

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching 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 this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

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1. REPORT DATE (DD-MM-YYYY) 28-03-2012		2. REPORT TYPE Master of Military Studies Research Paper		3. DATES COVERED (From - To) September 2011 - April 2012	
4. TITLE AND SUBTITLE The Evolution of Marine Artillery: A History of Versatility and Relevance				5a. CONTRACT NUMBER N/A	
				5b. GRANT NUMBER N/A	
				5c. PROGRAM ELEMENT NUMBER N/A	
6. AUTHOR(S) Butler, Michael Dale				5d. PROJECT NUMBER N/A	
				5e. TASK NUMBER N/A	
				5f. WORK UNIT NUMBER N/A	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068				8. PERFORMING ORGANIZATION REPORT NUMBER N/A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A				10. SPONSOR/MONITOR'S ACRONYM(S) N/A	
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER N/A	
12. DISTRIBUTION AVAILABILITY STATEMENT Unlimited					
13. SUPPLEMENTARY NOTES N/A					
14. ABSTRACT This is a focused history on the evolution of Marine field artillery. Specifically focusing on how the Marine Corps came to possess an artillery capability and how the mission of the Marine artillery evolved over the years showing its versatility and resilience.					
15. SUBJECT TERMS Marine artillery, field artillery, artillery missions, Marine artillery history					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Marine Corps University / Command and Staff College
a. REPORT Unclass	b. ABSTRACT Unclass	c. THIS PAGE Unclass			19b. TELEPHONE NUMBER (Include area code) (703) 784-3330 (Admin Office)

United States Marine Corps
Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068

MASTER OF MILITARY STUDIES

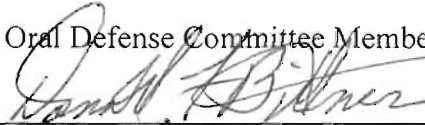
TITLE: The Evolution of Marine Artillery: A History of Versatility and Relevance

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

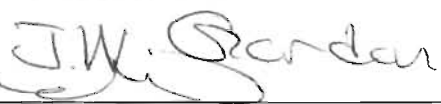
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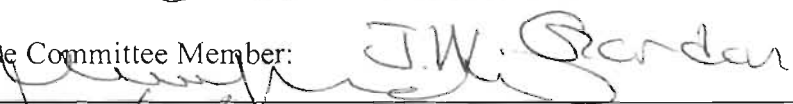
AY 11-12

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Date: 30 March 2012

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Date: 8/20/12

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Executive Summary

Title: The Evolution of Marine Artillery: A History of Versatility and Relevance

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Thesis: Marine artillery has forged a 110 year legacy of providing innovative, resilient, versatile, and evolving support to the Marine Corps; it is in this spirit that Marine artillery will continue to support the Marine Corps as the character of war changes in the 21st century.

Discussion: Since its inception, Marine artillery has persevered with a sense of resilience and versatility to enable it to provide whatever support was required. It took decades for the Marine Corps to acquire an artillery capability, but once it did so Marine artillery proved its value and versatility. Still, as early as World War I, Marine artillery performed duties outside of its normal artillery fire support roles in an effort to remain relevant to the needs of the Corps by training on new weapons or performing infantry duties.

During World War II, Marine artillerymen served in six artillery regiments as well as other units associated with two Marine Amphibious Corps. Following the war, Marine artillerymen performed various occupational duties along with infantry in Japan and China. The Korean War era demonstrated that Marine artillery, though seriously undermanned, was resilient to provide sufficiently trained artillerymen for combat operations. Marine gunners continued to innovate with new tactics, weapons systems and equipment for the past 60 years through its experiences during the Cold War, Vietnam, Desert Shield/Desert Storm, Operation Iraqi Freedom, and Operation Enduring Freedom. After operations in Somalia and with the introduction of effects based targeting, Marine artillery began facing an expanding role of duties in addition to normal artillery support.

The assignments of non-artillery duties in support of counterinsurgency operations in Iraq to Marine artillery units as well as individual artillerymen has placed a significant burden on the ability of Marine artillery to maintain its “core” competency in artillery missions. The future for Marine artillery as well as the Marine Corps looks lean and challenging. However, after every post war experience that the Marine Corps faced for the past 90 plus years, a force reduction has occurred as well as a general reorganization within the Marine Corps. Following combat operations in Afghanistan in the very near future, the Marine Corps will get smaller which will require another reorganization of Marine artillery.

Conclusion: Leaders within the Marine artillery community have already begun that reorganization for the purposes of regaining core competencies. However, it will be imperative for leaders in the Marine Corps and Marine artillery to understand that due to the length of time that Marine artillery has performed these nonstandard missions in recent years (a period significantly longer than any other period in history), this issue will take years to correct. Fortunately, Marine artillery has demonstrated time and time again its resilience to rise to the challenge in its support of the operating forces of the Corps as conflict has changed.

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Preface

As a Marine artilleryman, I am proud of both my Marine heritage and my artillery specialty. While the history of the Marine Corps is well taught across the institution from initial entry into the Corps until a Marine's final days of service, the history of the Marine artillery is not as well known. When evaluating the recent history of the artillery, especially in the various ancillary roles that it has been executing over the past 10 years, i.e. Provisional Military Police, Civil Affairs, Provisional Infantry, etc., I found myself asking several basic questions: Why did the Marine Corps decide to have artillery units? Once established, how did its mission change over the years and what ancillary roles did it perform? Understanding the evolution of the artillery as pertaining to the needs of the Marine Corps will help frame the discussions on the future of this vital element of the Corps.

The scope of this research is on the field artillery. While other aspects of artillery (costal defense and air defense) have had an influence on how the Marine Corps organized, trained, and equipped artillery units, they will not be studied in any detail here. As appropriate, these areas will be addressed only as they help explain how the community fragmented to become what it is today.

More importantly, this paper will look at each major point in the history of the Marine Corps to evaluate how the relationship between the field artillery and the Marine Corps itself developed. However, this will not be a battle study of field artillery operations in the campaigns of history although innovations and new tactics/developments in the field artillery will be noted. Particular emphasis on the evolution of the mission of the Marine Corps, that of the field artillery, and the structure of the field artillery, both personnel and equipment, will be addressed. The aim is to establish a link between the historical developments of Marine artillery to

determine how the community evolved into its current condition today while also proposing ways ahead for the future.

I relied on secondary sources in the forms of the regimental histories as well as Alan Millett's *Semper Fidelis*. Due to time and paper length constraints associated with the MMS program, I did not use sources from the National Archives or older artillery articles from the *Marine Corps Gazette*. Additionally, for events in recent history, from 1998 through 2008, I am reflecting on my personal knowledge as well as the command chronologies of artillery units located in the archive of the Marine Corps. I served as a Forward Observer, Liaison Officer, Battery and Battalion Fire Direction Officer at 5th Battalion, 11th Marines from 1999 through 2001; during these years I participated in numerous field artillery exercises to include the fielding and testing of new equipment such as the Advanced Field Artillery Tactical Data System. In 2004 and 2005, I served with the Command Element of the 31st Marine Expeditionary Unit as the Future Operations Officer in Iraq. In 2005, I returned to the 5th Battalion, 11th Marines and served in various billets through 2008. I was a military advisor to the Iraqi Army in Fallujah (as an Individual Augment), Battery Commander for Romeo Battery (which included another Iraq deployment as provisional infantry), and as the Battalion Operations Officer supervising the battalion's transition to the High Mobility Artillery Rocket System and the fielding of the M777A2, towed digital 155mm howitzer.

I would be remiss without thanking my faculty advisor, Dr. Donald F. Bittner, for his patience and in-depth insight to the early years of Marine artillery as well as his steering me in the right direction of research. Finally, I would like to thank my lovely wife, Deborah, for her support over the past 21 years and especially with this paper.

Note to Reader

This paper is a general chronological overview of artillery in the Marine Corps, with special focus on the artillery regiments. Early in their evolution, Marine regiments were raised and disbanded according to need; hence, continuous existence did not occur and numbers were used as needed. Thus, some regiments now associated with the artillery were not necessarily raised as such. With respect to the numbering of regiments within the Marine Corps during World War I and thereafter, 1 to 9 are infantry, 10 to 15 are artillery, 16 to 20 were engineer, and 21 to 29 are/were infantry. Marine Corps custom and shorthand does not necessarily include the word regiment in written and oral communication. Thus, a reference to 10th Marines and 10th Marine Regiment are synonyms. Additionally, the Marine Corps also uses numeric shorthand for designating units. For example, Oscar Battery, 4th Battalion, 11th Marines can also be expressed as O Btry 4/11. Adding the associated division is not done. For a listing of which regiment is affiliated with which division, see Appendix E.

Introduction

Field Artillery in the United States Marine Corps is a community with a storied past. The development of artillery as it is today is closely linked to the evolution of the Marine Corps in its struggle to maintain relevance amongst the other services. As the Marine Corps grew in its relationship with the Navy from the Age of Sail to Age of Steam, the Marine Corps initially fought to maintain its traditional role onboard naval vessels. Amongst other duties aboard ships, Marines trained to man the guns but found the Navy reluctant to have them pursue that mission. In the late 19th century, the United States found itself developing regional and global interests which would provide an opportunity for an expansion of the role of the Marine Corps in relation to the Navy.

In course of several decades, the Marine Corps evolved from providing small detachments aboard naval ships and manning barracks at naval bases to a force used to secure and defend advance naval bases and eventually an Expeditionary Force. It was this slow evolution that transformed artillery from a source of general skills for officers to a necessary capability to achieve assigned missions of Marine Corps landing forces. Early artillery units included batteries for field, coastal, and air defense. The Spanish-American War established the Navy's requirement for a land force to pursue naval interests ashore, especially the defense of advanced naval bases. However, during World War I when the expeditionary component of the Marine Corps potentially could have reached divisional size, it seemed to encroach upon the Army's role. These two trends thus added another service to debates on its relevance.

Following World War I, the Corps served as a colonial force but constabulary operations found artillery units performing missions outside of manning guns. With the end of that commitment, the Corps in the 1930s pursued in earnest landing operations which eventually

resulted in the development of an amphibious assault capability. This capability led to the creation of the Fleet Marine Force in 1933 and began the fracturing of artillery into two distinct communities: Field artillery and Coastal/Air defense artillery. This would be the structure of the artillery during World War II, the former becoming field artillery units in Marine divisions and amphibious corps while the latter evolved into defense battalions.

World War II was the impetus for the creation of Marine divisions. This resulted in artillery regiments being formed and finalized the fracture of the community. Marine artillery contributed significantly in every campaign of the war and then occupation duty. Following World War II, the Marine Corps and its artillery units would shrank drastically; however, a residual force was retained and continued to train in amphibious operations and basic fire support. This would prove to be a savior for the Corps in Korea from the Pusan Perimeter to the armistice in 1953.

After the Korean War, the Marine artillery experienced a significant restructuring of units and weapons systems with a focus on independent battery operations in direct support of infantry battalions. This restructure helped facilitate the genesis of the modern day Marine Expeditionary Unit. It was also a period in which the helo-assault and the employment of artillery fired tactical nuclear weapons were developed.

Vietnam brought technological improvements to Marine artillery in the form of better communications and fire direction computers. It also brought about fire basing and validated the importance of air mobility via helicopters for the artillery. Following Vietnam, Marine artillery again reorganized and obtained new weapons systems. Additionally, the Corps developed the Maritime Prepositioned Force and the Combined Arms Exercise program at Marine Corps Base 29 Palms California that significantly enhanced the training of the artillery in the Marine air-

ground team. The decade of the 1990s began with Operations Desert Shield/Desert Storm, which validated the Maritime Prepositioned Force and the Combined Arms Exercise program. However, following Desert Shield/Desert Storm, operations in Somalia and the era of effects based targeting led to a resurgence of nonstandard missions.

The initial phases of Operation Iraqi Freedom (OIF) produced a conventional force victory which included the I Marine Expeditionary Force and its artillery. However, what occurred in following phases sent the Marine artillery community reeling. Continuing its fight for relevance during the next ten years of war, the Marine artillery community found itself tasked with other missions ranging from provisional infantry to civil-military operations. All of these ancillary missions occurred simultaneously while the Marine artillery was modernizing its equipment; amidst this, it engaged in a desperate struggle to maintain its artillery core competency. Fortunately, Marine artillery units in Operation Enduring Freedom have maintained a traditional artillery role, so far. For about the last 110 years, the Marine Corps has possessed some form of an artillery capability. It has forged a legacy of providing innovative, resilient, and versatile support to the Marine Corps and it is in this spirit that Marine artillery will continue to support the Marine Corps.

Early Years

The first credible inclination of the Marine Corps' desire to achieve an artillery capability began with Grand Ole Man of the Corps, Archibald Henderson. As early as 1823 he began advocating for instruction in the "artillery arts"; however for decades his requests went unanswered. In 1857, Commandant Henderson sent First Lieutenant Israel Greene, who would later receive notoriety from his involvement in quelling John Brown's insurrection at Harper's Ferry,¹ to West Point, New York "to acquire a knowledge of artillery for the purpose of

introducing it into the Marine Corps.”² However, it wasn’t until October 1859 that the Marine Corps received “two 32-pound guns and four pieces of light artillery for training at Marine Barracks [Washington] in the use of ships’ guns and field artillery.”³ However, for the next forty years the Marine artillery primarily focused on officer training at the Artillery School in Ft. Monroe, Virginia due to the Marine Corps having no formal school of any kind of its own. The officers then instructed their Marines in artillery, primarily in conjunction with duties associated with manning the guns aboard U.S. naval vessels.⁴

In 1891, the Marine Corps opened its own School of Application (now called The Basic School) which included some formal training in artillery gunnery.⁵ However, the purpose of the training was still the same as before: equipping officers with basic gunnery skills to be applied in conjunction with duties associated in manning the guns aboard U.S. naval vessels. During this time, personnel within the Navy, led by Lieutenant William F. Fullam, were seeking reforms by removing Marines from the ships. The Navy reformers proposed that the Marines be on transport vessels and used as an expeditionary landing force instead of part of the ship’s company. Meanwhile, Army artillery reformers were proposing that the U. S. Army pass its Coastal Defense Artillery role to the Marines.⁶

Then came the Spanish-American War, which laid the seeds that would define the future for the Marine Corps. The Marine Battalion, also known as Huntington’s battalion after Lieutenant Colonel Robert W. Huntington who commanded it, was formed. This included one artillery company manning four 3-inch rapid fire guns.⁷ The Marine Battalion “proved itself in combat by seizing the heights on Guantanamo and providing a safe anchorage for Navy ships. In effect, the Marines seized and protected an advance base for the fleet blockading Santiago.”⁸

The end of the war with Spain had a major result: The United States now had a colonial empire and an emerged as a world power. This effected the Marine Corps, for “the Navy felt that it could not depend on the Army to secure land-based sites for naval purposes.”⁹ This meant that the Marine Corps, in the eyes of the Navy, would eventually have a clearly defined purpose: Securing and defending advanced naval bases. This led to the Advance Base Battalion. For Marine artillery, this included organized artillery companies within Marine battalions. However, instead of becoming an amphibious landing force, the Corps assumed colonial constabulary duties with artillery in a supporting role.

From 1900 to 1916, Marine artillery began sustained growth. In July 1900, a Marine artillery company manning three 3-inch rapid fire guns and three Colt automatic guns participated in the capture of Tientsin, China. In 1911, an Advance Base Battalion was organized in Philadelphia, PA and equipped with 3-inch guns. Finally, in April 1914, a battalion of artillery was organized in Vera Cruz, Mexico and commanded by Major Robert H. Dunlap. That same battalion, which would soon be the foundation for the 10th Marine Regiment, distinguished itself in combat at La Trencheras, Dominican Republic in 1916.¹⁰

World War I

World War I saw not only a dramatic increase in the size of the Marine Corps but the birth of three artillery regiments. The 11th Marine Regiment was organized on 3 January 1918¹¹ followed by the 10th Marine Regiment on 15 January. The 10th Marines formed from the artillery battalion commanded by now Lieutenant Colonel Dunlap.¹² The 14th Marine Regiment formed on 26 November 1918 at Quantico, Virginia.¹³ Of note, the 13th and 15th Marines formed in 1918, but they would serve as infantry units: the 13th deployed to France as part of the 5th Marine

Brigade (but did not serve in that role there) and the 15th deployed to the Dominican Republic with the 2nd Marine Brigade.¹⁴

However, the milestone for Marine artillery was overshadowed by inter-service rivalries again. Major General Commandant George Barnett desired for a Marine division to be formed and sent to France. General John J. Pershing, U.S. Army commanding the American Expeditionary Force, strongly opposed the formation of a Marine division.¹⁵ With knowledge of this, the commander of the newly formed 11th Marine Regiment petitioned Headquarters Marine Corps to train as infantry instead of artillery to ensure that it would go to France. In September 1918, the 11th Marine Regiment thus deployed to France as an infantry regiment as part of the 5th Marine Brigade. Upon arriving there, General Pershing immediately broke up the brigade and the Marines performed a myriad of duties associated with logistics, i.e. from clerks to military police duty. The regiment returned to the United States on 6 August 1919 and deactivated on 11 August 1919.¹⁶

General Barnett, always pushing for a Marine division, offered the 10th Marine Regiment, equipped with its light 3-inch guns, to the War Department for service in France. However, since there were no 3-inch artillery units in France, the War Department refused to use the regiment citing logistical concerns. The Navy, having determined that Germany had better long range artillery than the United States, offered to convert 14-inch naval rifles for use as rail guns. The War Department not only approved this but also a 7-inch weapon as long as the Navy manned them. The final decision: the Navy would man the 14-inch and the 10th Marines would man the 7-inch weapons systems. The 10th Marines then moved to the Naval Proving Grounds at Indian Head, Maryland to begin training on their new guns. They arrived there in mid-October 1918, less than a month before Armistice Day. Over the next 18 months, the 10th Marine

Regiment's personnel were gradually reduced until finally on 1 April 1920 the regiment was redesignated as the 1st Separate Field Artillery Battalion. It also became equipped with French 75mm and 155mm guns.¹⁷

Formed after Armistice Day, the 14th Marines initial role was to train as an artillery unit using the equipment left behind by 10th Marines. With the potential for occupation duty looming, the regiment trained both on the 3-inch guns and in infantry drill. However, the regiment did not deploy to Europe and on 19 June 1919, the 14th Marine Regiment deactivated.¹⁸ Then end result was that no Marine artillery unit deployed to France in World War I.

Inter-War Years

Following World War I, from 1921 to 1941, the Marine Corps found itself again in a struggle for a mission. Amidst this, the period reflected two main themes: A colonial constabulary commitment and a gradual development of an embryo expeditionary force from the sea capability which led to the development of the doctrine and capability that made it an amphibious specialty in the assault. In December 1933 as part of this process, the Fleet Marine Force was established and for operations was part of the U. S. Fleet. For the Marine artillery, the establishment of the Fleet Marine Force would see it eventually fracture into two parts: field artillery and costal/air defense artillery. This period again demonstrated that the developing community was versatile and willing to perform any duty required to remain relevant.

As a colonial constabulary force, the Marine Corps participated in operations in Hispaniola (Haiti and the Dominican Republic), Nicaragua, and China. These operations included the 11th, 12th and 15th Marines raised as infantry regiments, as well as the 10th Marines serving as artillery.

In May through August 1927, the 11th Marine regiment, as part of the 2nd Brigade, was reactivated and deployed to Nicaragua for operations against the guerilla leader, Augusto Sandino, and the disarming of combatants. In January 1928, the 11th Marines returned to Nicaragua to again deal with Sandino, who was attempting to disrupt the 1928 elections. By August 1929, the situation had been resolved with the training of the Guardia Nacional, a local defense force capable of counter-guerilla operations. Of note, Colonel Robert H. Dunlap commanded the regiment.¹⁹ Officers during this period were versatile line officers and routinely served in both infantry and artillery billets. Aviators also performed these ground duties.

On 26 November 1918, the 15th Marines was activated as an infantry regiment.²⁰ Like the 14th Marines, it activated too late for the war in France, however in February 1919, it deployed to Dominican Republic to conduct counter-guerilla operations. In early 1922, after having skillfully conducted one final campaign, the hostilities in its province had ended.²¹ On 1 August, 1922 the regiment was deactivated. Of note, in 1938 the 1st and 2nd Antiaircraft Battalions, Fleet Marine Force, were redesignated as the 1st and 2nd Battalions, 15th Marines. However, the regimental headquarters would not form until much later in World War II with the formation of the 6th Marine Division.²²

In response to Chiang Kai-shek's Nationalists rise to power and the ensuing turmoil in China during the summer of 1926, the 3rd Marine Brigade under the command of Brigadier General Smedley D. Butler in March 1927 deployed to Shanghai to protect American lives and property. On October 4, 1927, the provisional regiment created out of 3rd Battalion, 6th Marines and 2nd Battalion, 4th Marines was redesignated the 12th Marine Regiment, infantry.²³ Also included in this force was 1st Battalion, 10th Marines, which was really the entire deployable force of the 10th Marine Regiment, artillery, and commanded by the 10th Regiment's commander,

Colonel Harry R. Lay.²⁴ Both the 10th and 12th Marines were located near Tientsin, however neither saw any combat action mainly due to the restrictions placed upon the brigade by U. S. political leaders. However, the brigade's presence was effective enough to keep Nationalist forces from harming Americans while also restraining the Japanese.²⁵ In April 1928, the 12th Marine Regiment disbanded,²⁶ and then on 18 September 1928, 10th Marines departed China for the United States.²⁷

In addition to its China deployment, the 10th Marines, as the sole artillery unit in the Marine Corps, also conducted many other duties during this period. The first four years following World War I found the Marine Corps as well as the 10th Marines conducting annual training exercises that were quasi Civil War reenactments but also cleverly crafted publicity stunts. Additionally, the regiment participated in the U. S. Fleet winter maneuvers in 1921 and 1924, although the 1921 exercise was in diminished capacity due to lack of funds. During these maneuvers, the artillery practiced ship to shore movement as well the defense of Culebra. In 1925, a provisional battalion formed in Quantico to participate in a joint maneuver in Oahu, Hawaii, which required 75% of the regiment's men and 11 officers. In 1926, the regiment found itself guarding mail in the upper Midwest.²⁸ After the war and prior to China, the regiment found itself short of personnel but continued to train as well as perform any task required of it. This included building structures on Quantico such as the Officer's Club as well as Butler Stadium.²⁹

The 1930s ushered in the Great Depression but also provided some strategic aim for the Corps. In an effort to define the future role of the Corps, the Major General Commandant Ben H. Fuller proposed that the Marines were a force to seize and defend naval bases. However, they did not need heavy artillery because their operations would always be in range of naval gunfire.³⁰

With the coming end of Small Wars commitments, the Marine Corps began to work in earnest on its amphibious role. From this eventually came the *Tentative Manual for Landing Operations*, later to become official naval doctrine in 1938 with publication of FTP 167, *Landing Operations Doctrine*. From 1934 through 1940, the Fleet Marine Force would participate in six separate Fleet Exercises to develop its embryo capability to execute the newly developed amphibious doctrine. In these exercises, the new 75mm pack howitzer of the 10th Marines proved able to go quickly into action ashore.³¹ This provided the landing force established ashore additional fire support other than naval gunfire or close air support.

World War II

When Germany invaded Poland in September of 1939, President Roosevelt announced a limited national emergency. This allowed the Marine Corps to be manned at its authorized strength. One of the first actions taken was the formation of the defense battalion.³² These battalions were “a sort of expeditionary coast artillery capable of occupying an unattended and undefended locality, of installing an all around sea-air defense ... within three days.”³³ These battalions averaged in size of 1,372 personnel and were armed with eight 155mm guns, twelve 90mm guns, nineteen 40mm guns, twenty-five 20mm guns and thirty-five .50-caliber machine guns. Some battalions even included M3 light tanks.³⁴ The formation of the defense battalions (of which there eventually were 20) began the fracture of the artillery community. However, it was the formation of the Marine division complete with a field artillery regiment that completed the fracture and institutionalized the field artillery within the Corps.

During the course of World War II, the Marine Corps formed six divisions and organized two amphibious corps (under three numbers; I MAC which became III MAC, and V MAC). Each division contained an artillery regiment, while the two amphibious corps contained

reinforcing artillery. The basic configuration of an artillery regiment varied through the course of the war. At the onset of the activation, there were still some French 75mm guns and howitzers and French 155mm guns in the inventory. However, by late 1942 each regiment had three 75mm pack howitzer battalions and one 105mm howitzer battalion. In 1943, an additional 105mm howitzer battalion was added and in 1944 each division gave up a 75mm howitzer battalion leaving two 75mm and two 105mm howitzer battalions. In 1945, to ease logistical supply, each regiment consisted of four 105mm battalions. The III and V Amphibious Corps Artillery were formed in April 1944. On paper they contained three 155mm howitzer and three 155mm gun battalions; however, in operations there was much attaching and cross attaching of artillery battalions (to include those from the Army).³⁵

The 11th Marine Regiment was reactivated on 1 March 1941 and assigned to the 1st Marine Division. With the division, it participated in combat operations on Guadalcanal in 1942, Cape Gloucester in 1943, Peleliu in 1944 and Okinawa in 1945. After Japan's surrender in September 1945, the division and its 11th Marines went to Tientsin, China for occupation duty; this consisted mainly of guarding the lines of communication and coal production sites. The regiment remained there until early 1947 when it redeployed to Camp Pendleton, California.³⁶

The 10th Marine Regiment was reactivated (as a complete regiment) on 27 December 1942 and assigned to the 2nd Marine Division. With the division, it participated in combat operations on Tarawa in 1943, Saipan and Tinian in 1944, and was part of the floating reserve for Okinawa in 1945. In September 1945, 10th Marines conducted occupation duty in Nagasaki, Japan and "functioned in the same manner as the infantry regiments."³⁷ In June 1946, 10th Marines redeployed to Camp Lejeune, North Carolina.³⁸

The 12th Marine Regiment was reactivated on 1 September 1942 and assigned to the 3rd Marine Division. With the division, it participated in combat operations on Bougainville in 1943, Guam in 1944, and Iwo Jima in 1945. Following Iwo Jima, the 12th Marines redeployed to Guam in March 1945 and finally to Camp Pendleton, California in December. There the regiment disbanded on 8 January 1946.³⁹

The 14th Marine Regiment was reactivated on 1 June 1943 and assigned to the 4th Marine Division. With the division, it participated in combat operations on Kwajalein, Saipan and Tinian in 1944, as well as, on Iwo Jima in 1945. Following Iwo Jima, the 14th Marines redeployed to Hawaii in March 1945 and finally to Camp Pendleton, California in October. There the regiment disbanded on 20 November 1945.⁴⁰

The 13th Marine Regiment was reactivated on 10 January 1944 and assigned to the 5th Marine Division.⁴¹ With the division, it participated in combat operations on Iwo Jima in 1945⁴² and occupation duty in Kyushu, Japan before redeployment to Camp Pendleton, California and deactivation on 12 January 1946.⁴³ As part of its occupation duty, the regiment was responsible for the operation of a repatriation camp that processed Japanese soldiers returning from China and Korea, as well as destroying military equipment in the city of Sasebo⁴⁴

The 15th Marine Regiment reactivated on 23 October 1943 and assigned to the 6th Marine Division.⁴⁵ With the division, it participated in combat operations on Okinawa in 1945 and occupation duty in Tsingtao, China.⁴⁶ The regiment deactivated on 26 March 1946 in China.⁴⁷

During World War II artillery operations were perfected to the form used for next 60 years. During World War I, German artillerist, Colonel Georg Bruchmuller pioneered what became “accurate predicted fire.” This development significantly changed the way artillery was employed on the battlefield. Artillery could now accurately engage targets indirectly without

first adjusting onto the target. This led to a significant reorganization of artillery units and gave birth to the Fire Direction Center (FDC) and the Forward Observer. Basically during World War II, FDCs were organized at each level of artillery commands which facilitated the massing of fires. This permitted tactical fire direction at higher headquarters, i.e. corps, regiment and battalion levels, and technical fire direction at the battery level.⁴⁸ However, it was also standard practice for battalion FDCs to conduct technical fire direction due to the close proximity of the artillery pieces on the small islands. Of note, the 10th Marines prior to its first combat action as a regiment in Tarawa practiced massing the regiment's three 75mm pack howitzer and two 105mm howitzer battalions in New Zealand.⁴⁹ This reorganization of Marine artillery units lasted until present time with the only changes occurring in the late 2000s with the introduction of the M777A2 howitzer; this latter development reduced the battery FDC to a tactical fire direction capacity, shifting technical fire direction to the howitzer.

The performance of Marine artillerymen throughout the campaigns in the Pacific during World War II was exceptional. Marine artillery units delivered superb artillery fires in support their respective maneuver units and developed an institutionalization of regiments with divisions (see Appendix E for details). However, it is worth noting the versatility again demonstrated by Marine artillery in occupation duty in China and Japan. After the Japanese surrender, four artillery regiments deployed with their divisions to Japan and China: 10th and 13th Marines to Kyushu with the 2nd and 5th Marine Divisions, respectively, as part of the V Amphibious Corps. The 10th Marines “functioned in the same manner as the infantry regiments...Battery Commanders were responsible for billeting, sanitation, patrolling and dealing with the local Japanese authorities” within their respective zones.⁵⁰ The 13th Marines experienced similar duties in Sasebo and additionally were responsible for the repatriation of returning Japanese soldiers

from China and Korea. By the end of November 1945, that regiment had processed over 100,000 returning Japanese soldiers and civilians back to Japan as well as over 50,000 Chinese and Koreans returned to their countries.⁵¹

In China, the situation was slightly different. The 11th and 15th Marines deployed with their divisions, 1st Marine Division to Tientsin and the 6th Marine Division to Tsingtao, as part of the III Amphibious Corps. Not only were the Marines tasked with accepting the surrender of Japanese forces in China, they also in a challenging situation as the pre-war Civil War resumed between the Chinese Communist Forces under Mao Tse-tung and the Chinese Nationalist under Chiang Kai-shek. At the end of war, 170,000 regular Communist forces and negligible Nationalist forces occupied III Amphibious Corps' zone.⁵² The Marines and the Chinese Communist Forces maintained for the most part a tenuous peace. However, there were occasions where Marines from both artillery regiments secured the rail lines and other lines of communication against communist attack.⁵³

Korea

After World War I the Marine Corps shrank from 72,963 to 17,047.⁵⁴ Following World War II, the Corps shrank again. By June 1950, the Fleet Marine Force, the operational arm of the Marine Corps that had risen to a World War II strength of more than 300,000, had shrunk to a size of 27,656.⁵⁵ For Marine artillery, by 1950 the 11th Marines had been reduced to one battalion and a regimental headquarters⁵⁶ while the 10th Marines had three battalions, this being a growth from a low of 17 officers and 115 men in September 1946.⁵⁷ However, what was left was well trained. The 10th Marines from 1947 through June 1950 completed five amphibious exercises, to include cold weather exercises in Newfoundland.⁵⁸ The 11th Marines, during this

same period, completed four amphibious exercises, to include one in Kodiak, Alaska, as well as two airlift exercises and a 100 mile field exercise across Camp Pendleton.⁵⁹

On 25 June 1950, North Korea crossed the 38th parallel and invaded South Korea and the North Korean People's Army quickly routed the Republic of Korea Army. On 5 July, the First Provisional Marine Brigade, formed out of almost everything available in the 1st Marine Division and 1st Marine Aircraft Wing, was sent to Pusan, Korea.⁶⁰ The three battalions of the 10th Marines were redesignated as the 2nd, 3rd, and 4th battalions of 11th Marines and sent to Camp Pendleton to join the reforming 1st Marine Division.⁶¹ By 8 August an adhoc division and wing had been raised and began loading naval shipping in San Diego. Commandant General Clifton B. Cates supported the endeavor, even though recreating the division and wing "was consuming the total resources of the Corps."⁶²

On 15 September 1950, the 1st Marine Division landed at Inchon, helped liberate Seoul, and turned the flank of North Korean People's Army. It then conducted another landing on the east coast of North Korea and pushed as far north as the Chosin Reservoir where it destroyed seven Chinese Communist divisions on its "attack in another direction."⁶³ All of these operations were supported by artillerymen of the 11th Marines. The stellar performance of the Marines in Korea enabled the passage of the Douglas-Mansfield Act, which legally established a three division and three wing Corps.⁶⁴ For artillerymen, this meant the reactivation of the 12th Marines with the 3rd Marine Division. Following a brief period of training in California during 1952, the 12th Marines and its parent 3rd Marine Division deployed to Japan in August 1953.⁶⁵

While only the 11th Marines served in Korea, all artillerymen, regular and reserve, proved versatile. The ability to reconstitute the 11th Marines into a capable artillery organization with regular and reserves was a monumental feat of rapid planning and execution. This is a great

tribute to the flexibility of the Marines and a credit to their post war training under arduous financial and personnel conditions.

Cold War

The period following the Korean War to the Marines landing in Vietnam was a time of continued training, deployments, and reorganization for Marine artillery. Various levels of amphibious training were conducted by elements of all three regiments. Following a 1956 reexamination of the Fleet Marine Force doctrine and structure, a reorganization of the artillery community was implemented. This reorganization also produced an introduction of new weapon systems. Additionally, new tactics were developed for Marine artillerymen.

After its return to Camp Pendleton in March 1955, the batteries and battalions of the 11th Marines participated in numerous amphibious exercises with battalion and regimental landing teams, respectively. However, the regiment itself did not participate in any division level exercises.⁶⁶ Meanwhile, 10th Marines supported numerous division and regimental amphibious exercises.⁶⁷ In the Far East, elements from 12th Marines also participated in various amphibious exercises in California, Iwo Jima, Okinawa, and Hawaii.⁶⁸ It is clear that during this period Marines, including artillery, kept the focus of training on the amphibious capability.

In the early 1950s, the 10th Marines began supporting infantry battalions with firing batteries for Mediterranean deployments, the origins of today's Med Floats. In August 1957, 2nd Battalion, 10th Marines participated in a regimental landing team Mediterranean deployment.⁶⁹ In May 1958, three batteries from three separate battalions of 10th Marines attached to the 2d Provisional Marine Force helped stabilize turmoil in Lebanon. The 105mm howitzer batteries along with "three 8 inch howitzer platoons and eight 4.2 inch mortars were combined under the centralized control of a Force Artillery Group."⁷⁰ Again in 1965, three separate Battalion

Landing Teams from 2nd Marine Division converged on a crisis area, this time in the Dominican Republic. However, this time the headquarters of 2nd Battalion, 10th Marines also deployed to control all the artillery.⁷¹ Additionally, the entire 10th Marine Regiment deployed to Guantanamo, Cuba in response to the Cuban Missile Crisis in 1962.⁷²

The 12th Marines also deployed units in response to crisis. In December 1957, 1st Battalion, 12th Marines (as part of a 3rd Marine Division task force) moved off shore of Indonesia to protect American and foreign civilians and property during a governmental crisis there. In July 1958, a battery attached to Battalion Landing Team 3/3 deployed “to the Persian Gulf to prepare for landings in either Iran or Saudi Arabia in the event the Lebanon crisis spread.”⁷³ Additionally, just as batteries from 10th Marines deployed with battalion landing teams to the Mediterranean, batteries from 12th Marines were attached to BLTs in the Pacific to form the Special Landing Force, a precursor of the modern Marine Expeditionary Unit.⁷⁴

In 1956, a high level board, headed by Major General Robert E. Hogaboom, spent six months reexamining “every aspect of FMF [Fleet Marine Force] doctrine and organization.”⁷⁵ The results of the board provided two points of strategic direction for the Corps and radical reorganization of the division to include artillery. First, “the board doubted that the Corps would fight in a nuclear war with Russia and stressed the greater likelihood of war with Communist proxies outside of Europe.” Second, it doubted that the Navy and Marine Corps would ever procure enough ships or helicopters to mount a division/wing helo-assault, “therefore, the Marine division of the future should be air-transportable, and its assault battalions helo-transportable.”⁷⁶

This meant for artillery that the battalion would no longer be the base fighting unit; instead, that would be the battery. Firing batteries were to be restructured to be self-sufficient “capable of providing its own observation, communications, supply, and maintenance.”⁷⁷ This

change facilitated the artillery battery attaching to an infantry battalion. Furthermore, the battery commander became the infantry battalion fire support coordinator. Additionally, the board removed the 4.2 inch mortars from the infantry and placed them in the artillery. Three of the four battalions in the artillery regiment were to replace their truck towed 105mm howitzers with the 4.2 inch mortars (However, this change would be temporary as the artillerymen were reluctant to abandon their 105mm howitzers; by 1962 the Direct Support Artillery Battalions would have three 105mm howitzer batteries and one 4.2 inch mortar battery).⁷⁸ The board also “shifted the Corps’s [sic] heavy artillery – towed 105-mm and 155mm howitzers, self-propelled 155mm guns and 8-inch howitzers, and Honest John surface-to-surface rockets – to a Force Troops artillery group.”⁷⁹ In 1957, the Commandant approved the board’s decisions and the resulting Tables of Organization and Equipment would remain relatively unchanged for the next twenty years.⁸⁰ The Force Troops artillery would become the Field Artillery Group, responsible for heavy artillery fire support.

In the early 1960s, Marine artillery procured new weapons/capabilities and developed new tactics. In efforts to overcome the limitations of the 4.2 inch mortar, the Howtar was developed. By placing the 4.2 tube on the 75mm pack howitzer carriage, the weapon’s mobility increased, its stability improved, it was able to emplace quicker, its minimum range reduced and its accuracy improved.⁸¹ In addition to the reorganization of self-propelled 155mm guns and 8 inch howitzers, the Field Artillery Group also obtained the 762 mm rocket, the Honest John, and the towed 155mm howitzer. With the Honest John and the 8 inch howitzer, the Marine Corps now possessed a tactical nuclear capability.⁸² By 1964, the Marine Corps also procured the M109 self-propelled 155mm howitzer.

The purpose of the reorganization was to make the artillery battery helo-assault capable. This concept was tested by 11th Marines in 1958 and “heliborne training increased during the 1960s.”⁸³ In 1960, the 12th Marines participated in a division level exercise in which “artillery elements were lifted into the target area and resupplied by air.”⁸⁴ As part of Steel Pike I, the largest peacetime amphibious operation ever, artillerymen from 10th Marines conducted helibourne assaults in Spain.⁸⁵ The development of this capability in the early 1960s paid dividends for Marine artillery in Vietnam.

Over the 12 year period following Korea and just prior to Vietnam, Marine artillery again proved itself versatile in its effort to remain relevant to the Corps. The community reorganized its unit structure and weapon systems to provide a lighter, air-transportable fire support capability to infantry battalions. It created the Field Artillery Group, “to provide large caliber, long range, nuclear or nonnuclear fires for a landing force and its subordinate elements.”⁸⁶ Furthermore, during crisis contingencies, Marine artillery demonstrated versatility to organize artillery groups of different weapon systems. All of this was accomplished while maintaining a steadfast commitment to amphibious operations.

Vietnam

On 8 March 1965, Battalion Landing Team 3/9, with Battery F 2/12, landed just north of Da Nang. Two days later, Battery A 1/12 was airlifted from Okinawa to Da Nang with 1st Battalion, 3rd Marines. The two batteries were organized into the Brigade Artillery Group of the 9th Marine Expeditionary Brigade. “By early August, the entire [12th Marine] regiment with attached units representing the complete spectrum of artillery support within the Marine Corps – light, medium, and heavy weapons – was in Vietnam.”⁸⁷ The regiment’s strength grew to the point by late 1967 that it “had become the largest artillery regiment in the history of the Marine

Corps...[with] some 180 field pieces of mixed caliber ranging from the 175mm gun to the 4.2 inch mortar.”⁸⁸

Vietnam was also a period of innovation for Marine artillery. In July 1967, the Field Artillery Digital Computer (FADAC) was fielded, accelerating the computation of firing data that had previously been done by hand. In addition to the FADAC, the procurement of the PRC-25 significantly increased the artillery’s communication ability and thus increasing efficiency.⁸⁹ In response to the inability to accurately locate enemy artillery and mortars, the Fire Support Information Center was established in the 3rd Marine Division Fire Support Coordination Center. It used “sophisticated computer techniques... to provide more realistic firing data that could be used in counter-battery fire.”⁹⁰ Additionally, in 1967, the 12th Marines received support from the 2nd Target Acquisition Battery, United States Army. The latter provided “flash, sound and radar installations” to locate and engage enemy artillery and mortars.⁹¹

In an effort to spread infantry units throughout the 3rd Marine Division’s Area of Operations, the fire base concept was developed. “Typically blasted out of jungle covered hilltops, the new artillery fire bases were mutually supporting as well as providing supporting fires to the infantry units.” Helicopters became a crucial component to the operation of these bases as some of these fire bases were only accessible by air. The procurement of the CH-46 and CH-53A enabled the air mobility of 105mm howitzers and munitions. Furthermore, Army Sky Crane CH-54s could transport towed 155mm howitzers.⁹² A side effect of this increase helicopter mobility was the phasing out of the 4.2 inch mortar and the Howtar. In the end, the 105mm howitzer proved to be the most reliable and versatile artillery weapon.⁹³

For Marine artillerymen, Vietnam was more than fire missions. For example, Marine gunners also participated in civic action. The 11th Marines participated in the Medical Civil

Action Program from 1966 through 1968 by establishing first aid stations treating “Vietnamese civilians for illness or wounds.”⁹⁴

Vietnam also saw another swelling of the Corps to a peak of 314,917 in 1969.⁹⁵ The 5th Marine Division along with its 13th Marine Marines briefly returned to the active duty order of battle but served mainly as force providers for the III Marine Amphibious Force. During this conflict, units from the 10th Marines continued supporting Mediterranean and Caribbean amphibious commitments, while the 12th and 11th Marines deployed to Vietnam in support of the 3rd and 1st Marine Divisions, respectively.

Post Vietnam

Following Vietnam, the Marine Corps again experienced another downsizing and reorganization. For Marine artillery, this meant another restructuring, change of weapon systems, and continued preparation for the next war. The M198, a 155mm towed howitzer, was introduced into the Marine artillery arsenal, replacing the World War II era M114A2 155mm towed howitzer as well as the M101A1 105mm towed howitzer. The Field Artillery Groups disbanded and the artillery regiments reorganized in an effort to increase firepower organic to the Marine divisions. Marine artillery continued to deploy in battery strength with battalion landing teams. But most significant for this period was the development of the Combined Arms Exercise (CAX) and the Maritime Prepositioned Force (MPF). Together, for the Marine artillery community as well as the ground forces and command headquarters it supported, these ensured finely trained and equipped gunners able to deploy quickly to areas of conflict. This was demonstrated in Operation Desert Shield/Desert Storm.

As always with new equipment fielded, there were voices of dissent and praise. The fielding of the M198 was no exception. With the potential of war in Europe against the Soviets,

the 105mm howitzer, though valuable in Vietnam, was no match for the open expanses of the European battlefield with the Soviets' long range artillery and heavily mechanized forces. A decision was reached to replace the limited range and munitions of the 105mm with that of the M198, a weapon capable of ranges up to 30 kilometers and able to fire various types of anti-armor and tactical nuclear munitions. However, the 12th Marines retained their M101A1, 105mm towed howitzers.⁹⁶ Critics complained that the bigger and more cumbersome howitzer decreased the mobility of the direct support artillery battalions, mainly due to the lack of a suitable truck to tow it - a situation that was not completely resolved until the late 1990s.

In 1978, a decision was made to increase the artillery firepower organic to the Marine divisions. The Field Artillery Groups, created in the late 1950s, were disbanded and reformed as the 4th and 5th Battalions of the artillery regiments. This was to equip the Marine division with general support artillery battalions of self-propelled artillery. One battalion consisted of M109A1, 155mm self-propelled howitzers, while the other contained a mix of 8 inch self-propelled howitzers and 175mm self-propelled guns.⁹⁷

The Combined Arms Exercise (CAX) and the Maritime Prepositioned Force (MPF) were two developments of this period that significantly increased the efficiency and rapid deployment of the Marine artillery. The CAX program, founded in 1976, was an exercise at the Marine Corps' desert training facility in 29 Palms, California. Each CAX featured an infantry unit, usually of battalion size, supported by air, artillery, and tanks conducting a live fire maneuver. This program closely integrated air and artillery support with mechanized as well as dismounted maneuver forces.⁹⁸ The results ensured a more effective Marine Air-Ground team. The development of the Maritime Prepositioned Force was a concept in which the equipment of a Marine brigade would be stationed strategically at sea throughout the world. It would be

available to Marines flown into an area of crisis and they would receive its attendant equipment when the ships arrived there. For Marine artillery, this meant that a battalion's worth of equipment and the necessary ammunition for 30 days of combat operations was prepositioned. Both of these developments proved instrumental in 1990 with Operation Desert Shield and the following Operation Desert Storm.⁹⁹

Desert Shield/Desert Storm

On 2 August 1990, Iraqi Army forces invaded the tiny oil producing and refining country of Kuwait. By 14 August, Marines of the 7th Marine Expeditionary Brigade began arriving in Saudi Arabia to offload the MPF ships from Diego Garcia. Eventually, a total of three Maritime Prepositioned Squadrons were used to outfit three Marine Expeditionary Brigades.¹⁰⁰ Every active duty artillery battalion arrived in theater. The 11th Marines were reinforced by the 1st and 3rd Battalions of the 12th Marines,¹⁰¹ while the 10th Marines were reinforced by the 2nd Battalion of 12th Marines.¹⁰² Eventually, the I Marine Expeditionary Force was supported with 180 M198, 155mm towed howitzers; 24 M109A3, 155mm self propelled howitzers; and 12 M110A2, 8 inch self propelled howitzers from the Marine Corps, and 24 M109A3, 155mm self propelled howitzers and 10 M270, Multiple Launch Rocket System (MLRS) from the Army.¹⁰³

The artillery raid became one tactic that Marine artillery performed well in this conflict. Twelve raids were conducted from 21 January through 22 February 1991. They had one primary objective: A deception effort to confuse the Iraqis on the position and intentions of the Marine Forces. A secondary goal also ensued: To conduct counter-battery fire and diminish the Iraqi artillery. Generally, an artillery battalion conducted the raid with support from airborne forward air controllers, air support, and usually a light armored infantry screening force. One battery

would fire at designated targets then displace back to friendly lines while another battery covered that movement and engaged, along with air, any Iraqi counter-fire batteries.¹⁰⁴

Other than artillery raids, Desert Storm served as validation of the Combined Arms Exercise Program on a grand scale. With the breaching of the berms into Kuwait simultaneously by the 1st and 2nd Marine Divisions, the artillery regiments had to position themselves well forward to cover the breach as well as engage any potential Iraqi artillery that could interfere with the breach. In the case of the 10th Marines, this meant that the night prior to the breach its artillery battalions were positioned forward of maneuver units.¹⁰⁵

Following Desert Shield/Storm, the Marine Corps saw another draw down. For Marine artillery this meant the deactivation of 2nd Battalion, 12th Marines.¹⁰⁶ Additionally, the firing batteries from 3rd Battalion, 12th Marines transferred back to the United States in an effort to build a more effective unit due to limited ability to fire artillery on Okinawa and the result of continuous personnel turnover due to the one year tours of duty. In its place was instituted the Unit Deployment Program (UDP) where firing batteries rotated from the United States for seven month intervals to Okinawa to constitute 3rd Battalion, 12th Marines.¹⁰⁷

Marine artillery quickly settled into a peacetime routine of regular battery sized deployments as a part of a battalion landing team with a Marine Expeditionary Unit or as a UDP battery. This period also witnessed a digitalization within the Marine artillery, as artillery units continued to field better radios and computer equipment. The introduction of the Advanced Field Artillery Tactical Data System (AFATDS) significantly improved the artillery unit's ability to build, receive, and distribute all manner of firing data. However, with the addition the new technology, Marine artillerymen soon discovered that learning the nuances of AFATDS was a highly detailed and perishable skill. Training consisted of a variety of artillery field exercises as

well as the CAX program. The primary focus of all training in this period centered on improving artillery efficiency and increasing an artillery unit's ability to support fast moving maneuver units.

In late 1992, in an effort to provide stability for aid and relief operations in warlord controlled Somalia, Marine artillery units, mainly the 3rd Battalion, 11th Marines, were deployed in support of Operation Restore Hope. It was in Somalia that missions outside of normal artillery resurfaced. Artillerymen found themselves serving as provisional infantry and were assigned the duties of securing the airport and port facilities in Mogadishu.¹⁰⁸ This task quickly grew to patrolling areas of the city, conducting intelligence driven raids, and helping coordinate multinational forces.¹⁰⁹ As is the custom of the Corps, all Marines are also infantrymen regardless of their occupational specialty.

Following operations in Somalia and the former Yugoslavia, artillery, mainly U. S. Army, began focusing on effects based targeting. This concept was the impetus for an ever expanding role of artillery. In theory, all effects on the battlefield, kinetic and non-kinetic, could be managed like artillery fire support. This opened the door for the artillery community to manage almost anything that produced an effect on the battlefield from fire support to information operations and civil military operations. This concept would significantly impact Marine artillery following "major combat operations" in Iraq.

Operation Iraqi Freedom (OIF)

On 20 March 2003, after months of buildup for war, Coalition forces in Kuwait invaded Iraq with the aims of the removal of Saddam Hussein and his regime from its place of power. By 1 May 2003, President Bush announced that major combat operations were over (by which he meant conventional). Marine artillery units that participated in this operation were the 11th

Marines, supporting the 1st Marine Division, and 1st Battalion, 10th Marines, supporting Regimental Combat Team 2. The 11th Marines consisted of four battalions, (1/11, 2/11, 3/11 and 5/11) as well as I Battery, 3rd Battalion and R Battery, 5th Battalion from 10th Marines.¹¹⁰

The conduct of artillery operations in support of the invasion of Iraq were very much in accordance with doctrine that was established and trained to prior to the war. Due to a massive sandstorm for a period of about six days, “the 11th Marines were the only fire support available to protect the [1st Marine Division’s] forward elements from mortar and surface attack.”¹¹¹ Of note, a new tactic of quick-fire nets was used for the first time in combat for the purpose of using aviation assets to engage targets identified by counter-fire radar. This technique required direct communication between the 11th Marines Combat Operations Center and the 3rd Marine Air Wing’s Direct Air Support Center in order to coordinate on call aircraft to service targets acquired by radar that were either out of range of Marine artillery or required precision guided munitions due to collateral damage constraints.¹¹²

By 11 April 2003, the 11th Marines had been assigned additional duties outside that of normal artillery operations: running the division’s Civil-Military Operations Center (CMOC) and “establish its own zone in which to conduct security and stability operations.”¹¹³ The artillerymen running the CMOC “continued to find stopgap solutions for the many problems they faced; with remarkably little assistance or guidance from anyone, [they] had established cells for police, fire, electricity, water, and medical care” while coordinating the efforts of various nongovernmental organizations as well.¹¹⁴

In April 2004, Marine artillery returned to Iraq and performed a myriad of duties ranging from standard artillery support to provisional military police to provisional infantry to civil affairs over the following six years. Artillery batteries deployed in direct support of regimental

combat teams; however, when the batteries arrived, they routinely found themselves performing duties other than artillery. In 2004 and 2005 in Western Al-Anbar, artillerymen manned the Point of Entry check points along the Jordanian and Syrian borders with no effort to maintain any artillery firing capability.¹¹⁵ In 2006 in Fallujah, artillery batteries often performed convoy security duties in addition to maintaining an artillery firing capability. In 2007, Battery R, 5th Battalion, 11th Marines deployed in support of Regimental Combat Team 2 in Western Al-Anbar as a provincial infantry force while maintaining a limited firing capability in three separate locations. Artillery battalions also deployed in support of Operation Iraqi Freedom in three functions: Provision Military Police,¹¹⁶ Provisional Infantry, or as Civil Affairs units.¹¹⁷ The provisional infantry role for artillery battalions was centered on the securing of the major camps at Fallujah and Taqqadam.

The requirement for Individual Augments was another role that directly affected the Marine artillery community. Artillery units were not only required to train and equip batteries and battalions to support the war, they were often taxed with providing additional personnel to serve in a myriad of billets ranging from military advisors to augmenting staff positions at higher headquarters. The result was a constant personnel turnover in key billets within the battalions and regiments. In turn, those units became significantly degraded in their ability to train to their artillery core competencies.

Marine artillery has also undergone weapon and equipment upgrades during this period. First the M198, towed 155mm howitzer, was replaced by the M777A2, towed 155mm lightweight digital howitzer. The M777 is significantly lighter than the M198 while maintaining the same the range and munitions capability. However, the M777 is a digital howitzer that is capable of self-laying (able to automatically determine its location and azimuth of fire) and

digitally communicating with the FDC. Additionally, it is capable of firing GPS guided precision munitions. The Marine Corps also converted 5th Battalion, 11th Marines and 2nd Battalion, 14th Marines (Reserve) into High Mobility Artillery Rocket Systems (HIMARS) battalions. This provided the Marine Corps with a rocket and missile capability as well as another platform capable of firing GPS guided precision munitions. Marine artillery also procured the Expeditionary Fire Support System (EFSS): a 120mm mortar to be used in circumstances, mainly with Marine Expeditionary Unit deployments, that calls for a more compact fire support system. This mortar reincarnates the arguments of the late 1950s and early 1980s that saw the addition of the 4.2 inch mortar and 105mm howitzer, respectively, into Marine artillery operations in order to provide a light weight fire support capability for direct support to battalion landing teams. Lastly, continual upgrades and improvements in computer systems and communications equipment have increased Marine artillery units' ability to digitally communicate. The AFATDS was reconfigured to compute technical firing data within battery fire direction centers. New radios were acquired specifically for computer and AFATDS network communications in the field. All of these technological advancements occurred at the same time artillery units and personnel were heavily involved in nonstandard missions.¹¹⁸

Operation Enduring Freedom (OEF)

Initial Marine involvement in Afghanistan began in November of 2001 with Task Force 58. Marine artillery involvement was very limited and restricted to the two batteries attached to the 15th and 26th Marine Expeditionary Units. Of note, Marines from Battery K 3/10 were used to bolster security of the United States Embassy in Kabul.¹¹⁹

In the spring of 2009, artillery battalions began deploying to Afghanistan with an artillery mission. The first battalion was comprised of two M777A2 batteries and one HIMARS

battery.¹²⁰ Eventually, in November of 2010, an additional cannon battery was added.¹²¹ So far, deployments in support of operations in Afghanistan have maintained this more of a traditional artillery focus.

2012 and Beyond

The result of the past 10 years of war will have a lasting effect on Marine artillery. For the most part, artillerymen have a wide range of combat experiences due to the various missions they performed. However, due to conducting so many nonstandard artillery missions for such a long period of time, the base of artillery knowledge of the younger generation of Marine artillerymen (officers, SNCOs, NCOs and troops) is not as deep as the Marines of similar grade possessed prior to the war in Iraq and Afghanistan, or in the late years of World War II, Korea, and Vietnam.

It will be incumbent on leaders within the Marine Corps and Marine artillery to understand the price that Marine artillery has paid for its versatility in providing its support to the Corps. Following operations in Afghanistan, Marine artillery will need a retraining period and there will be far lasting impacts upon the proficiency of artillery personnel that will take an extended period of time to reacquire. Simply put, if Marine artillery was to take an aggressive training period for the next year to focus on artillery issues, it would not be sufficient as there are still many Marines in supporting establishment roles such as recruiting and entry level training duty, who will also require retraining. In short, several cohorts of officers and enlisted Marines need to be trained on artillery operations.

In addition to the training resets, the Marine artillery community will also undergo a restructuring. Two battalions will be eliminated from the 10th Marines. The 5th Battalion will

deactivate in 2012 while the 3rd Battalion will deactivate in 2013. However, an additional HIMARS battery, Battery Q, will be added to 5th Battalion, 11th Marines in 2013.¹²²

Leaders within the Marine artillery community have begun to take actions to correct these proficiency shortcomings. With respect to fire support, to include all actions of planning and executing fires in support of maneuver forces, fire support artillerymen are being consolidated at the artillery battalion level to ensure proper training of fire support Marines. Additionally, artillery battalion headquarters are to be included in Enhanced Mojave Viper, which is essentially the CAX program with a heavy counterinsurgency focus, providing a realistic training venue for the planning and execution of fire support that is integrated with multiple maneuver battalions.¹²³

Conclusion

For over the course of the last 100 years, Marine artillerymen have proven themselves versatile and resilient. Many times Marines have performed duties outside of their normal artillery duties. The future for Marine artillery as well as the Marine Corps looks lean and challenging. However, every post war experience that the Marine Corps has faced for the past 90 plus years has resulted in a force reduction as well as a general reorganization within the Marine Corps. Following combat operations in Afghanistan in the very near future, the Marine Corps will become smaller. As with other parts of the service, this will require a reorganization of Marine artillery. Leaders within the Marine artillery community have already begun this reorganization but with a goal of regaining and retaining core competencies. However, it will be imperative for leaders in the Marine Corps in general and Marine artillery in particular to understand that due to the length of time that Marine artillery has performed these nonstandard missions, significantly longer than any other period in its history, this issue will take years to

correct. Fortunately, Marine artillery has demonstrated time and time again its resilience to rise to the challenge in its support of the Corps.

Endnotes

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- ¹ Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps*. (New York: Macmillan Publishing, 1980), 89.
- ² Joseph H. Alexander, "Archibald Henderson: 1820-1859," in *Commandants of the Marine Corps*, ed. Allan R. Millett and Jack Shulimson, 54-73 (Annapolis, MD: Naval Institute Press, 2004), 72.
- ³ Ibid.
- ⁴ Jack Shulimson, *The Marine Corps' Search for a Mission: 1880-1898*, (Lawrence, KS: University Press of Kansas, 1993) 23-25.
- ⁵ Ralph W. Donnelly, *An Annotated Bibliography of United States Marine Corps Artillery*, (Washington, D.C.: Historical Division, Headquarters, U. S. Marine Corps, 1970), vii.
- ⁶ Shulimson, *The Marine Corps' Search for a Mission*, 206.
- ⁷ Donnelly, *An Annotated Bibliography of United States Marine Corps Artillery*, viii.
- ⁸ Jack Shulimson, *The Marine Corps' Search for a Mission*, 207.
- ⁹ Ibid.
- ¹⁰ Donnelly, *An Annotated Bibliography of United States Marine Corps Artillery*, viii.
- ¹¹ Robert Emmet, *A Brief History of the 11th Marines*, (Washington, D.C.: Historical Branch, G-3 Division, Headquarters, U.S. Marine Corps, 1968), 1.
- ¹² David N. Buckner, *A Brief History of the 10th Marines*, (Washington, D.C.: History and Museums Division, Headquarters, U.S. Marine Corps, 1981), 18.
- ¹³ Ronald J. Brown, *A Brief History of the 14th Marines*, (Washington, D.C.: History and Museums Division, Headquarters, U.S. Marine Corps, 1990), 1.
- ¹⁴ Gordon L. Rottman, *U. S. Marine Corps World War II Order of Battle: Ground and Air Units in the Pacific War 1939-1945*, (Westport, CT: Greenwood Press, 2002), 200-201.
- ¹⁵ Merrill L. Bartlett, "George Barnett: 1914-1920," in *Commandants of the Marine Corps*, ed. Allan R. Millett and Jack Shulimson, 174-193 (Annapolis, MD: Naval Institute Press, 2004), 185-186.
- ¹⁶ Emmet, *A Brief History of the 11th Marines*, 2.
- ¹⁷ Buckner, *A Brief History of the 10th Marines*, 18-22.
- ¹⁸ Brown, *A Brief History of the 14th Marines*, 1-3.
- ¹⁹ Emmet, *A Brief History of the 11th Marines*, 3.
- ²⁰ Rottman, *U. S. Marine Corps World War II Order of Battle*, 201.
- ²¹ Millett, *Semper Fidelis*, 200-202.
- ²² Rottman, *U. S. Marine Corps World War II Order of Battle*, 201.
- ²³ Charles R. Smith, *A Brief History of the 12th Marines*, (Washington, D.C.: Historical Division, Headquarters, U.S. Marine Corps, 1972), 1.
- ²⁴ Buckner, *A Brief History of the 10th Marines*, 34.
- ²⁵ Millett, *Semper Fidelis*, 227.
- ²⁶ Smith, *A Brief History of the 12th Marines*, 2.
- ²⁷ Buckner, *A Brief History of the 10th Marines*, 38.
- ²⁸ Buckner, *A Brief History of the 10th Marines*, 23-34.
- ²⁹ Buckner, *A Brief History of the 10th Marines*, 27 and 31.
- ³⁰ Millett, *Semper Fidelis*, 329.
- ³¹ Millett, *Semper Fidelis*, 339.

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- ³² Millett, *Semper Fidelis*, 344.
- ³³ Charles D. Melson, *Condition Red: Marine Defense Battalions in World War II*, (Washington, D.C.: Marine Corps Historical Center, 1996), 3.
- ³⁴ Melson, *Condition Red: Marine Defense Battalions in World War II*, 5.
- ³⁵ Rottman, *U. S. Marine Corps World War II Order of Battle*, 190-194.
- ³⁶ Emmet, *A Brief History of the 11th Marines*, 7-29.
- ³⁷ Buckner, *A Brief History of the 10th Marines*, 84-85.
- ³⁸ Buckner, *A Brief History of the 10th Marines*, 86.
- ³⁹ Smith, *A Brief History of the 12th Marines*, 8-29.
- ⁴⁰ Brown, *A Brief History of the 14th Marines*, 90-91.
- ⁴¹ Rottman, *U. S. Marine Corps World War II Order of Battle*, 200.
- ⁴² Smith, *A Brief History of the 12th Marines*, 24.
- ⁴³ Rottman, *U. S. Marine Corps World War II Order of Battle*, 200.
- ⁴⁴ Howard M. Conner, *The Spearhead: The World War II History of the 5th Marine Division*, (Washington D. C.: Infantry Journal Press, 1950), 169 and 173.
- ⁴⁵ Rottman, *U. S. Marine Corps World War II Order of Battle*, 201.
- ⁴⁶ Bevan G. Cass, *History of the Sixth Marine Division*, (Washington, D. C.: Infantry Journal Press, 1948), 11 and 214.
- ⁴⁷ Rottman, *U. S. Marine Corps World War II Order of Battle*, 201.
- ⁴⁸ Michael D. Grice, *On Gunnery: The Art and Science of Field Artillery From the American Civil War to the Dawn of the 21st Century* (Charleston, SC: Booksurge, 2009), Kindle e-book.
- ⁴⁹ Buckner, *A Brief History of the 10th Marines*, 62.
- ⁵⁰ Buckner, *A Brief History of the 10th Marines*, 83-84.
- ⁵¹ Conner, *The Spearhead*, 70.
- ⁵² Benis M. Frank and Henry I Shaw, Jr., *Victory and Occupation*, vol. 5, *History of U. S. Marine Corps Operations in World War II* (Washington, DC: Historical Branch, G-3Division, Headquarters, U. S. Marine Corps, 1968), 542.
- ⁵³ Emmet, *A Brief History of the 11th Marines*, 28 and Cass, *History of the Sixth Marine Division*, 220.
- ⁵⁴ Merrill L. Bartlett, "John A. Lejuene: 1920-1929," in *Commandants of the Marine Corps*, ed. Allan R. Millett and Jack Shulimson, 174-193 (Annapolis, MD: Naval Institute Press, 2004), 187 and 205.
- ⁵⁵ Victor H. Krulak, *First to Fight: An Inside View of the U. S. Marine Corps* (Annapolis, MD: Naval Institute Press, 1984), 122.
- ⁵⁶ Emmet, *A Brief History of the 11th Marines*, 29.
- ⁵⁷ Buckner, *A Brief History of the 10th Marines*, 86.
- ⁵⁸ Buckner, *A Brief History of the 10th Marines*, 86-88.
- ⁵⁹ Emmet, *A Brief History of the 11th Marines*, 29-31.
- ⁶⁰ Krulak, *First to Fight*, 124.
- ⁶¹ Buckner, *A Brief History of the 10th Marines*, 89.
- ⁶² Krulak, *First to Fight*, 126.
- ⁶³ Millett, *Semper Fidelis*, 481.
- ⁶⁴ Millett, *Semper Fidelis*, 506-507.
- ⁶⁵ Smith, *A Brief History of the 12th Marines*, 33-35.
- ⁶⁶ Emmet, *A Brief History of the 11th Marines*, 43.

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- ⁶⁷ Buckner, *A Brief History of the 10th Marines*, 90-100.
- ⁶⁸ Smith, *A Brief History of the 12th Marines*, 33-37.
- ⁶⁹ Buckner, *A Brief History of the 10th Marines*, 90 and 95.
- ⁷⁰ Buckner, *A Brief History of the 10th Marines*, 95-97.
- ⁷¹ Buckner, *A Brief History of the 10th Marines*, 101-103.
- ⁷² Buckner, *A Brief History of the 10th Marines*, 99.
- ⁷³ Smith, *A Brief History of the 12th Marines*, 38.
- ⁷⁴ Smith, *A Brief History of the 12th Marines*, 39.
- ⁷⁵ Millett, *Semper Fidelis*, 525
- ⁷⁶ Millett, *Semper Fidelis*, 526.
- ⁷⁷ Smith, *A Brief History of the 12th Marines*, 38.
- ⁷⁸ Table of Organization M-1126, dated 11 February 1958, Archives and Special Collections Branch, Library of the Marine Corps, Coll. 4119, Box 25.
- ⁷⁹ Millett, *Semper Fidelis*, 526.
- ⁸⁰ Millett, *Semper Fidelis*, 527.
- ⁸¹ Smith, *A Brief History of the 12th Marines*, 40.
- ⁸² Nels E. Anderson, "Force Artillery," *Marine Corps Gazette* 45, no. 10 (October 1961): 26-28, <http://search.proquest.com/docview/206398960?accountid=14746>
- ⁸³ Robert Emmet, *A Brief History of the 11th Marines*, 44.
- ⁸⁴ Smith, *A Brief History of the 12th Marines*, 39.
- ⁸⁵ Buckner, *A Brief History of the 10th Marines*, 100.
- ⁸⁶ Anderson, "Force Artillery," *Marine Corps Gazette* 45, 26-28.
- ⁸⁷ Smith, *A Brief History of the 12th Marines*, 41 and 44.
- ⁸⁸ Jack Shulimson and others, *U. S. Marines in Vietnam: The Defining Year 1968* (Washington D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1997), 535.
- ⁸⁹ Smith, *A Brief History of the 12th Marines*, 56-57 and 66.
- ⁹⁰ Shulimson and others, 540.
- ⁹¹ Smith, *A Brief History of the 12th Marines*, 57.
- ⁹² Shulimson and others, 549-551.
- ⁹³ Smith, *A Brief History of the 12th Marines*, 65-66.
- ⁹⁴ Emmet, *A Brief History of the 11th Marines*, 48.
- ⁹⁵ Millett, *Semper Fidelis*, 560.
- ⁹⁶ Philip E. Hughes, "The Marine Corps Artillery Regiment: A Structure for the 1990's" (Research Report, Air War College, Air University, 1988), 23-24.
- ⁹⁷ Buckner, *A Brief History of the 10th Marines*, 112.
- ⁹⁸ "Training at Twentynine Palms" *Marine Corps Gazette* 65, no. 4 (April 1981): 26-27, <http://search.proquest.com/docview/206363008?accountid=14746>.
- ⁹⁹ Karl Mundy, "Enabling America's Global Reach," *Marine Corps Gazette* 77, no. 6 (June 1993): 14-15, <http://search.proquest.com/docview/206348803?accountid=14746>.
- ¹⁰⁰ Charles J. Quilter II, *U. S. Marines in the Persian Gulf 1990-1991: With the I Marine Expeditionary Force in Desert Shield and Desert Storm*, (Washington, D.C.:History and Museums Division, Headquarters, U. S. Marine Corps, 1993), 7.
- ¹⁰¹ Charles H. Cureton, *U. S. Marines in the Persian Gulf 1990-1991: With the 1st Marine Division in Desert Shield and Desert Storm*, (Washington, D.C.:History and Museums Division, Headquarters, U. S. Marine Corps, 1993), 130.

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- ¹⁰² Dennis P. Mroczkowski, *U. S. Marines in the Persian Gulf 1990-1991: With the 2nd Marine Division in Desert Shield and Desert Storm*, (Washington, D.C.:History and Museums Division, Headquarters, U. S. Marine Corps, 1993), 7.
- ¹⁰³ Quilter II, *U. S. Marines in the Persian Gulf 1990-1991*, 121-122.
- ¹⁰⁴ Cureton, *U. S. Marines in the Persian Gulf 1990-1991*, 27.
- ¹⁰⁵ Mroczkowski, *U. S. Marines in the Persian Gulf 1990-1991*, 39.
- ¹⁰⁶ T. M. Portman, "Commanding Officer 2/12 ltr 5750 dtd 1 Aug 94." 2/12 Unit File. Historical Reference Branch, History Division, Marine Corps University.
- ¹⁰⁷ 3rd Battalion, 12th Marines, "Command Chronology, 1992-1998," Archives and Special Collections Branch, Library of the Marine Corps, Coll. 4119.
- ¹⁰⁸ 3rd Battalion, 11th Marines, "Command Chronology, 1 January - 30 April 1993," Archives and Special Collections Branch, Library of the Marine Corps, Coll. 4119, page 6.
- ¹⁰⁹ 3rd Battalion, 11th Marines, "Command Chronology, 1 January - 30 April 1993," page 9-10.
- ¹¹⁰ Nicholas E. Reynolds, *U. S. Marines in Iraq, 2003Basrah, Baghdad and Beyond: U. S. Marines in the Global War on Terrorism*, (Washington, D.C.: History Division, United States Marine Corps, 2007), 170-171.
- ¹¹¹ Michael R. Melillo, "Cannon Cockers at War: The 11th Marines in Operation Iraqi Freedom," *Field Artillery Journal*, Sept-Oct 2003 in *U. S. Marines in Iraq, 2003: Anthology and Annotated Bibliography*, 101-105, compiled by Christopher M. Kennedy and others, (Washington, D. C.: History Division, United States Marine Corps, 2006), 103.
- ¹¹² Melillo, "Cannon Cockers at War: The 11th Marines in Operation Iraqi Freedom," 101.
- ¹¹³ Melillo, "Cannon Cockers at War: The 11th Marines in Operation Iraqi Freedom," 104.
- ¹¹⁴ Reynolds, *U. S. Marines in Iraq, 2003Basrah, Baghdad and Beyond*, 112.
- ¹¹⁵ Kenneth W. Estes, *U. S. Marines in Iraq, 2004-2005:Into the Fray U.S. Marines in the Global War on Terrorism* (Washington, D. C.: History Division, United States Marine Corps, 2011), 59. Also, author's personal knowledge from serving in a Higher Headquarters' position.
- ¹¹⁶ Thomas J. Connally and Lance A. McDaniel, "Leaving the Tubes at Home," *Marine Corps Gazette* 89, no. 10 (October 2005): 31-34.
- ¹¹⁷ Bradley R. Hall, "Worth Another Look: CMO and support to the MAGTF." *Marine Corps Gazette* 93, no. 10 (October 2009): 60-63.
- ¹¹⁸ These came from the author's personal observation while assigned to 5th Battalion, 11th Marines.
- ¹¹⁹ Strategy Page, "Unclassified Documents From Marine Task Force 58's Operations in Afghanistan," <http://www.strategypage.com/articles/tf58/execution.asp> .
- ¹²⁰ 3rd Battalion, 10th Marines, "Command Chronology, 1 - 30 April 2010," page 2.
- ¹²¹ 1st Battalion, 10th Marines, "Command Chronology, 16 Nov- 15 Dec 2010," page 2.
- ¹²² Gina Cavallaro, "Corps to shed 15,000: Further cuts are likely, Commandant warns," *Marine Corps Times*, December 5, 2011.
- ¹²³ Anthony J. Johnson and others, "Marine Artillery: Moving forward to meet the future," *Marine Corps Gazette* 95, no. 10 (October 2011), 51-55.

Appendix A - Chronology

1823	Commandant of the Marine Corps, Archibald Henderson first advocates for the Marine Corps to obtain an artillery capability
1857	First Lieutenant Greene becomes the first Marine trained in artillery
1859	Marine Corps receives its first guns for training purposes
Apr 1898	The first Marine battalion is formed with five infantry and one artillery companies
Apr 1914	The first artillery battalion is organized in Vera Cruz, Mexico.
Jan 1918	The 11 th and 10 th Marine Regiments are formed as artillery units, however, 11 th Marines trained as an infantry unit in order to deploy to France with the 5 th Brigade
Jul 1918	The 13 th Marine Regiment was formed as an infantry regiment to deploy to France with the 5 th Brigade
Nov 1918	The 14 th and 15 th Marine Regiments are formed
Feb 1919	15 th Marine Regiment (infantry) deploys to Dominican Republic
Jun 1919	14 th Marine Regiment deactivated
Jul 1919	11 th Marine Regiment deactivated
Aug 1919	13 th Marine Regiment deactivated
Apr 1920	10 th Marine Regiment is redesignated as the 1 st Separate Field Artillery Battalion
Jan 1921	10 th Marine Regiment is reactivated with only one battalion
Aug 1922	15 th Marine Regiment deactivated
1924	10 th Marine Regiment participates in Fleet Exercises at Culebra, Puerto Rico
1926	10 th Marine Regiment guards U.S. Mail in the Midwest
1927-1928	11 th Marine Regiment reactivated as infantry to conduct counter-guerrilla operations in Nicaragua
1927-1928	10 th Marine Regiment (artillery) and 12 th Marine Regiment reactivated as infantry and deploy to China
Mar 1941	11 th Marines reactivated
Sep 1942	12 th Marines reactivated

Jun 1943	14 th Marines reactivated
Oct 1943	15 th Marines reactivated
Jan 1944	13 th Marines reactivated
Apr 1944	III and V Amphibious Corps Artillery formed
Sep 1945	11 th and 15 th Marines deploy to China; 10 th and 13 th Marines deploy to Kyushu for occupation duty
Nov 1945	14 th Marines deactivated
Jan 1946	12 th and 13 th Marines deactivated
Jun 1946	10 th Marines redeploys to Camp Lejeune NC
Mar 1946	15 th Marines deactivated
1947	11 th Marines redeploys to Camp Pendleton CA
Jul 1950	1/11 joins 1 st Provisional Marine Brigade for Korea
Aug 1950	2/11, 3/11, and 4/11 reconstituted from 10 th Marines battalions
1952	12 th Marines reactivated
Aug 1953	12 th Marines deploy to Japan
Mar 1955	11 th Marines redeploy to Camp Pendleton CA
1957	Field Artillery Groups formed to provide heavy artillery support to Fleet Marine Force
Aug 1965	12 th Marines completes deployment to Vietnam
Aug 1965	11 th Marines deploys first unit to Vietnam
Dec 1969	12 th Marines redeploys to Okinawa Japan
May 1971	11 th Marines redeploys last unit to Camp Pendleton CA
Jul 1966	14 th Marines reactivated in Marine Corps Reserves
1978	Field Artillery Groups disbanded and form 4 th and 5 th Battalions of 10 th and 11 th Marines
1990-1991	10 th Marines, 11 th Marines, 1/12, 2/12, and 3/12 participate in Operation Desert Shield/Desert Storm

Dec 1992 3/11 deploys to Somalia

May 1993 3/11 redeploys to 29 Palms CA

Mar- Oct 2003 11th Marines and 1/10 participate in Operation Iraqi Freedom

2004-2009 Artillery battalions deploy to Al Anbar Province, Iraq as Provisional Military Police, Provisional Infantry and Civil Affairs Groups. Artillery batteries deploy as direct support artillery units with their respective RCTs.¹

2009-Present Composite artillery battalions deploy to Afghanistan as artillery.

¹ These batteries were attached to their respective RCTs. Therefore, the RCT had the ability to alter the task organization of the batteries or even change their mission altogether. In AO Denver in western Al Anbar, the first firing batteries served as provisional infantry and eventually maintained the border crossing sites at Walid and Trebil. In AO Topeka, the batteries also provided convoy security in addition to maintaining a two gun firing capability.

Appendix B – Field Artillery Weapons

Figure 1 - 32 pounder 1859¹



Figure 2 - 3 inch rapid fire² (Weight 2,400 lbs; Maximum Range 8,500 yards)³

Marine gun crew at field artillery drill at Quantico, Virginia, in June 1918. These Marines were equipped with the 3-inch gun rather than the French 75mm gun used by the Army in France.



Figure 3 - 7 inch gun⁴ (Weight 32 tons; Maximum Range 15Km-24Km)⁵



*US Navy Photo PHD-6209
Marine and Navy gunners test-fire a 7-inch track-mount naval gun at Indian Head Naval Proving Ground, Maryland. During testing in October and November 1918, the gun crews fired the weapons up to 40 degrees elevation.*

Figure 4 - French 75mm⁶ (Weight 3,400 lbs; Maximum Range 6.9Km; Rate of Fire(rof) 15 rpm)



Figure 5 - French 155mm⁷ (Weight 7,300 lbs; Maximum Range 11.3Km; rof 3 rpm)



Figure 6 – M1 75mm pack howitzer⁸ (Weight 1,000 lbs; Maximum Range 8.8Km; rof 3-6 rpm)



Figure 7 – M2 105mm howitzer⁹ (Weight 5,000 lbs; Maximum Range 18.3Km)



USMC Photo 82554

Saipan's desolate terrain serves as a backdrop to this DUKW-towed 105mm howitzer. The DUKW's not only served as amphibious carriers but as prime movers of artillery pieces and ammunition on land.

Figure 8 – M114 155mm howitzer¹⁰ (Weight 13,000 lbs; Maximum Range 14.9Km; rof 4 rpm)

A static view of the M1 155mm howitzer, capable of hitting targets at 14,900 meters, which was designated to replace the 105mm howitzers assigned to the regiment's 4th Battalion.

Department of Defense Photo (USMC) A18017



Figure 9 – M2 155mm gun (WWII)¹¹ (Weight 30,600 lbs; Maximum Range 23.2Km; rof 40 rph)



Figure 10 – M2 4.2” mortar¹² (Weight 333 lbs; Maximum Range 4,023m; rof 1-5 rpm)



Figure 11 – M53 155mm self propelled gun¹³ (Wgt 44 met tons; Max Rng 16.9Km; rof 1 rp2m)



Figure 12- M110 8” howitzer¹⁴ (Weight 62,390 lbs; Max Range 16.8Km-30Km; rof 2-4 rpm)



Figure 13 – MGR-1 Honest John 762mm rocket¹⁵

(M31 Rocket: Wgt 5820 lbs-nuclear; Range 15.4 miles)
(M50 Rocket: Wgt 4332 lbs-nuclear; Range 15.4 miles)



Figure 14 – M98 Howtar¹⁶ (Weight 1286 lbs; Maximum Range 4.5Km; rof 1 rpm)¹⁷



USMC Photo A198163
The 1st Battalion, 10th Marines' howtars in support of the 8th Marines during Steel Pike 1. The howtar was a 4.2 inch mortar mounted on a 75mm pack howitzer carriage.

Figure 15 - M109¹⁸ (Weight 27.5 tons; Maximum Range 18Km-30Km; rof 1-4 rpm)



Figure 16 – M107 175mm self propelled gun¹⁹ (Wgt 62,400 lbs; Max Range 34Km; rof 1 rpm)



Figure 17 - M198 155mm howitzer²⁰ (Weight 15,772 lbs; Max Range 22Km-30Km; rof 2-4 rpm)



Figure 18 - M777 155mm howitzer²¹ (Weight 9,300 lbs; Max Range 24Km-40Km; rof 2-5 rpm)



Figure 19 – M142 HIMARS²² (Weight 24,000 lbs; Range 2Km-300Km)



Figure 20 – M327 120mm mortar EFSS²³ (Weight 1,798 lbs; Maximum Range 8.2Km)



¹ This picture was from an internet search. As there were numerous variants of the 32 pounder, it can not be certain which ones were originally obtained in 1859 but they probably were of the naval variant.

² David N. Buckner, *A Brief History of the 10th Marines*, (Washington, D.C.: History and Museums Division, Headquarters, U.S. Marine Corps, 1981), 16.

³ <http://xbradtc.wordpress.com/2011/10/16/pre-world-war-i-us-field-artillery/>

⁴ Buckner, *A Brief History of the 10th Marines*, 20.

⁵ <http://www.patriotfiles.com/forum/showthread.php?t=109952>

⁶ Buckner, *A Brief History of the 10th Marines*, 37.

⁷ Buckner, *A Brief History of the 10th Marines*, 28.

⁸ Buckner, *A Brief History of the 10th Marines*, 56.

⁹ Buckner, *A Brief History of the 10th Marines*, 76.

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- ¹⁰ Ronald J. Brown, *A Brief History of the 14th Marines*, (Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1990), 58.
- ¹¹ http://en.wikipedia.org/wiki/File:155_mm_Long_Tom_2.jpg
- ¹² <http://en.wikipedia.org/wiki/File:Mortar-korea-19520505.jpg>
- ¹³ http://www.toadmanstankpictures.com/m53_01.jpg
- ¹⁴ http://en.wikipedia.org/wiki/File:203mm_Self-Propelled_Howitzer_M110A2.JPG
- ¹⁵ http://en.wikipedia.org/wiki/File:MGR-1_Honest_John_rocket.jpg
- ¹⁶ Buckner, *A Brief History of the 10th Marines*, 100.
- ¹⁷ <http://morrow-industries.com/morrow-project-blog/?p=178>
- ¹⁸ Brown, *A Brief History of the 14th Marines*, 74.
- ¹⁹ http://en.wikipedia.org/wiki/File:US_Army_M107_Howitzer.JPG
- ²⁰ http://en.wikipedia.org/wiki/File:4-14_Marines_in_Fallujah.jpg
- ²¹ http://www.google.com/imgres?q=m777a2+howitzer&hl=en&safe=active&gbv=2&tbn=isch&tbnid=B0_n5ilJ8xI78M:&imgrefurl=http://www.armyrecognition.com/2008_mois/july_2008_information_news_about_military_equipment_armoured_army_defence_world_worldwide_coutries.html&docid=zn295oYHHWvp9M&imgurl=http://www.armyrecognition.com/images/stories/north_america/united_states/weapons/m777/pictures/M777_howitzer_field_artillery_gun_Us-Army_002.jpg&w=800&h=521&ei=yEA9T9y6Naj00gGM1LS-Bw&zoom=1&iact=hc&vpx=178&vpy=425&dur=3578&hovh=181&hovw=278&tx=166&ty=203&sig=109769423016342444036&page=5&tbnh=150&tbnw=198&start=100&ndsp=28&ved=0CMwEEK0DMHo&biw=1280&bih=827
- ²² <http://www.military-today.com/artillery/himars.htm>
- ²³ <http://www.gd-ots.com/2011%20Brochures/EFSS.pdf>

Appendix C – Influential Personnel

Brigadier General Robert H. Dunlap – First officer to command an artillery battalion.

Became the first Commanding Officer of the 10th Marine Regiment, field artillery. Served as the Commanding Officer 17th Field Artillery Regiment, United States Army, during combat operations in World War I. Served as the Commanding Officer of 11th Marine Regiment, provisional infantry, in 1928 during combat operations in Nicaragua. Died on 19 May 1931 in Paris France while attending the Ecole Superieure de Guerre while saving a woman's life during a house collapse. (compiled from 10th and 11th Marines histories)

Lieutenant General Pedro A. del Valle - Commanded 11th Marines on Guadalcanal, III Corps Artillery on Guam, and the 1st Marine Division on Okinawa. He graduated from the Naval Academy in 1915 and served in various assignments/campaigns in the Interwar Small Wars in addition to his service in WWII. He retired in 1948.

http://www.tecom.usmc.mil/HD/Whos_Who/delValle_PA.htm

Lieutenant General Thomas E. Bourke – Commanded the 10th Marines on Tarawa, V Marine Amphibious Corps Artillery on Saipan and Leyete, and the 5th Marine Division in occupation duty in Japan. He was commissioned in 1917 and served in various assignments/campaigns in the Interwar Small Wars in addition to his service in WWII. He retired in 1946.

http://en.wikipedia.org/wiki/Thomas_E._Bourke

Major General Wilbur “Bigfoot” Brown - Commanded three artillery regiments (15th, 11th and 10th) as well as the 1st Marine Regiment in Korea in 1951. A veteran of WWI, Nicaragua, WWII, and Korea, he enlisted in 1918 and then entered the Naval Academy in 1920 but left to reenlist in 1922! He was commissioned from the ranks in 1925. Upon retirement in 1953 he entered the

University of Alabama as junior and received his PhD in History in 1963.

(http://www.tecom.usmc.mil/HD/Whos_Who/Brown_WS.htm)

Appendix D – Artillery in the Marine Corps Reserve

The purpose of this appendix is to briefly discuss the history between the Marine Corps Reserve and its artillery following World War II until the present day. In 1946, the Organized Marine Corps Reserve consisted of 18 infantry battalions, 10 supporting arms battalions, and 24 fighter bomber squadrons. These units were not formed into regiments or as part of a division; rather, they came under the Marine Corps District that covered their location in the United States. These reservists were comprised of World War II veterans that desired to maintain a tie with the Corps. The purpose of the reserve at this time was not to organize as units but to provide a pool of qualified Marines that could be called to active duty to augment regular units. This concept was tested in 1950 and was instrumental in rebuilding 11th Marines for the Korea War.¹

In July 1962, these groupings of batteries and battalions across the United States were reorganized into the four numbered battalions of the 14th Marines, 3rd Field Artillery Group or 4th Field Artillery Group. The Field Artillery Groups, just like their active duty counterparts, contained heavy artillery. This marked a change from the reserves being a people provider to a unit provider. In keeping in line with active duty artillery organization, reserve batteries were also reorganized to be self-sufficient and capable of deploying independently as part of an infantry battalion. Batteries and battalions of 14th Marines or Field Artillery Groups did not participate as units in Vietnam, although many individual Marine reservists served on active duty.

Eventually, in the 1970s, the Field Artillery Groups would be rolled into the 14th Marines. By 1990, the 14th Marines had three direct support battalions and two general support battalions. They were equipped like their active duty counterparts with the M198, M109A3, and 8 inch self

propelled howitzers. Batteries from 14th Marines did deploy to augment active duty artillery battalions in Desert Shield/Desert Storm, but the battalions did not. In the subsequent phases of Operation Iraqi Freedom, both battalions and batteries of reserve artillery deployed in the same manner as their active duty counterparts.

¹ Ronald J. Brown, *A Brief History of the 14th Marines*, (Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1990), 60.

Appendix E – Regiment/Division Affiliation

USMC Artillery Regiments				
Regiment	Date: Initial Raised	Date: Permanent Raised	Parent Division	Comments
10 th Marines	Jan 1918	Jan 1921	2 nd MarDiv	Oldest artillery entity in the Corps; Did not partner with the division until 1942
11 th Marines	Jan 1918	Mar 1941	1 st MarDiv	Activated before 10 th Marines in WWI but did not become artillery until 1941
12 th Marines	Oct 1927	Sep 1942	3 rd MarDiv	Reactivated in 1952 after a brief period of deactivation following WWII
13 th Marines	Jul 1918	Jan 1944	5 th MarDiv	Would come back briefly during Vietnam
14 th Marines	Nov 1918	Jun 1943	4 th MarDiv	Reactivated in MC Reserves in 1966
15 th Marines	Nov 1918	Oct 1943	6 th MarDiv	1 st and 2 nd Battalions were activated in 1938 without a regimental headquarters

Appendix F – Artillery Education in the Marine Corps

Artillery education for the Marine Corps in essence began with the training of officers at Fort Monroe, Virginia. In the late 1800s, the Marine Corps did not possess its own Professional Military Education (PME) school. Therefore, there was no formal professional education or training of officers outside of the education for those from the Naval Academy. Once commissioned, officers could petition the Commandant of the Marine Corps for assignment to schools, with Fort Monroe and the Torpedo School of the Naval War College being the most prevalent.¹ However, due to the relative small size of Marine Corps assignments to these schools was not guaranteed due to the needs of keeping officers assigned with the fleet or in barracks ashore. In 1891, the Marine Corps opened its School of Application, now called The Basic School, where newly commissioned second lieutenants from the Naval Academy or direct entry officers received additional instruction before assignments with the fleet or to barracks.

In 1925, officers began training at the Field Artillery School at Fort Sill, Oklahoma. Two officers would attend the Battery Officers Course and one officer would attend the Advanced Course. This would continue through 1940 and resulted in 49 officers attending the basic course and nine officers the advanced course.² Meanwhile, Marine officers still attended the Coast Artillery School at Fort Monroe through 1934.

In June 1934, Commandant Major General John H. Russell ordered the creation of the Base Defense Weapons Course. This was due to the inability to increase Marine throughput in the Army schools. This course combined aspects of artillery being taught at Fort Sill and Fort Monroe with the purpose of instructing “company officers in the tactical and technical use and operations of the weapons and installations employed in the defense of fleet bases.”³

In 1940, Fort Sill could no longer train the number of students required by the Marine Corps. Therefore the Base Defense Weapons Course was divided into two sections: Field Artillery and Base Defense, with its graduates staffing the field artillery regiments and defense battalions respectively. This course, eventually renamed the Field Artillery School, would be the sole source of training artillery officers in World War II. Following World War II, officers would continue to train at the Field Artillery School (later named the Artillery Officer Orientation Course) in Quantico through 1965 when an agreement between the Army and Marine Corps consolidated artillery training at Fort Sill with the Marine Corps providing both instructors and students.⁴

¹ Jack Shulimson, *The Marine Corps' Search for a Mission: 1880-1898*, (Lawrence, KS: University Press of Kansas, 1993) 203.

² Donald F. Bittner, "The Base Defense Weapons Course: Artillery Training for Marine Corps 'Gunners' in the Interwar Years," (paper presented at the Northern Great Plains History Conference, St. Cloud, Minnesota) 7 October 1999.

³ Ibid.

⁴ Ibid.

Bibliography

- Alexander, Joseph H. "Archibald Henderson: 1820-1859." In *Commandants of the Marine Corps*, edited by Allan R. Millett and Jack Shulminson, 54-73. Annapolis, MD: Naval Institute Press, 2004.
- Anderson, Nels E. "Force Artillery," *Marine Corps Gazette* 45, no. 10 (October 1961): 26-28. <http://search.proquest.com/docview/206398960?accountid=14746>.
- Bartlett, Merrill L. "George Barnett: 1914-1920." In *Commandants of the Marine Corps*, edited by Allan R. Millett and Jack Shulminson, 174-193. Annapolis, MD: Naval Institute Press, 2004.
- Bittner, Donald F. "The Base Defense Weapons Course: Artillery Training for Marine Corps 'Gunners' in the Interwar Years." Paper presented at the Northern Great Plains History Conference, St. Cloud, Minnesota. 7 October 1999.
- Brown, Ronald J. *A Brief History of the 14th Marines*. Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1990.
- Buckner, David N. *A Brief History of the 10th Marines*. Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1981.
- Cass, Bevan G. *History of the Sixth Marine Division*. Washington, D. C.: Infantry Journal Press, 1948.
- Cavallaro, Gina. "Corps to shed 15,000: Further cuts are likely, Commandant warns." *Marine Corps Times*, December 5, 2011.
- Connally, Thomas J. and Lance A. McDaniel, "Leaving the Tubes at Home," *Marine Corps Gazette* 89, no. 10 (October 2005): 31-34.
- Conner, Howard M. *The Spearhead: The World War II History of the 5th Marine Division*. Washington, D. C.: Infantry Journal Press, 1950.
- Cureton, Charles H. *U. S. Marines in the Persian Gulf 1990-1991: With the 1st Marine Division in Desert Shield and Desert Storm*. Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1993.
- Donnelly, Ralph W. "An Annotated Bibliography of United States Marine Corps Artillery" Historical Division, HQMC 1970.
- Emmet, Robert. *A Brief History of the 11th Marines*. Washington, D.C.: Historical Branch, G-3 Division, Headquarters, U. S. Marine Corps, 1968.
- Estes, Kenneth W. *U. S. Marines in Iraq, 2004-2005: Into the Fray U.S. Marines in the Global War on Terrorism*. Washington, D. C.: History Division, United States Marine Corps, 2011.
- Frank, Benis M. and Henry I Shaw, Jr. *Victory and Occupation. Vol. 5, History of U. S. Marine Corps Operations in World War II*. Washington, DC: Historical Branch, G-3Division, Headquarters, U. S. Marine Corps, 1968.

- Grice, Michael D. *On Gunnery: The Art and Science of Field Artillery from the American Civil War to the Dawn of the 21st Century*. Charleston, SC: Booksurge, 2009. Kindle e-book.
- Hall, Bradley R. "Worth Another Look: CMO and support to the MAGTF." *Marine Corps Gazette* 93, no. 10 (October 2009): 60-63.
- Hughes, Phillip E. "The Marine Corps Artillery Regiment: A Structure for the 1990's" Research Report, Air War College, Air University, 1988.
- Johnson, Anthony J., Kurt Mogensen, Todd Peery, Chris Fears, and Andrew Tate. "Marine Artillery: Moving Forward to meet the Future." *Marine Corps Gazette* 95, no. 10 (October 2011): 51-55.
- Krulak, Victor H. *First to Fight: An Inside View of the U. S. Marine Corps*. Annapolis, MD: Naval Institute Press, 1984.
- Melillo, Michael R. "Cannon Cockers at War: The 11th Marines in Operation Iraqi Freedom." *Field Artillery Journal*. Sept-Oct 2003 in *U. S. Marines in Iraq, 2003: Anthology and Annotated Bibliography*. 101-105, compiled by Christopher M. Kennedy, Wanda J. Renfrow, Evelyn A. Englander and Nathan S. Lowery. Washington, D. C.: History Division, United States Marine Corps, 2006.
- Melson, Charles D. *Condition Red: Marine Defense Battalions in World War II*. Washington, D.C.: Marine Corps Historical Center, 1996.
- Millett, Allan R. *Semper Fidelis: The History of the United States Marine Corps*. New York: Macmillan Publishing, 1980. (Revised and Expanded edition, 1991.)
- Mroczkowski, Dennis P. *U. S. Marines in the Persian Gulf 1990-1991: With the 2nd Marine Division in Desert Shield and Desert Storm*. Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1993.
- Portman, T. M. "Commanding Officer 2/12 ltr 5750 dtd 1 Aug 94." 2/12 Unit File. Historical Reference Branch, History Division, Marine Corps University.
- Reynolds, Nicholas E. *U. S. Marines in Iraq, 2003 Basrah, Baghdad and Beyond: U. S. Marines in the Global War on Terrorism*. Washington, D.C.: History Division, United States Marine Corps, 2007.
- Rottman, Gordon L. *U.S. Marine Corps World War II Order of Battle: Ground and Air Units in the Pacific War, 1939-1945*. Westport, CT: Greenwood Press, 2002.
- Shulimson, Jack. *The Marine Corps' Search for a Mission, 1880-1898*. Lawrence, KS: University Press of Kansas, 1993. (with no PME of the USMC officers would attend the Artillery School at Ft Monroe but not assign as artillery officers; 1894 US Army artillery officers get legislation that would separate Coastal Artillery from Field Artillery and put it under USMC)
- Shulimson, Jack, Leonard A. Blasiol, Charles R. Smith and David A. Dawson. *U. S. Marines in Vietnam: The Defining Year 1968*. Washington D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1997.
- Slinger, Timothy. "Degradation of Artillery Skills" Master's Thesis, Marine Corps University, 2009.

Smith, Charles R. *A Brief History of the 12th Marines*. Washington, D.C.: Historical Division, Headquarters, U. S. Marine Corps, 1972.

Quilter II, Charles J. *U. S. Marines in the Persian Gulf 1990-1991: With the I Marine Expeditionary Force in Desert Shield and Desert Storm*. Washington, D.C.: History and Museums Division, Headquarters, U. S. Marine Corps, 1993.

Underwood, Robert O. "Marine Corps Field Artillery." *The Recruiters' Bulletin*, vol. 1, no. 10 (August 1915): 1-2.

Underwood, Robert O. "United States Marine Corps Field Artillery." *The Field Artillery Journal*, (1915): 296-310.

Wilson, Louis H. "CMC Reports on Meeting the Challenges of Future Battlefields." Marine Corps Gazette (pre-1994) 62.4 (1978): 20-32. ProQuest Military Collection. 23 Jan. 2012.

Zabecki, David T. *Steel Wind: Colonel Georg Bruchmuller and the Birth of Modern Artillery*. West Port: Praeger. 1994.

3rd Battalion, 11th Marines, "Command Chronology, 1 January – 30 April 1993," Archives and Special Collections Branch, Library of the Marine Corps, Collection 4119. (Primary Source)

3rd Battalion, 12th Marines, "Command Chronology, 1992-1998," Archives and Special Collections Branch, Library of the Marine Corps, Coll. 4119. (Primary Source)

3rd Battalion, 10th Marines, "Command Chronology, 1 – 30 April, 2010," Archives and Special Collections Branch, Library of the Marine Corps, Collection 4119. (Primary Source)

1st Battalion, 11th Marines, "Command Chronology, 1 May – 30 November, 2010," Archives and Special Collections Branch, Library of the Marine Corps, Collection 4119. (Primary Source)

Table of Organization, M-1126. Dated 11 February 1958. Archives and Special Collections Branch, Library of the Marine Corps, Coll. 4119. (Primary Source)