During the 1930s and early 1940s, the U.S. Army's field artillery experienced a profound change. Throughout these years limited budgets compounded by conservative thinking within the field artillery, especially after 1933, influenced the pace of modernization. Nevertheless, the field artillery motorized its field pieces, revamped fire direction, reorganized, and rearmed to improve close support for the other combat arms.

After a decade of limited progress in the 1920s with modernizing the field artillery, Maj. Gen. Harry G. Bishop, Chief of Field Artillery (1930-1934), took aggressive action to rearm and reequip. At the general's urging the War Department directed the Field Artillery Board in 1931 to test four M1897 75-mm. guns with carriages that had been adapted for high-speed movement by replacing their wooden wheels with steel wheels with pneumatic tires. After conducting trials between May 1932 and March 1933, the Board recommended employing trucks as prime movers for light artillery and testing a battalion of towed 75-mm. guns. Although the lack of funds caused by the Great Depression prevented the battalion trial, Bishop accepted the results of the battery test as evidence that light trucks were acceptable for towing light artillery for the division. Even though the specific type of vehicle to be used was unsettled in 1933, Bishop concluded that the War Department could not avoid adopting towed artillery as it had done since the late 1920s by using the rationale that suitable motor vehicles did not exist.1

General Bishop's prompting, a declining horse population in the United States, a grant from the Public Works Administration (PWA) to increase motorized equipment in the National Guard and Regular Army, and a modernization program initiated in 1933 by the Chief of Staff, General Douglas MacArthur (1930-1935), combined to encourage the War Department to motorize its light artillery. Still reluctant to depend totally on motor vehicles as prime movers, the War Department estab-
lished the goal of motorizing 50 percent of its light batteries to complement its medium and heavy batteries, which had been motorized in the 1920s. As an expedient, the War Department adapted old M1897 carriages for towing behind a truck until a new carriage could be developed. Supported by funds from the PWA, the War Department standardized a new carriage with pneumatic tires, antifriction bearings, and springs in 1936 to give the 75-mm. gun two types of carriages—a modified M1897 carriage and a modern one. Even though lingering resistance from conservative field artillery officers slowed down progress, the War Department motorized fifty-eight of its eighty-one M2 75-mm. (modernized French M1897) gun batteries by 1939 and even produced an experimental towed M2 105-mm. howitzer.2

In comparison, leadership within the field artillery continued to oppose introducing self-propelled artillery. As they had done during the 1920s, many field artillery officers contended throughout the 1930s that towed artillery was more maneuverable, less conspicuous, and less likely to be deadlined for repairs than self-propelled artillery and could be pulled by horses if necessary. Simply put, adopting self-propelled artillery represented an even more radical step than acquiring towed artillery and was resisted.3

Just as World War II was beginning, Maj. Gen. Robert M. Danford, Chief of Field Artillery (1938-1942), expressed the feelings and fears of many field artillery officers about motorization. In a lecture in September 1939 to Army War College students, he explained that the motor surpassed the horse in some situations, while the horse was better in others. He explained, "For light division artillery, the horse still remains superior as the prime mover off roads, through the mud, the darkness and the rain. ... To discard him during peace in favor of the motor, 100 per cent, is simply putting all our eggs in one basket, and is, in my judgment, an unsound policy."4

Although Danford hesitatingly accepted motorization, he hoped to preserve some horse-drawn light artillery. For the general, motorizing all was too risky because motor vehicles were still unproved in combat and because motorizing the field artillery meant abandoning tradition for the unknown, and this was difficult to do.5

Caught in the middle of a technological revolution, many field artillery officers reluctantly converted most of their light artillery to towed by 1939 but did not want self-propelled artillery. Yet, as early as the mid-1930s, most field artillery officers conceded that the appearance of reliable motor vehicles made horse-drawn artillery obsolete and that they had to adopt motorized artillery. Even so, swayed by their apprehensions and
faced with the possibility of restructuring tactics, doctrine, and organization, they kept their horses even though the availability of suitable motor vehicles and money dedicated to motorization removed two of the three obstacles that had stood in the way of progress in the 1920s and first years of the 1930s. After 1933 only conservatism, the third obstacle, hindered motorization.6

Meanwhile, improvements in motor transportation, the development of a 155-mm. howitzer carriage suitable for towing behind a motor vehicle, pressure from eager reformers, and the desire to stay abreast of developments in foreign armies caused attitudes to change about the division's field artillery armament. Ever since the War Department's decision of the early 1920s to equip the division with new 75-mm. guns and 105-mm. howitzers, which meant dropping the 155-mm. howitzer, many field artillery officers pushed to replace the 75-mm. gun with the 105-mm. howitzer. They wanted to keep the 155-mm. howitzer because a 105-mm. and 155-mm. howitzer combination would give the division superior firepower and mobility. Besides being too light, the 75-mm. gun's flat trajectory limited its utility by preventing it from hitting targets on the reverse side of the slope, which discouraged employing the gun.7

In June 1938 General Danford directed the Field Artillery School at Fort Sill, Oklahoma, to determine the best weapons for the division to end the controversy that had been raging for almost two decades. The school emphatically rejected using 75-mm. guns and 105-mm. howitzers because they lacked sufficient firepower and only offered mobility. Rather, the school wanted to equip the division with 105-mm. and 155-mm. howitzers because of their mobility and firepower. Yet, the school realized that a surplus of 75-mm. guns and ammunition from the Great War would delay or even prevent scrapping the 75-mm. gun for the 105-mm. howitzer.8

Even though tests of the triangular division in 1937-1939 supported employing 105-mm. and 155-mm. howitzers, the War Department still resisted changing the division's artillery. In 1939-1940 the War Department noted that the M2 105-mm. howitzer's range of 12,500 yards was shorter than the M2 75-mm. gun's range of 13,600 yards, that it took longer for the howitzer to go into action, that the howitzer had not been proved in battle, that there was a surplus of 75-mm. guns and ammunition, and that replacing the 75-mm. gun with the 105-mm. howitzer would be expensive and difficult to justify in peacetime.9 In fact, Chief of Staff George C. Marshall (1939-1945), pointed out in February 1940 that abandoning the 75-mm. gun and ammunition and spending vast sums of money to arm the division with 105-mm. howitzers was awkward to defend and that he was unwilling to convert to the 105-mm. and 155-mm. howitzer combination. Like many
of his predecessors, Marshall hesitated spending money on new weapons in peacetime when a surplus from the Great War existed.  

Nevertheless, events of 1940 finally prodded the War Department to reshape the division's artillery. Reports by field artillery officers during maneuvers of April and May 1940 further validated the need for 105-mm. and 155-mm. howitzers. Moreover, the Germans' success with 105-mm. howitzers in their divisions encouraged the War Department to change its position. Influenced by overwhelming evidence in favor of abandoning the 75-mm. gun for the 105-mm. howitzer, in June 1940 the Organization and Training Division (G-3) of the General Staff announced its decision to arm the division with three battalions of 105-mm. howitzers (thirty-six) and one battalion of 155-mm. howitzers (twelve).

Adopting new field pieces in the 1930s generally faced stiff challenges. The Field Artillery School commented in 1937, "It cannot be expected that this reserve [M1897, M1916, and M1917 75-mm. guns, M1918 155-mm. howitzers, M1918 155-mm. guns, and M1918 240-mm. howitzers] will be replaced, in peace, with more modern materiel, because of the great cost involved." Although the school acknowledged that new light, medium, and heavy field pieces were being developed, it lamented, "However so long a time is required for production, issue, and training with new types that it is safe to assume that any war fought by the United States during this generation will be begun and continued during a considerable period with modified World War materiel."

Because of a war surplus, Congress', the War Department's, and the field artillery's hesitancy to purchase new weapons during peacetime and the lengthy time required to introduce new weapons, the Field Artillery School viewed the future pessimistically in 1937. Replacing old field pieces with new ones simply was not likely because Congress and the War Department would not provide money to produce new pieces that were in varying stages of development. As such, the field artillery was destined to continue equipping its batteries with old, worn out guns or modernized old models until a war broke out to force Congress to allocate the funds for manufacturing new weapons in the needed quantities.

Motorization also caused reforms in fire direction to be made. Since the inception of indirect fire at the beginning of the twentieth century, the battery had been the firing unit. Because of this practice, the field artillery had two methods of massing fire on a target from two or more batteries. First, if all of the battery forward observers could see the target, adjusting fire was easy. If the target was obscure, the other batteries would watch for the bursts of the adjusting battery and then try to engage the target. Second, when the target could be located on a map, the observers
would pass its grid coordinates to the batteries to compute firing data. When a map was not available or when only one observer could see the target, massing fire was difficult and slow even for static warfare.\(^\text{15}\)

Without a method of massing fire quickly on a battlefield that was becoming more mobile with the advent of motor vehicles, Maj. (later Maj. Gen.) Carlos Brewer, Director of the Gunnery Department at the Field Artillery School, and his instructors overhauled fire direction procedures in 1931. Inspired by a British artillery officer, Lt. Col. Neil Fraser-Tytler's book, *Field Guns in France*, that detailed the colonel's wartime experiences of shifting fire around the battlefield, they revised air and ground observation methods, created a firing chart, located the battery position through survey, and designated targets with reference to the base point on the firing chart. Yet, they did not centralize computing firing data at the battalion because they could not find a way that was not slow and laborious.\(^\text{16}\)

Maj. (later Maj. Gen.) Orlando Ward, Brewer's successor, and his instructors developed a means for massing fire rapidly. In 1932-1934 they created the fire direction center in the battalion. The battalion commander would dispatch forward observers, while the center would compute firing data and synchronize fire on the most dangerous target. With accurate maps a battalion could mass fire within ten minutes after a call for fire, while a battery could provide fire within five minutes. Without maps massing fire was slower. Although the system could only handle observed fire, the fire direction center surpassed anything in Europe and made the battalion the firing unit.\(^\text{17}\)

Even though the fire direction center improved the ability to mass fire, many senior field artillery officers of the late 1930s opposed placing the battalion commander in charge of directing fire. In emotionally charged articles they insisted that the battery commander was "king in his own right, and that no one but the battery commander could give orders" to fire. Influenced by such officers and the Chief of Field Artillery, Maj. Gen. Upton Birnie (1934-1938), the War Department refused to adopt the fire direction center and left the battery as the firing unit.\(^\text{18}\)

During the latter years of the 1930s, Lt. Col. (later Maj. Gen.) H. L. C. Jones, who became the director of the Gunnery Department in 1939, and his staff made the fire direction center acceptable. They centralized all computation for observed and unobserved fire at the fire direction center and made the battery commander responsible for observed fire and the battalion commander for unobserved. Only after Colonel Jones demonstrated the ability of the fire direction center in 1941 to mass fire rapidly and effectively did the Field Artillery School commandant, the Chief of Field Artillery, and the War Department accept the center and break with the past.\(^\text{19}\)
Unlike the fire direction center that improved the field artillery's capacity to perform its traditional role of supporting the other combat arms, using field pieces to fight tanks had the potential of forging a new and controversial mission. Even though field artillery officers of the 1920s and 1930s devised antitank tactics, they still clung tightly to those missions that predated tanks. Addressing student officers at the Army War College in September 1938, General Danford said, "The artillery should not be diverted from its primary role solely for antitank defense except in real emergencies." Danford and most field artillery officers opposed antitank warfare as a primary mission because it would give the field artillery a defensive role and divert it from supporting the other combat arms. Therefore, they favored acquiring extremely mobile antitank weapons and attaching them to the division or corps.

Literature at the Field Artillery School confirmed that field artillery officers knew about the tank's ability to alter tactics and organization dramatically. Nevertheless, they did not envision employing tanks, infantry, and artillery in formations as the Germans were developing with Blitzkrieg warfare or as B. H. Liddell Hart or J. F. C. Fuller were promoting in Great Britain. As far as the field artillery was concerned, the tank was still an infantry support weapon.

Consequently, on the eve of World War II, a mix of the old and new uneasily coexisted in the field artillery. Antiquated weapons and conservative thinking certainly dominated the field artillery. Progressive people at the Field Artillery School and General Bishop tried to move the field artillery forward, but conservative thinking by most field artillery officers, to include Chiefs of Field Artillery after 1934, and limited funds hampered modernization.

German offensives of 1939 and 1940 dispelled any lingering American doubts about modernizing the field artillery. Impressed with the mobility of German self-propelled 105-mm. howitzers, the War Department initiated action to acquire its own. Pressed by expediency, the Ordnance Department mounted an M2 105-mm. howitzer on a medium tank chassis, designated the weapon the M7 self-propelled 105-mm. howitzer, also known as the Priest because of its pulpit-like machine gun turret, and rushed it to the British in North Africa late in 1942. The adoption of self-propelled and towed artillery opened a new era. After depending on horses for years, field artillery officers finally came to terms with motor vehicles as prime movers for their field guns.

Simultaneously, the war in Europe caused Congress to increase funding for defense. Contracts were let, and by late 1942 towed M2 105-rnm. howitzers, self-propelled M7 105-mm. howitzers, towed M1 4.5-inch guns,
towed M1 155-mm. guns, self-propelled M12 155-mm. guns, towed M1 8-inch howitzers, and towed M2 8-inch guns were beginning to replace World War 1 pieces and their modernized versions. Besides having more mobility and firepower than their predecessors, these new weapons fired high-explosive shell, chemical shell, steel shrapnel, and shot for piercing armor. 

The introduction of more powerful artillery, the growing use of camouflage, and deeply defiladed battery positions made ground observation more difficult. In some cases only air observation could detect targets. Because of this, field artillery officers set out to make aerial observation more responsive to their needs. As early as 1935, General Bishop openly opposed using air service personnel as observers in aircraft because they were not trained artillerymen and did not know the requirements of the field artillery. By doing this, the general challenged the decision made in 1926 to place aerial observation under the control of the Air Corps.

Several years later, field artillery officers led by General Danford also agitated for better air observation. Influenced by this dissatisfaction, Aeronca, Piper, and Taylorcraft aircraft manufacturers offered their light aircraft complete with pilots to senior commanders participating in the Army maneuvers in Tennessee, Texas, Louisiana, and the Carolinas in 1941 for testing in artillery observation and liaison roles. Chief of the Air Corps Lt. Gen. Henry H. "Hap" Arnold accepted using the light planes and assigned them to squadrons of O–49 observation aircraft for employment in the maneuvers. Named "Grasshoppers" by Maj. Gen. Innis P. Swift, Commanding General, 1st Cavalry Division, at Fort Bliss, Texas, the light aircraft flew over 400,000 miles during the maneuvers, completed more than 3,000 missions without losing an aircraft, and demonstrated their utility in air observation, courier, and reconnaissance missions.

Notwithstanding the Grasshoppers' success, field artillery officers participating in the Louisiana Maneuvers complained about the quality of the Air Corps' air observation. They wrote that they never knew when air observation would be available, that the diversion of aircraft to other missions was disruptive, that coordination between the field artillery and the Air Corps was difficult, and that there was never enough aircraft for artillery missions. Unable to depend on the Air Corps, in 1941 the War Department saw the possibility of making air observation organic to field artillery units. After all, the Germans were employing this type of air observation successfully in the war, while the British were introducing it.

In light of the requirement for better air observation and the precedent being established in Europe, the War Department tasked the field artillery to test organic air observation. Using various models of light aircraft,
experiments conducted at Camp Blanding, Florida, and Fort Sam Houston, Texas, in February and March 1942 demonstrated the timeliness of organic air observation. After studying the after action reports, the War Department approved adopting organic air observation for the field artillery. Subsequently, a directive of 6 June 1942 allotted two small aircraft, two pilots, and one mechanic to each field artillery battalion and the same to each group, division, and corps artillery headquarters.\(^{29}\)

The war years of 1939-1942 generated significant changes in the field artillery. The acceptance of motorized artillery as the prime mover even though vestiges of horse-drawn artillery were still hanging on, determined efforts to introduce new weapons, the adoption of organic air observation, and the decision to accept the fire direction center revolutionized the field artillery. Even so, field artillery officers could only speculate about how effectively they could mass fire and provide close support under combat conditions.

Early in 1943 in North Africa, American field artillery met one of its first combat tests. As Maj. Gen. Lloyd R. Fredendall's dispersed U.S. II Corps with a decentralized artillery command was struggling to hold the passes around Kasserine Pass, General Dwight D. Eisenhower, Supreme Allied Commander, dispatched reinforcements from Algeria to Tunisia. After several days of forced marches, Brig. Gen. S. LeRoy Irwin, Commander, 9th Infantry Division Artillery, moved his artillery of three battalions and two cannon companies into position at Thala to bolster sorely tested British defenses. During the night of 21-22 February, Irwin sited forty-eight American howitzers and thirty-six British pieces to enfilade the road from Kasserine Pass and massed fire on the Germans as they approached. Unable to continue forward under such destructive fire, the Germans finally retreated to Kasserine Pass. Meanwhile, Brig. Gen. Clift Andrus, Commander, 1st Infantry Division Artillery, massed barrages on the Germans and Italians as they drove towards Tebessa to cover the German advance on Thala and forced the Axis to retire back toward Kasserine Pass.\(^{30}\)

Although American field artillery played an important role at Kasserine Pass by massing fire on the enemy, American participants expressed mixed observations about its effectiveness. Joseph B. Mittelman, a soldier in the 9th Division, complemented the field artillery's gallant stand. Yet, artillery commanders knew that they had to master the fire direction center and centralize command. After all, effective fire support in North Africa came only after Irwin and Andrus had organized their command properly to mass fire.\(^{31}\)

After pushing the Germans back, the Allies then drove the Axis out of North Africa. Taking advantage of the fire direction center, radio-equipped
observers attached to infantry or armor units or sent aloft in organic spotter aircraft, and centralized command, field artillerymen repeatedly massed fire on German positions. During the Battle of El Guettar on 23 March 1943, for example, American field artillery with help from tank destroyers knocked out nearly thirty enemy tanks to help contain the attack early in the day. Later that same day, massed fire from American field artillery shattered another German attack led by thirty-eight tanks. Following El Guettar, an enthusiastic report recorded that American artillery had crucified the Germans with high explosive shell. Based on El Guettar and other battles, field artillerymen concluded that artillery was one of the dominating factors on the battlefield when it was employed en masse. As a result, corps and division commanders used as much field artillery as possible to support operations and often massed up to twelve battalions (144 guns) to attack enemy positions. This led the Field Artillery School to conclude in 1943 that massed fire was a necessity for successful operations.\footnote{32}

Besides this demonstration of firepower at El Guettar, other intense and accurate American artillery bombardments during the Allied push in Tunisia destroyed the Axis. Commenting on his field artillery's effectiveness, Maj. Gen. Manton Eddy, Commander, 9th Division, noted, "One Nazi who had served on almost every German front said that the American artillery fire was the most deadly that he had experienced."\footnote{33} After driving the Axis out of North Africa, Lt. Gen. Omar Bradley, Commanding General, II Corps, during the latter days of the North African campaign, explained that massed fire was a major factor in the Allied success at Gafsa and El Guettar.\footnote{34}

The fire direction center, organic air and ground observers, motorized light artillery, and the newly created field artillery group that had been organized for corps artillery made effective close support possible. With few exceptions the field artillery depended on observed fire because the hills and ridges of Tunisia provided excellent positions for observation. The commander of the 1st Armored Division's artillery indicated that any one of his observers could adjust fire for any of the division's batteries because of the fire direction center. Explaining the impact of the center further, the commander wrote, "On any important target I usually mass all the artillery of the division [forty-eight guns]."\footnote{35} At the conclusion of the fighting, Bradley reaffirmed the artillery commander's position. He pointed out that the fire direction center was so flexible that any air or ground observer could adjust fire for any battery in his corps and bring fire from all the artillery in the corps (324 guns) onto a single target if it required such firepower.\footnote{36} As such, the fire direction center and radio-equipped
observers tied observers and battalions into an effective fire support network to crush enemy resistance and simultaneously united the field artillery, armor, and infantry into a potent combined arms team.\textsuperscript{37}

Despite being new, organic air observation also played a key role in North Africa. In a brief article in \textit{Field Artillery Journal} in 1944, Maj. Edward A. Raymond, a field artillery officer, explained that air observation had "come into its own."\textsuperscript{38} In fact, the battles of El Guettar, Mateur, and Bizerte silenced detractors. Although the enemy was a master of camouflage, air observers repeatedly identified gun flashes from almost perfectly concealed positions for corps artillery to engage. Hostile antiaircraft fire might have prevented air observers from flying behind enemy lines on occasion, but they could still pick out enemy batteries to be neutralized or adjust fire on targets over ten thousand yards away. In light of this, flying behind the enemy lines was not critical for effective fire support. During action near Hill 609 by Sidi Nsir late in April and early May 1943, for example, organic air observers located so many targets that the 34th Infantry Division's artillery "could hardly haul in ammo fast enough to respond to the calls for fire."\textsuperscript{39}

Aerial observation also had a side benefit. During the battles of El Guettar, Mateur, and Bizerte, observation aircraft flying over enemy lines often caused hostile batteries to cease firing to prevent them from disclosing their positions, which allowed the Americans to mass fire with impunity.\textsuperscript{40}

At the same time, towed and self-propelled pieces proved themselves. In 1943 the War Department noted that towed pieces were highly mobile and maneuverable but that self-propelled guns were even more so. Although self-propelled artillery was not any faster than towed artillery on the road, it had the ability to move into position faster to deliver fire, to displace quickly to avoid counterbattery fire, and to follow armor over terrain that was impassable for towed artillery. As a result, self-propelled artillery could be used aggressively on the offense and support fast-moving armor forces in North Africa.\textsuperscript{41} An article in \textit{Field Artillery Journal} in March 1944 reported that the M7 was not only mobile but also offered the crew protection from small arms fire and shell fragments so that the weapon could be sited forward and closely support any action. Although the M7 performed effectively, many field artillery officers still thought that it was too slow and heavy to support fast-moving armor. Even so, towed and self-propelled artillery silenced critics and had become an acknowledged asset by mid-1943.\textsuperscript{42}

Despite this, the M7 105-mm. self-propelled howitzer's inability to shift its direction of fire by traversing only the tube created problems. With the towed M2 105-mm. howitzer, the gun crew could change direction of
fire easily and quickly by moving the trails when the target was beyond the tube's range of traverse. This was impossible with the M7. Because of the short traverse of the M7's tube, the crew had to reposition the gun mount when calls for fire were outside of the tube's range of traverse. This was slow and required a high degree of skill and teamwork on the part of the driver, the gunner, and section chief. As such, early action in North Africa in 1943 reinforced the wisdom of 360-degree on-board traverse recommended by the Westervelt Board of 1919.\textsuperscript{43}

Even though most Army officers agreed that American field artillery had performed effectively in North Africa, some saw the need for changes. General Irwin and Col. George B. Barth, Chief of Staff, 9th Division, wanted to expand the light battery from four to six pieces for more firepower. In a confidential review of combat action, the Field Artillery School pointed out that the U.S. II Corps' 324 field guns fired over 23,000 rounds a day in North Africa. Although this number of guns appeared to be impressive, it was not. Because of the failure of the Germans to mass their artillery and their lack of artillery and ammunition, II Corps had sufficient artillery. In light of this, the school then warned that the Army should not draw any false conclusions from the North African campaign concerning field artillery support. The school thought that the division's organic artillery of forty-eight guns was the bare minimum and that a corps required more than II Corps had in North Africa when the United States invaded Europe to overcome the vast concentrations of enemy artillery on the Continent.\textsuperscript{44}

Even so, combat action in North Africa in 1943 vindicated the progressive reforms of the 1930s and dispelled the apprehensions of conservative field artillery officers. Towed and self-propelled artillery supplied unprecedented mobility without sacrificing firepower, while the fire direction center and organic air observation dramatically facilitated massing fires for close support. By improving firepower, mobility, and responsiveness, the new weapons and techniques introduced during the 1930s and early 1940s revolutionized the field artillery, while combat strengthened the requirement for firepower.
NOTES


5. Ibid.


8. Study of the 105mm Howitzer, pp. 1-2, 19, 42.


21. Ibid.


28. Ltr, Danford to Chief of Staff, Army, sub: Air Observation, 8 Oct 41, tab D, Memorandum to the Chief of Staff, War Department, Washington, D.C., sub: Air Observation, 8 Oct 41, Morris Swett Library; Bishop, Field Artillery, pp. 130-35; Ltr, Col Fred C. Wallace, Office, Chief of Field Artillery, to Adjutant General, sub: Air Observation for Field Artillery, 15 Jul 40, tab B, Memorandum to the Chief of Staff, War Department, sub: Air Observation, 8 Oct 41; Ltr, Department of Tactics and Communications to Cmdt, The Field Artillery School, sub: Air Observation for Field Artillery, 8 Aug 41, tab F, Memorandum to the Chief of Staff, War Department, sub: Air Observation, 8 Oct 41.


33. Ltr, Eddy to CG, Allied Forces Headquarters, 21 Jun 43, in Rpt on Operations Conducted by 9th Infantry Division, 1943, Morris Swett Library.


36. Ibid., p. 19.

37. Ltr, Eddy to CG, Allied Forces Headquarters, 21 Jun 43.


44. Field Artillery School, Review of Confidential Information. Nov 43, p. 4; and 10 May 43, p. 22.
THE U.S. ARMY
AND
WORLD WAR II
SELECTED PAPERS FROM
THE ARMY'S
COMMENORATIVE
CONFERENCES

Judith L. Bellafaire
General Editor

CENTER OF MILITARY HISTORY
UNITED STATES ARMY
Foreword

As part of the Department of Defense's efforts to commemorate the fiftieth anniversary of World War II, the U.S. Army Center of Military History sponsored three international conferences on the Army's role in the war. The first was held in 1990 and focused on "The U.S. Army in World War II Through the Summer of 1943." In 1992 the conference theme was "The U.S. Army During World War II: The Mediterranean and European Theaters, 1943-1945." During the 1994 conference on "The U.S. Army in the War Against Japan: 1943-1945," scholars and veterans discussed the Pacific and China-Burma-India theaters. This collection contains some of the best papers from those meetings.

Center historians have separated the various presentations into four general categories, or sections. One covers prewar planning, another the home front, and two the European and Pacific theaters of operations, reflecting the diversity of both the war and the interests of those seeking to understand its many facets. Here one will find the more conventional treatments of doctrine, strategy, and operations side by side with those focusing on military mobilization and procurement, race and gender, psychological warfare, and large-scale advice and assistance programs. And despite significant changes since those desperate times in military technology and the geopolitical landscape of the world, the human problems highlighted by the authors are not much different from many of those facing Army leaders today. Although the past can never provide the specific recipes needed for the future, experience has shown that both the basic ingredients and the manner in which they are processed and prepared have remained remarkably constant. For this reason I recommend highly this collection of readings to those grappling with the challenges of the present.

Washington, D.C.
17 February 1998

JOHN W MOUNTCASTLE
Brigadier General, U.S. Army
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The views expressed in the papers collected in this volume are those of the authors and do not reflect the official policy or position of the Department of Defense, or the U.S. government.
PART I

The U.S. Army Plans for War and Enters the War
Introduction

The following four papers examine the efforts of the United States Army to plan for a war everyone feared and no one wanted. Political, economic, and social forces as well as some of the Army's own traditions hindered the Army's attempts to prepare, train, and modernize its soldiers and equipment. Despite this often difficult environment, the Army managed to lay the critical foundation for the rapid mobilization which ultimately became necessary.

One of the traditional ways the U.S. Army has planned for war is by training its future leaders. Making use of archival materials ignored by previous researchers, Henry Gole examines the strategic planning studies conducted by students at the U.S. Army War College between 1934 and 1940. He concludes that the resulting analyses and reports, referred to as the color plans, were excellent "spade work" which the War Plans Division (WPD) of the War Department General Staff (WDGS) eventually used in developing the much vaunted "RAINBOW Plans" of 1939-1941.

Gole emphasizes the link between the work of War College students and that of the Army General Staff. Initially, instructors at the War College asked their colleagues on the General Staff to help them develop projects and assignments for the students. The result was that a number of student projects contributed to the development of a variety of strategic war plans—the color plans—applicable to different geographical regions. Some instructors sent student work to members of the General Staff for their comments, and many students were assigned to the General Staff after they left the War College. Gole concludes that the preliminary work of students at the War College paved the way for the development of the RAINBOW Plans devised by the General Staff between 1939 and 1941. The RAINBOW Plans provided overall American strategic direction for the war.

Historians have long been aware of the difficulties which Army leaders of the interwar years encountered as they sought to modernize weapons, equipment, and tactics to make the U.S. Army ready to engage modern enemy armed forces on the battlefield. Chronic budget shortages compounded by political isolationism kept the interwar Army small and encouraged it to use World War I surplus ammunition and weapons to train
and equip its troops. Boyd Dastrup's paper, "Travails of Peace and War: Field Artillery in the 1930s and Early 1940s," describes the specific modernization problems faced by artillery officers. Dastrup identifies both forward-looking artillery officers who understood the importance of developing new concepts and those who tended to think traditionally. At issue were innovations such as the replacement of horse-drawn artillery with motor-towed and "self-propelled" artillery, air observation support, and centralized command and control. While some Army leaders believed these innovations would lead to the more efficient use of artillery, traditionalists felt that they were dangerous risks because they had not been proved in battle.

According to Dastrup, by 1935 most artillery officers had finally accepted the inevitability of motor-towed artillery pieces but continued to resist the idea of self-propelled artillery. Even after funds for modernization became more available, some leaders continued to balk. Horses always seemed more reliable than many of the primitive automotive vehicles then available, and larger artillery pieces always demanded larger crews and heavier ammunition. Other innovations—such as replacing the 75-mm. gun with the 105-mm. howitzer, directing fire from the fire direction center at the battalion level rather than from the battery, and using aerial observation to help direct artillery fire—faced similar hurdles.

The German offensives of 1939 and 1940 fully demonstrated to American artillerymen and others that efforts to modernize were essential. The War Department demanded that the Ordnance Department acquire self-propelled artillery pieces. In 1942 the War Department tasked the field artillery to test air observation techniques, experiments that resulted in the allotment of two small aircraft, two pilots, and one mechanic to each field artillery battalion. Dastrup believes that the combat experiences of the U.S. Army in North Africa, which included the employment of both self-propelled artillery and aerial observation, demonstrated that the Army had successfully pushed through enough doctrinal reforms to enable American artillery to perform well against the battle-hardened Germans.

In "Through the Looking Glass': Bradford G. Chynoweth as United States Military Attache in Britain, 1939," Theodore Wilson describes how politics and personalities combined to render the astute observations of Army officer Col. Bradford Chynoweth near worthless. The habitually outspoken Chynoweth was assigned to the U.S. embassy in London against the wishes of the U.S. ambassador, Joseph P. Kennedy, "a prickly personality who was extremely protective of his prerogatives." Wilson demonstrates how Chynoweth's original orders from the War Department put him on an inevitable collision course with the redoubtable ambassador, who
did not hesitate to make use of his political connections with Assistant Secretary of War Louis Johnson to seek Chynoweth's removal before he had been in London six months.

But the ambassador's gain was the nation's loss. Wilson's detailed account of the observations Chynoweth sent the War Department during his brief tenure reveal the efficacy of Chynoweth's thoughtful analyses. For example, Wilson stresses Chynoweth's emphasis on the capacity of the British people to resist invasion, in direct opposition to popular opinion in the United States that the British were an "effete race" who would not last long in a fight. At the same time, however, Chynoweth warned his superiors that British leaders were determined to avoid the mistakes of the Great War. This time they would do their best to make sure that their allies (the French, the Poles, and the Americans) fought alongside them and took just as many casualties. They would not back down and allow their allies to go it alone—but neither would they "get in the game until the other players were on the field."

Although Chynoweth found much to admire about the British Army, he complained in his letters that British military doctrine "gave undue emphasis to passive defence" and failed to understand the importance of teamwork among the various combat arms. Wilson reminds the reader that Chynoweth's observations are in tune with those of many recent military historians.

Unfortunately, Chynoweth's communications were treated cavalierly by those same officials who had originally dispatched him to London. Wilson concludes by comparing the misuse of Chynoweth's observations with those of Truman Smith, the U.S. military attache in Berlin from 1938 to 1939. No matter how prescient or on-target such information might be, it will not be used if it does not conform to what those in power want to hear.

During World War II U.S. troops engaged the enemy first on the Philippine Islands. Thomas Huber looks at their performance in "The U.S. Bataan Campaign, December 1941 to April 1942." Huber criticizes General Douglas MacArthur and Washington planners for failing to stockpile enough supplies of medicine, food, and ammunition for U.S. and Filipino troops to defend the islands adequately against the Japanese. MacArthur and his superiors had believed that the presence of air assets on the islands would be sufficient to deter attack.

When U.S. troops in the Philippines found themselves in the unenviable position of attempting to defend Bataan against a larger and better supplied invader, however, they did exceptionally well given an impossible situation. They established three lines of defense across the Bataan penin-
sula. This forced the attacking Japanese forces, starting at the top of the peninsula, to breach one defensive line at a time, giving U.S. and Filipino troops time to retreat and reinforce the next line. The defenders attempted to hold out as long as possible in the hope that reinforcements and supplies would arrive from the States.

Although Huber praises the overall defensive plan and commends the efforts of the U.S. and Filipino soldiers, who fought without enough food, medicine, and ammunition, he also identifies a mistake in the location of one of the defensive lines. The Abucay-Mauben line was bisected by Mount Natib, creating a gap which the Japanese easily exploited. Huber believes that had the defenders dug trenches and tunnels, they would have been able to avoid much of the enemy artillery fire. He admits, however, that this effort was probably too much to ask of troops weakened by disease and the scarcity of food and medicine and would have only postponed the inevitable for a few more weeks. Huber concludes that given their limited resources, the American forces on Bataan achieved far more than military policy makers are normally entitled to expect.

The above papers demonstrate that although the U.S. Army was far from prepared for World War II and experienced substantial difficulties attempting to plan, modernize, and equip for war, U.S. soldiers performed more than adequately during their first combat experiences.
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