergent understanding for anticipation of future wars that focused on combined arms. The key lessons that fed the resulting doctrine started with an understanding that artillery’s capability remained in the support role, providing fires that enable the action of the other arms. While doctrine had a similar approach to both theaters of war, it was only in the European theater that artillery was able to successfully employ and provide depth on a regular basis. This fed the doctrinal response that

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<sup>72</sup> FM 6-20, *Field Artillery Tactical Employment*, 1.

<sup>73</sup> *Ibid.*, 1-5.

anticipated conventional artillery enabled combined arms maneuver through massed fires. The impact that aerial delivered atomic weapons could render on conventional artillery in the future was yet to be determined.

## **Section 2: The King Dethroned: The Artillery Returns to the Barracks 1945-1950**

The signing of the Japanese Instrument of Surrender marked the end of World War II, reverting the military to a peacetime force. What made this war ending different from any previous is that for the first time the United States was not just a super power on the international stage, but the only atomic-capable super power in the world. This section reviews the adaptation of the role of the artillery in the years following World War II, from 1945-1950, which was a result of this new capability.<sup>74</sup> This review focuses on the changes implemented across the force, starting with an analysis of the strategic implications of atomic warfare through the vantage point of senior leaders in the military. It will then look at the restructuring of the force and the resulting capabilities of the changes implemented, and will complete with the doctrinal emergence because of those changes. This section concludes at the 1950 outbreak of the Korean War with the anticipated role of the artillery recognized by the Army as it faced the next conflict.

A new world order had emerged and the United States “stood alone at the top in the West.”<sup>75</sup> The atomic bomb created a new dynamic for both the military and the world, as it “provided the U.S. with an unparalleled advantage over the rest of the world”<sup>76</sup> It was possible that this new technology so drastically changed the nature of warfare, that the atomic bomb could replace artillery fires when facing a concentration of enemy forces. This belief shaped the thoughts of senior leaders both in national strategy and in defense spending. Looking toward the future from this vantage point, American leadership saw an easy answer in air power to solve the

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<sup>74</sup> Lauer, “The Tao of Doctrine: Contesting an Art of Operations,” 2-3.

<sup>75</sup> Jack F. Smith, “Pentomic Doctrine: A Model for Future War,” Monograph, US Army Command and General Staff College, 1994, accessed August 14, 2015, <http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll3/id/1331>, 6.

<sup>76</sup> Paul C. Jussel, “Intimidating the World: The United States Atomic Army, 1956-1960,” PhD diss., School of The Ohio State University, 2004, ii.



strategic problems and responsibilities it now faced.<sup>77</sup> The downsizing of the force and reduction in defense spending combined with Soviet expansionism, enabled air power advocates to make the argument that the Air Force was “the most effective, and the easiest, way to deter the Communist threat.”<sup>78</sup> The Air Force was sidelining artillery in the achievement of long-range fires, leaving behind a chance to link artillery actions to strategic effects. Strategic bombing was not just an Air Force plan; it had become the national plan.<sup>79</sup>

Along with the development of strategic bombing, military force changes and budgetary fights shaped the post-war period. The atomic bomb, delivered by “the B-29 proved to be a successful instrument for achieving strategic and operational goals against Japan in the Pacific,” and would influence the budget provided each service.<sup>80</sup> A reduction in defense spending further required the military to “streamline the armed forces, reduce redundant missions, and increase the efficiency of their operations.”<sup>81</sup> In order to create a more efficient force, on July 26, 1947, President Truman signed into law the National Security Act of 1947 and Executive Order 9877. As a function of this law, the Air Force gained independence from the Army and given responsibility for air operations, and the Army remained responsible only for land operations.<sup>82</sup> This left the artillery as the Army’s only organic method of long-range fires. Complicating this

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<sup>77</sup> Nimps, “Harry S. Truman and the “Revolt of the Admirals,” 11.

<sup>78</sup> Ibid., 27.

<sup>79</sup> Phillip S. Meilinger, “The Admirals’ Revolt of 1949: Lessons for Today,” *Parameters, US Army War College Quarterly*, September 1989, accessed November 19, 2015, <http://www.dtic.mil/dtic/tr/fulltext/u2/a211927.pdf>, 92.

<sup>80</sup> Gerald S. Gorman, “Endgame in the Pacific: Complexity, Strategy and the B-29,” Master’s thesis, US Army Command and General Staff College, 1999, accessed November 19, 2015, <http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll3/id/637>, 40.

<sup>81</sup> Paul R. B. Kennedy, “A Contemporary Analysis of the Revolt of the Admirals,” Master’s thesis, Naval War College, 1994, 3.

<sup>82</sup> Nimps, “Harry S. Truman and the “Revolt of the Admirals,” 29-31.

for the Army was with the destructive power of atomic weapons came a movement of thought that conventional artillery could become obsolete in the future.<sup>83</sup> Because strategic bombing was the economic response to the Soviet threat, it remained the “mainstay of American strategic policy,” and shaped the inter-service budgetary fights that ensued.<sup>84</sup> Simply put, the Army no longer had a fire support capability that by policy or doctrine achieved strategic ends resulting in the Army being left behind in the budgetary wars. As a result, the Air Force and the Navy were the only major players in the battle for the budget.<sup>85</sup>

The impact of a budget based on a policy of strategic bombing affected the Army’s force structure. Downsizing was required due to the post-war drawdown, but further cuts then expected were a result of policy driven budgetary constraints. As a result, the organization became deficient in its capability due to both spending cuts and strength ceilings. By the outset of the Korean War, only one of ten Regular Army divisions was at full strength, with the remainder averaging seventy percent strength.<sup>86</sup> The artillery portion of these cuts resulted in maintaining the fifty-nine active battalions at two-thirds of their combat power. The first part of these cuts occurred with the draw down from the war, concluding in 1946. However, in response to the Cold War with the Soviet Union, a slight growth in force was budgeted for the Army starting in 1948. The Army grew from just over 550,000 to 900,000 by the middle of 1949, with artillery afforded the largest branch increase within the overall expansion.<sup>87</sup>

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<sup>83</sup> Bailey, *Field Artillery and Firepower*, 234.

<sup>84</sup> Nimps, “Harry S. Truman and the “Revolt of the Admirals,” 158.

<sup>85</sup> *Ibid.*, 73.

<sup>86</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, 189-196.

<sup>87</sup> United States Army Field Artillery Center and School, *History of the Field Artillery School, Vol. III, 1911-1967* (Fort Sill: US Army Field Artillery Center and School, 1967), 17-28.

Field artillery, as a branch, had anticipated a return to slow-paced operations following World War II, much as had occurred in the 1920s and 1930s; the impact of these changes resulted in another look at the problem of force structure and organization.<sup>88</sup> Drawing primarily from the review board that the Army established in Europe, the Army implemented recommendations on both Divisional and Non-Divisional Artillery organization. The Divisional structure reinforced the use of a mixture of 105mm and 155mm howitzers, but increased the strength of support by half to infantry divisions and one-third to armored divisions. Non-Divisional Artillery changes also saw an increase in firepower by number of pieces, but did not see an increase in organization of heavy artillery battalions. The artillery also recommended an increase to the number of 8-inch howitzers and 240mm howitzers and realigning the corps artillery headquarters into an artillery division. Budgetary constraints resulted in scrapping these recommendations.<sup>89</sup>

The organizational changes resulted in adaptation of the Army's role due to new assumptions on future engagements. The advent of the atomic age did not leave the Army without purpose. Many leaders in the Army recognized the necessity of ground forces. In commenting on the role of the Army, Lieutenant General Raymond McLain noted, "In many quarters the atom bomb has been termed the absolute weapon. I believe, however, there are ample grounds on which to doubt that it will be the sole determinant of the outcome in future battle."<sup>90</sup> While a policy of strategic bombing was both an economical response and capable of initially blunting the Soviet threat, it was not able to achieve a victory on the ground, only surface forces were capable of that. Further reinforcement of this came from Secretary of Defense James Forrestal, who believed that "airpower and atomic weapons would have little use in peacekeeping or

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<sup>88</sup> Boyd L. Dastrup, *Cedat Fortuna Peritis: A History of the Field Artillery School*, 131.

<sup>89</sup> United States Department of the Army, *The Organizational History of Field Artillery 1775-2003*, 189-196.

<sup>90</sup> McLain, "The Army's Role: A 1949 Perspective," 11.

conventional roles.”<sup>91</sup> While Air Power emerged as a major factor in battle, weapons such as “the proximity fuze, the jet fighter, radar, mechanical aiming devices, and the like” could neutralize its effectiveness.<sup>92</sup> McLain would further comment that the role of the Army required ground forces to achieve strategic ends and that “warfare particularly requires ground troops trained in what might be called the more ancient weapons.”<sup>93</sup>

Because there was still a need for the Army to provide the winning force in the war, the Army had to provide the fires required for that fight. While the air campaign served “as an equalizer to the hordes of enemy troops that greatly outnumbered our own,” the artillery had historically provided the final blows.<sup>94</sup> In prior conflict, artillery, “the modern counterpart of the ancient catapult,” contributed a proportion of success to Allied victory that “without which the entire ventures would have failed.”<sup>95</sup> Because of this, the Army would not abandon the artillery as “to scorn the old weapon simply because it is old invites defeat at the critical junctures.”<sup>96</sup> The echo of these sentiments could be found in *The Field Artillery Journal*, with one author noting:

The decisive factor in battle will continue to be fire power, whether that power be delivered by the long-bow, the 8-inch howitzer, or the rocket-propelled missile, and that it will continue to be necessary to gain supremacy over the enemy fire power, to isolate the battlefield, and to assist the assault forces to close with and destroy the enemy.<sup>97</sup> The Army believed that Air Power did not answer the need for a strategic striking capability because aircraft were so vulnerable to surface to air threats and its lack of availability due to

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<sup>91</sup> Nimps, “Harry S. Truman and the “Revolt of the Admirals,” 41.

<sup>92</sup> McLain, “The Army’s Role: A 1949 Perspective,” 10-11.

<sup>93</sup> *Ibid.*, 11.

<sup>94</sup> Meilinger, “The Admirals’ Revolt of 1949: Lessons for Today,” 92.

<sup>95</sup> McLain, “The Army’s Role: A 1949 Perspective,” 10.

<sup>96</sup> *Ibid.*

<sup>97</sup> Devere Armstrong, ed, “Artillery Tactics,” *The Field Artillery Journal* (July-August 1947): 247, accessed February 20, 2016, [http://sill-www.army.mil/firesbulletin/archives/1947/JUL\\_AUG\\_1947/JUL\\_AUG\\_1947\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1947/JUL_AUG_1947/JUL_AUG_1947_FULL_EDITION.pdf)

“adverse weather, enemy air superiority, or assignments on other missions from higher headquarters.”<sup>98</sup> This commentary shows that artillery needed to provide the fires that the Army required to influence the course of combat and win the war.

These new views on the role of the Army and artillery provided the foundation to adapt doctrine. However, based on the Interwar Period, the artillery community had a historically based understanding that “doctrinal change based on new technology will be modest.”<sup>99</sup> A focus on reorganization and a lack of experimentation on new artillery technology reinforced this understating. As General S.L.A. Marshall noted, “In the wake of World War II, there was no thorough reexamination of the role and requirements of heavy artillery in future war.”<sup>100</sup> Artillery had reorganized based on post-war impacts, but had not developed a new capability. As a result, the adaptation of doctrine remained focused on the combined arms maneuver battle experience of World War II and provided a response to the way the impact of aerial delivered atomic weapons reduced the role of the artillery.

The impacts of the draw down of the force and the focus on strategic bombing became the focus for doctrinal adaptation. The Field Artillery community published a new the FM 6-20 *Field Artillery Tactics And Techniques* in 1948. In this printing, the artillery blended aspects of the prior manual, removing the definition of the role of the artillery and replacing it with characteristics and missions. The characteristics tactically limited the artillery, defining it as “a supporting arm and is not capable of independent action,” but addresses artillery’s role as a

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<sup>98</sup> Nels A. Parson, Jr., “Guided Missiles – The Artilleryman’s Answer,” *The Field Artillery Journal* (May-June 1949): 112-113, accessed February 20, 2016, [http://sill-www.army.mil/firesbulletin/archives/1949/MAY\\_JUN\\_1949/MAY\\_JUN\\_1949\\_FULL\\_EDITIO N.pdf](http://sill-www.army.mil/firesbulletin/archives/1949/MAY_JUN_1949/MAY_JUN_1949_FULL_EDITIO N.pdf).

<sup>99</sup> McMeen, “Field Artillery Doctrine Development 1917-1945,” 78.

<sup>100</sup> United States Army Material Systems Analysis Agency, *On Heavy Artillery: American Experience in Four Wars*, 10.

contributor to winning the war by further stating that artillery is “a powerful means of influencing the course of combat.”<sup>101</sup> The defined missions reinforce this:

- a. It supports infantry (armored) units by fire, neutralizing or destroying those targets which are most dangerous to the supported arms.
- b. It gives depth to combat by counterbattery fire, by fire on hostile reserve, by restricting movements in rear areas, and by disrupting hostile command agencies.<sup>102</sup>

This focus on combined arms maneuver battle was a result of post-war thought that had embraced the success in the European theater, and limited approach in the Pacific theater. Reinforcing this in *The Field Artillery Journal*, one author noted that, “we thus lose sight of the fact that what might have been the "ideal" way to cope with the Japs might be far from the most efficient way to cope with our next adversary.”<sup>103</sup> He further notes, “we also have a tendency at times to forget that those tactics and techniques we saw succeed so frequently were being applied against a particular enemy, with peculiar characteristics, and under a certain set of conditions.”<sup>104</sup> The FM 6-20 reinforces this thought on combined arms and depth throughout the remainder of the manual in the tactical actions prescribed, with only minor referencing to anything other than the tactical actions that occurred in the European theater.

The FM 100-5, *Field Service Regulations – Operations*, published in 1949, also provided an emergent response to both the impact of atomic weapons and the restructuring of the force that occurred in 1948. In the Forward to the manual, the Army recognized that the militaries it faced would likely respond to the atomic threat through “increased dispersion to reduce casualties.”<sup>105</sup> It

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<sup>101</sup> FM 6-20, *Field Artillery Tactics and Techniques*, 2.

<sup>102</sup> *Ibid.*, 2-3.

<sup>103</sup> Leo B. Shinn, “Stop Fighting The Japs,” *The Field Artillery Journal* (September 1946): 529, accessed February 20, 2016, [http://sill-www.army.mil/firesbulletin/archives/1946/SEP\\_1946/SEP\\_1946\\_FULL\\_EDITION.pdf](http://sill-www.army.mil/firesbulletin/archives/1946/SEP_1946/SEP_1946_FULL_EDITION.pdf).

<sup>104</sup> *Ibid.*

<sup>105</sup> Field Manual (FM) 100-5, *Field Service Regulations – Operations* (Washington, DC: Government Printing Office, 1949), v.

further identifies that this effect “forms the basis for new tactical doctrine,” and initially responding to the change in force structure by providing that “within the scope of existing tactics and doctrine, ground launched guided missiles extend the range and power of artillery.”<sup>106</sup> This was a reflection that land based fires were the only organic long-range fires within the Army arsenal. As such, the scope of the focus on artillery shifted dramatically in this manual.

In the FM 100-5 of 1949, the discussion of artillery not only grew compared to prior printing, but it also takes up approximately four times the amount of discussion space provided to any other branch. The role of the artillery was no longer described as a contributor to maneuver, but was rewritten as the “principle arm of fire support.”<sup>107</sup> While the mission described for the artillery remained unchanged from the 1944 version, this issuing describes the characteristics of fires is to compel “hostile troops in the open to adopt widely deployed formations and has adverse morale effects.”<sup>108</sup> It further states, “Through the maneuver of artillery fire, commanders possess a powerful means of influencing the course of combat.”<sup>109</sup> This provides an anticipation for Army fires to an impact greater than immediate tactical effect, and a greater than tactical capability.

Following the explanation of the overarching role and mission of the field artillery, the 1949 FM 100-5 proceeds to describe the specific roles of the field artillery at different levels. In this publishing, the principle mission of Divisional Artillery is “support by fire on those targets which interfere with the execution of the mission of the supported units,” and to “assist corps artillery in counterbattery.”<sup>110</sup> Corps Artillery was provided the mission of “support the action of the corps” through fires “beyond the range or power of the division field artillery” in order to

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<sup>106</sup> FM 100-5, *Field Service Regulations – Operations*, vi.

<sup>107</sup> *Ibid.*, 9.

<sup>108</sup> *Ibid.*

<sup>109</sup> *Ibid.*

<sup>110</sup> *Ibid.*, 9-10.

neutralize or destroy enemy artillery, reserves, command and control, or installations.<sup>111</sup> The manual then continues by describing the role of General Reserve Artillery, as a force that is “available as a pool of allotment to theaters, army groups, armies, or task forces, according to their needs.”<sup>112</sup> *The Field Artillery Journal* provides commentary for an understanding of these missions as they apply to the course of combat:

Many targets once considered strategic because of their distance behind the enemy lines are actually tactical. The dividing line between tactical and strategic targets is that line on the battlefield beyond which no activity normally has an immediate or direct bearing on the battle. This line is progressively moving farther from the front as weapons improve.<sup>113</sup>

These descriptions anticipate that large forces of artillery will be used on the battlefield, with effects greater than simply contributing to maneuver, and further that the tactical actions of the artillery achieve a strategic impact as their lines between the two become blurred.<sup>114</sup>

By the 1950 outbreak of the Korean War, the Army had gone through a period of adaptation because of the changes in the military force structure, the strategic implications of atomic warfare, and the resulting capabilities of Army. Strategic bombing had become the national plan for strategic action. The air campaign was now to “serve as an equalizer to the hordes of enemy troops that greatly outnumbered our own,” and the Army ground forces reduced to providing the final blows.<sup>115</sup> This left the Army out of the battle for the budget, which instead was focused the Air Force and the Navy. As a result, Army organizations became deficient in their capability due to defense spending cuts and strength ceilings. The Army and the artillery community responded by remaining focused on a combined arms maneuver and providing a

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<sup>111</sup> FM 100-5, *Field Service Regulations – Operations*, 10-11.

<sup>112</sup> *Ibid.*, 11.

<sup>113</sup> Parson, “Guided Missiles – The Artilleryman’s Answer,” 112.

<sup>114</sup> *Ibid.*

<sup>115</sup> Meilinger, “The Admirals’ Revolt of 1949: Lessons for Today,” 92.



response to the impact of aerial delivered atomic weapons by increasing focus on the role of the artillery. Doctrine reinforced the focus on combined arms and depth throughout this doctrinal evolution, grounded in the experiences in European theater, where artillery alignment with doctrine had been so prevalent. Despite budgetary constraints that limited the capability of the artillery, the emergence of a new focus in doctrine provides anticipation that Army fires provide a powerful contribution to winning the war through tactical action. These descriptions anticipate large forces of artillery on the battlefield are capable of effects greater than simply contributing to maneuver. Finally, the requirement to achieve this effect coupled with the downsizing of the force provided anticipation that the force size would expand in order to fulfill these missions in the next conflict.

### **Section 3: The Return of the King: Decisive in Korea to the Atomic Effect 1950-1954**

The invasion of South Korea by North Korea on June 25, 1950 and the initial US military response that started two days later marked the official transition from a peacetime force to a military that was once again at war. This transition tested the anticipated role of the Army that occurred in the years following World War II. This section addresses the adaptation and emergence of the Army's role and doctrine because of operations in the Korean War from 1950-1954.<sup>116</sup> These lenses view the relevance and effectiveness of the Army's role and doctrinal approach in the Korean War. It then looks at the changes required based on emerging technology and assumptions on future wars, and completes with the emerging role of the Army and the doctrine associated with that role based on the advent of atomic capable surface to surface artillery.

Two days after North Korea's invasion, the US entered the Korean War using the only force that could affect the Korean People's Army (KPA), the Air Force; a recognition of the utility of the policy of strategic bombing. While F-82s and F-80s fought for air superiority, B-26s and B-29s began to bomb rail lines and KPA units. The effects of these initial attacks were minimal on the ground, despite the ability to quickly gain air superiority in the sky. The limiting factor for the initial campaign was the fact that pilots had great difficulty in both seeing and hitting ground targets. While the fight for air superiority was quickly dominated by the Air Force, the inability to identify and transmit targets to the Air Force in a timely manner resulted in the flying of armed reconnaissance flights over likely KPA routes, "hoping to find a target."<sup>117</sup> The policy of strategic bombing did not produce the desired result of swaying that initial battle in the anticipated way.<sup>118</sup>

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<sup>116</sup> Lauer, "The Tao of Doctrine: Contesting an Art of Operations," 2-3.

<sup>117</sup> Millett, *The War for Korea, 1950-1951: They Came From the North*, 130.

<sup>118</sup> *Ibid.*, 128-135.

The first US ground force to fight the KPA in the Korean War was a battalion task force from the US 21st Infantry, named Task Force Smith. Task Force Smith was deployed on the Korean peninsula on 1 July, with a doctrinal approach of a mobile defense, intended to slow a numerically superior enemy's forward movement by making contact, but withdrawing prior to becoming decisively engaged. Facilitating this task force was a battery of six 105mm howitzers. The task force moved into position to engage the advancing KPA force on July 5th, despite the fact that rains prevented air support coverage. Utilizing a doctrinally correct method, the task force engaged the KPA force with an artillery barrage two thousand yards in front of the maneuver force. The task force employed concentrated artillery fires and anti-tank fires from the maneuver force. In spite of this tactic, the KPA T-34s drove through the barrage, decisively engaging the task force, and ultimately causing the task force to lose 40% of its strength to casualties or capture. The inflicted losses forced the task force to retreat, leaving behind disabled or destroyed artillery pieces. Over the next week, three infantry and two artillery battalions from the 24th Infantry Division conducted similar delaying actions, with similar results.<sup>119</sup>

In the opening days of the war, General MacArthur, drawing on his experience in prior wars, requested more artillery to provide the firepower required to defeat the KPA. In this phase of the war, "the lack of artillery was a serious problem for the United Nations Forces."<sup>120</sup> His response to this problem was a request for eleven 105mm batteries to augment the existing battalions that he had on hand. The intent of this request was to fill in the ranks of the divisions' artillery batteries. At the outset of fighting, the batteries he had on hand consisted of four guns per battery, below the table of organization and equipment requirement of six howitzers. In addition, he requested fifteen non-divisional artillery battalions to provide the additional long-range fires that doctrine describes. At the time, the Army maintained eleven of these battalions, and provided

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<sup>119</sup> Millett, *The War for Korea, 1950-1951: They Came From the North*, 135-139.

<sup>120</sup> Gundmundsson, *On Artillery*, 144.

him with four. Based on his prior wartime experience, he believed that artillery firepower would be the key to launch offensive operations. He knew the request extended beyond the current strength of the Army, but he based the request in prior experience that the US would mobilize more forces in a time of war. Without this mobilization, the US lacked the required firepower to stop the KPA.<sup>121</sup>

While General MacArthur made these requests, the field artillery units engaged with the KPA were learning lessons about the gaps in their doctrine when dealing with enemy infiltration tactics. Because the KPA understood the effects that concentrated artillery fire could have on their operations, the KPA began using tactics that would neutralize the firing units. Using infiltration techniques specifically targeting batteries, the KPA would engage these units with machine gun and mortar fire in an effort to first disrupt their operations, and then overrun the firing point, “inflicting staggering losses at a time when field artillery was scarce.”<sup>122</sup> In the first nine months of the war, these tactics caused field artillery units to “destroy or abandon their own guns on nearly a dozen occasions.”<sup>123</sup> Recognizing that there would not be traditional front lines on this battlefield, artillerymen adapted to the necessity to not only man their howitzer, but also defend their position. They additionally began to group their positions to both be mutually supporting and provide 360-degree security, something not required since the Pacific theater in World War II, where Japanese encirclement tactics had required batteries to erect perimeter defenses.<sup>124</sup>

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<sup>121</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 252-254.

<sup>122</sup> *Ibid.*, 255.

<sup>123</sup> D. M. Giangreco, “Artillery in Korea: Massing Fires and Reinventing the Wheel,” Master’s thesis, US Army Command and General Staff College, 2006, accessed August 14, 1015, <http://cgsc.contentdm.oclc.org/cdm/ref/collection/p16040coll3/id/35>, 1.

<sup>124</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 255.

The fighting throughout the remainder of the war reintroduced several other tactical lessons from the Pacific theater in World War II and required further adaptation by the force. By August, United Nations forces had built up enough strength to go on the offensive, where field artillery was able to implement tactics that found resonance in their current doctrine. The artillery cleared paths for advancing infantry and armor in a combined arms manner as they drove the KPA north on the peninsula. However, ammunition shortages resulted in prioritization of fires that supported maneuver, and forced coordination with tactical air and naval gunfire to fill gaps in coverage. This form of synchronization, conducted by artillery commanders was common in the Pacific theater in World War II, and once again displayed relevance of a tactic that was not present in doctrine. Once the conflict reached a more static nature, the fight amplified the significance of artillery's role. While the massing of fire has the required effect on the battlefield, it also strained supply lines. Despite complimenting these fires with naval and air support, in order to maintain the required barrages, commanders remained concerned that they needed more artillery and in heavier calibers in order to repel offensive actions and achieve the effect of destroying the enemy artillery. This requirement had a significant role in the shaping future modernization of artillery.<sup>125</sup>

By late 1951, the Army began to recognize faults in their assumptions on future wars, and the requirements placed on the artillery shaped the design of new weapon systems. While the artillery was able to mass fires in a timely manner, effectively outshooting their enemy gun for gun, the problem of mass once again entered the equation. The artillery simply needed more howitzers that were capable of providing greater explosive charges in order to inflict the required damage on the enemy. This need influenced the Army to accelerate the testing and development of atomic capable tube and missile artillery. The concept of atomic capable artillery

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<sup>125</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army's Field Artillery*, 256-260.

revolutionized artillery warfare to the point that “leaders were highly optimistic about emerging technology and energetically pursued systems such as atomic weapons and guided missiles.”<sup>126</sup> It extended the range of the field artillery, and provided an atomic effect controlled by the Army, aiding commander’s ability to stop ground reserve forces before they engaged in the main attack and disrupting lines of communication deep in the enemy rear. General Earle Wheeler, the Director of Plans for the Army, noted, “The rocket formed the backbone of the Army’s tactical atomic missile system and presented a grave atomic threat to a hostile force.”<sup>127</sup> The Korean War ended before the introduction of atomic artillery on the battlefield, but this technological revolution had an impact on doctrine and the role of the Army. With this capability, each of the military services became atomic capable, resulting in the emergence that “ground fighting would take place in the future and that tactical atomic weapons could decide the outcome of the next war.”<sup>128</sup> Further, the emergent role of the artillery anticipated that in the future it would be possible to conduct “limited war fought with judiciously employed atomic weapons and relatively small troop commitment.”<sup>129</sup>

These lessons and understanding were clear in the artillery community, and shaped the branch doctrine as a result. Artillery had “learned the hard way that the Korean War wasn’t the same battlefield as was found in World War II,” finding that “seldom was the front line

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<sup>126</sup> Bart Howard, “Army Transformation 1953-1961: Lessons of the “New Look” Army,” Master’s thesis, US Army War College, 2004, 1.

<sup>127</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army’s Field Artillery*, 260.

<sup>128</sup> *Ibid.*, 258-266.

<sup>129</sup> Wallace C. Magathan, Jr., “How New Would A Modern War Be?,” *Military Review* (December 1956): 16, accessed February 19, 2016, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p124201coll1/id/750/rec/5>.

determined by positions being tied into adjacent units to the left and right.”<sup>130</sup> The FM 6-20 *Artillery Tactics and Technique*, published in 1953, reflected the emergence of these lessons on doctrine. The limitations of the force that occurred between the wars and the heavy focus on combined arms maneuver from World War II had resulted in an initial diminished capability of the artillery in their ability to provide an effect that altered the course of combat while providing for their own safety. The doctrinal response was a more encompassing manual, addressing echelons above the battalion with an expanded role as well as a tactical response to enemy infiltration tactics; it did this by addressing missions and capabilities of the artillery and incorporating a section on security. As in the 1948 FM 6-20, the 1953 manual once again provided two missions for the artillery, but this time changed portions of both:

- (1) It supports the other arms by fire, neutralizing or destroying those targets which are the most dangerous to the supporting arms.
- (2) It gives depth to combat and isolates the battlefield by counterfire, by fire on hostile reserves, by restricting movement in rear areas, and by disrupting hostile command facilities and other installations.<sup>131</sup>

By combining this mission with the understanding that “atomic fire power is the greatest casualty producer,”<sup>132</sup> artillery recognized their link as an atomic capability and a contributor to combined arms maneuver. This manual provides further incorporation of atomic fires stating that, “the tactical advantage gained through the use of atomic weapons should be fully and expeditiously exploited through maneuver.”<sup>133</sup> Finally, the recognition that firing units would need to provide specific security in order to maintain effective artillery fire provided the response to an enemy

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<sup>130</sup> Robert A. Why, “The Evolution of Fire Support Doctrine was Driven by Airmobile Doctrine and New Weapon Systems during the Vietnam War,” Master’s thesis, US Army Command and General Staff College, 2004, accessed August 14, 1015, <http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll2/id/244>, 27.

<sup>131</sup> FM 6-20, *Artillery Tactics and Technique*, 5.

<sup>132</sup> *Ibid.*, 128.

<sup>133</sup> *Ibid.*, 5-6, 121.

that recognized the strategic importance of the artillery.<sup>134</sup> This emergence underscored the evolution of doctrine following World War II, and displayed a more comprehensive anticipation of future combat.

These lessons from the Korean War and the development of new technology impacted more than artillery doctrine, it also resulted in an emergence of a capstone doctrinal response. The FM 100-5, *Field Service Regulations, Operations*, published in 1954, established a new focus on the use of artillery. Similar to earlier publishing, the FM describes each of the individual branches, once again dedicating more space for the description and roles of the artillery than any other branch of service. While the 1949 publishing had described it as a branch that is “a powerful means of influencing the course of combat,”<sup>135</sup> and thus linked the branch to larger than tactical actions, the 1954 publishing provided the link to artillery as the Army’s atomic arm. It describes the capability of the branch as follows:

Field artillery (including its atomic capability) provides the commander with a powerful means of rapidly influencing the course of combat. It gives depth to combat by counterfire and by fire on hostile reserves and rear installations; it assists in the isolation of the battlefield by restricting movement in rear areas and by disrupting hostile command, control, and transportation facilities. Massed fires can neutralize or destroy enemy positions and create temporary barriers to enemy movement.<sup>136</sup>

By describing artillery’s capability in this way, the Army recognized that Strategic Air Command was not “the sole military agency concerned with the offensive use of atomic weapons.”<sup>137</sup> When combining this with the characteristic of “flexibility and great volume of accurate fire power,”<sup>138</sup> and the lack of a description of any other branch that includes an impact on the deep fight,

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<sup>134</sup> FM 6-20, *Artillery Tactics and Technique*, 53.

<sup>135</sup> FM 100-5, *Field Service Regulations – Operations*, 9.

<sup>136</sup> Field Manual (FM) 100-5, *Field Service Regulations, Operations* (Washington, DC: Government Printing Office, 1954), 17.

<sup>137</sup> Reinhart, “Notes on the Tactical Employment of Atomic Weapons,” 29.

<sup>138</sup> FM 100-5, *Field Service Regulations, Operations*, 16.



doctrine anticipated the powerful effect of long-range atomic fires to the outcome of the war.<sup>139</sup> Fundamentally, the concept of fire and maneuver had not changed since the time of Napoleon, but with the introduction of atomic artillery, artillery became an arm whose fires were an instigator of, not an aid to, maneuver.<sup>140</sup>

This section addressed the emergence of artillery as an atomic capable arm and the resulting change in doctrine because of operations in the Korean War. It looked at the changes required based on emerging technology and new assumptions on future wars. The policy of strategic bombing did not produce the desired result of swaying that initial battle in a way that doctrine described before the war. When initial forces retreated, it reinforced the need to mobilize in a way that doctrine anticipated. This mobilization provided the firepower necessary to stop the KPA. Throughout the fighting, the additionally mobilized forces relearned the lessons of mutual supporting and 360-degree security, something not required since the Pacific theater in World War II. Despite the added numbers and relearned tactics, commanders still recognized that they needed more artillery and in heavier calibers. This requirement shaped the modernization of the artillery to include an atomic capability. This capability enabled atomic commands to operate in “incomparably greater dimensions than the conventional army corps of the ground forces” that the Army had known in the past.<sup>141</sup> While the Korean War ended before the introduction of atomic artillery on the battlefield, it still had an impact on artillery’s role and doctrine. With this new capability, the Army became atomic capable, enabling it to anticipate that “ground fighting would take place in the future and that tactical atomic weapons could decide the outcome of the

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<sup>139</sup> FM 100-5, *Field Service Regulations, Operations*, 13-24.

<sup>140</sup> Reinhart, “Notes on the Tactical Employment of Atomic Weapons,” 29.

<sup>141</sup> F.O. Miksche, “Atomic Defense,” *Military Review* (July 1955): 26, accessed February 19, 2016, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p124201coll1/id/760/rec/1>.

next war.”<sup>142</sup> This resulted in the emergence of the artillery’s role as an atomic capability and a contributor to combined arms maneuver, underscoring the insufficiency of the anticipation following World War II, and displaying a more comprehensive anticipation for future combat described in doctrine through long-range conventional and atomic fires.

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<sup>142</sup> United States Army Training and Doctrine Command, *King of Battle: A Branch History of the U.S. Army’s Field Artillery*, 258-266.

## Conclusion

The obvious lesson seems to be: do not abandon past experience lightly. Things that worked well in the past will generally provide a sound basis for building future doctrine. To be sure, doctrine developers must try to anticipate the effects of technological change, and update doctrine accordingly. They must not rigidly adhere to previous experience when faced with new conditions. But basic doctrinal principles, it appears, retain their validity for some time, even in light of great technological change.

—Scott R. McMeen, “Field Artillery Doctrine Development 1917-1945”

The lenses of anticipation, adaptation, and emergence provide context for the evolution of artillery’s role and doctrine as it evolved during the periods of conflict described in the previous sections. This monograph examined this problem through a chronological historical case study of US Army Field Artillery doctrine from 1919-1954 using the lessons derived from World War I during the Interwar Period, the European and Pacific Theater experiences in World War II, the subsequent post-war period, and the Korean War. This analysis focused on the FM 6-20 *Artillery Tactics and Technique* and the FM 100-5 *Field Service Regulations*, and the evolutions that those documents went through from 1939 to 1954. By utilizing these overarching doctrines and examining the circumstances that affected them, an understanding of the role of the artillery emerges. This understanding developed through analyzing the assumptions originally made and how they influenced the effectiveness of the artillery in performing its doctrinal role.<sup>143</sup>

The first section analyzed the emergent anticipation applied to doctrine following World War II. At the time, the Army utilized the prior experiences and the lessons most applicable from the war to make assumptions about future engagements as part of the transition into superpower status.<sup>144</sup> This emergence shaped the role of artillery and its doctrine in a way that recognized the transition away from methodical battle to the framework of combined arms warfare as the focus of future wars. This lesson resulted in the understanding that artillery’s role was to serve in

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<sup>143</sup> Lauer, “The Tao of Doctrine: Contesting an Art of Operations,” 2-3.

<sup>144</sup> Ibid.

tactical support, enabling the action of the other arms. Artillery derived this understanding from the successful employment and depth provided in the European theater. The understood role and doctrinal response stipulated conventional artillery was to enable combined arms warfare through massed fires, flexibility, and mobility. At that point, the impact that aerial delivered atomic weapons rendered on conventional artillery in the future did not affect doctrine.

The next section analyzed the emerging of a new role for artillery and changing doctrine due to an adaptation of assumptions on future engagements because of the changes in the military force structure, the strategic implications of atomic warfare, and the resulting capabilities of Army.<sup>145</sup> Strategic bombing was the national plan for strategic action. The plan of the air campaign was to “serve as an equalizer to the hordes of enemy troops that greatly outnumbered our own,” enabling doctrine to remain focused on the combined arms and increasing the focus on the role of the artillery.<sup>146</sup> The focus on the combined arms maneuver from the European theater of World War II, where artillery had been so prevalent, reinforced and grounded this line of thought. Despite a reduction in capability, the new verbiage provided anticipation that Army fires create a powerful impact through their tactical capability. However, when combined with the reduction of the force, an understanding thin order to fulfill this role, a force expansion was required at the start of the next conflict.

The third section of this monograph analyzed artillery’s emergent role, reconciling the doctrinal assumptions and capabilities because of the Korean War and advent of atomic capable artillery. This emergence of new understating and doctrine was a reflection of the conditions in the conflict that both confirmed or denied the assumptions and anticipation before the conflict.<sup>147</sup> The policy of strategic bombing did not produce the desired results in the initial battle in a way

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<sup>145</sup> Lauer, “The Tao of Doctrine: Contesting an Art of Operations,” 2-3.

<sup>146</sup> Meilinger, “The Admirals’ Revolt of 1949: Lessons for Today,” 92.

<sup>147</sup> Lauer, “The Tao of Doctrine: Contesting an Art of Operations,” 2-3.

that doctrine described. When initial forces retreated, the lack of mobilized artillery to provide the firepower necessary to stop the KPA countered the doctrinal assumption on mobilization. Throughout the fighting, artillery forces relearned lessons of mutual support and 360-degree security, lessons from World War II that were not maintained in doctrine. The need for more powerful artillery effects drove changes in modernization resulting in atomic artillery capability, further influencing emergent doctrine. This emergence displayed the insufficiency of the anticipation following World War II, and provided a more comprehensive response for the future. The result was overarching doctrine that anticipated artillery role as an atomic capability and a contributor to combined arms maneuver through long-range conventional and atomic fires.

With the lenses of anticipation, adaptation, and emergence, context for the evolution of doctrine as it evolves during and following a period of conflict is applicable for future study.<sup>148</sup> This monograph examined this problem and found that expansion of influence on a global scale was not a driving force in shaping doctrinal decisions following World War II. Instead, the Army focused on the lessons that provided resonance to already established doctrine and procedures, and it did so in a way similar way to how it had updated doctrine following previous conflicts. By not including tactics derived from the Pacific theater in doctrine, as well as failing to account for emerging technologies and force structure changes, the Field Artillery was not able to provide their doctrinal effects at the outbreak of the Korean War. As McMeen notes, the military “must not rigidly adhere to previous experience when faced with new conditions” as it faces doctrinal evolutions in the future.<sup>149</sup>

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<sup>148</sup> Lauer, “The Tao of Doctrine: Contesting an Art of Operations,” 2-3.

<sup>149</sup> McMeen, “Field Artillery Doctrine Development 1917-1945,” 77.

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