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MASTER OF MILITARY STUDIES

TITLE:

LESSONS FROM TARAWA AND THEIR RELEVANCE TO THE OPERATING
ENVIRONMENT OF 2011

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

AUTHOR:

Jeffrey J. Abramaitys
LtCol USMCR

AY 10-11

Mentor and Oral Defense Committee Member: Jonathan F. Phillips, PhD
Approved: [Signature]
Date: 7 April 2011

Oral Defense Committee Member: Eric Y. Shibusya, PhD
Approved: [Signature]
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EXECUTIVE SUMMARY

Title: LESSONS FROM TARAWA AND THEIR RELEVANCE TO THE OPERATING ENVIRONMENT OF 2011

Author: Lieutenant Colonel Jeffrey Abramaitys, United States Marine Corps Reserve

Thesis: Studying the battle of Tarawa can provide Marine Corps leaders with lessons, context, and insight for the conduct of future amphibious assaults in the political and operating environment of 2011 and beyond.

Discussion: The Marine Corps development of the amphibious assault can be traced back to the 1920s, culminating in the first actual assault against a heavily defended beachhead, the battle for Tarawa atoll. The iconic victory at Tarawa was a direct derivative of innovative thinking combined with a dedication to amphibious doctrine development by Marine leaders during the inter-war years. There are many similarities in the operating environment confronting the Marine Corps of the 1920-40s and the Marine Corps of 2011. As with the climate following World War I, during which the Marine Corps very survival as an individual service was at stake, the year 2011 finds the Corps facing an increasingly similar situation. During World War I the Marine Corps operated primarily in conjunction with the Army; following 10 years of counterinsurgency operations, calls that the Corps is again operating as a second Land Army continue to strengthen. Senior Marine Corps leaders have called for a return to the Corps amphibious roots. Studying the lessons of the Tarawa experience is an effective starting point for a return to the Corps amphibious traditions.

Conclusion: The Marine Corps ability to establish, define, and develop doctrine and capabilities for their pre-World War II mission of the amphibious assault is a lesson applicable to the 2011 operating environment. Careful examination and analysis of Tarawa can provide Marine Corps leaders with lessons, context, and insight for the conduct of future amphibious assaults in the political and operating environment of 2011 and beyond.

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Preface

This exploration of Marine Corps mission and doctrine development in the aftermath of World War I began during a study of the Tarawa campaign. Study of Tarawa led me to the realization that the efforts of numerous creative and innovative Marines during the inter-war years led to the Tarawa success. During continued study, apparent similarities arose between the Marine Corps position following World War I and that of today. Calls for a return to the Corps amphibious roots made the exploration of these similarities relevant and important during this time of fiscal austerity. Beginning my research with well-recognized secondary sources for background of the Tarawa Campaign, I moved on to primary sources from the Gray Research Center, The Marine Corps History Division, Marine Corps Doctrinal Publications, Operating Concepts, and numerous timely articles in today's media.

First and foremost, I want to thank my wife, Debbie for her inspiration and loving support. I am grateful for the support provided by my children, Andy and Emily. I am indebted to Dr. Jonathan Phillips for providing enthusiastic guidance and counsel. I am also grateful for the critical reading and advice provided by Dr. Rebecca Johnson. Any mistakes are my own.

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INTRODUCTION

The United States enters the year 2011 as a maritime nation engaged in countries around the globe. Since late 2001, the United States Marine Corps has conducted operations across the spectrum of conflict, from invasions of Afghanistan and Iraq to humanitarian assistance and theater engagement activities throughout the world. Marines conducting counterinsurgency operations helped to quell a persistent insurgency in Iraq and remain heavily committed to combating a tenacious ongoing insurgency in Afghanistan. A plethora of time and resources has been dedicated to the study and conduct of counterinsurgency operations, tactics, techniques, and procedures. Although necessary, ten years of combat operations in Afghanistan and Iraq have caused the Marine Corps to drift farther and farther from its amphibious roots. Perceptive of the slide from amphibious operations, 34th Commandant of the Marine Corps, General James T. Conway, called for Marines “to reestablish their traditional roles as ‘fighters from the sea.’”¹ Also recognizing the shift in operational focus, 35th Commandant of the Marine Corps General James F. Amos stated that the Marine Corps will “...remain America’s expeditionary force in readiness....”² Efforts to shift the focus back to the Corps amphibious heritage should begin with an examination of its 20th Century amphibious assault operations.

The Marine Corps development of the amphibious assault can be traced back to the 1920s, culminating in the first actual assault against a heavily defended beachhead, the battle for Tarawa atoll. There are many similarities in the political and operating environment confronting the Marine Corps of the 1920-40s and the Marine Corps of 2011. Some of these similarities are: the need to remain relevant during a time of shrinking defense budgets, the necessity to develop innovative methods and doctrine for the conduct of forcible entry operations in the 21st Century, and the requirement for development, experimentation, and procurement of the equipment

necessary to enable the developed concepts. Studying the battle of Tarawa can provide Marine Corps leaders with lessons, context, and insight for the conduct of future amphibious assaults in the operating environment of 2011 and beyond.

Tarawa, the main effort of Operation GALVANIC, opened the American Central Pacific drive toward Japan. On the tiny island of Betio, located in the Tarawa Atoll, 18,000 Marines of the 2nd Marine Division put to the test amphibious doctrine developed in the aftermath of World War I. Following seventy-six hours of bloody combat, the Marines had their answer, an iconic battle producing a multitude of tactical innovations and a validated amphibious doctrine, but not without horrific loss of life. Seizure of the island bastion came at a steep price, just over 3,400 American casualties. Tarawa served to prove that an amphibious assault, properly supported and executed, could succeed. Appropriate support was derived from successfully isolating the objective area by both sea and air. Successful execution was a result of: the application of doctrine developed during the interwar years, training, an amphibious mindset, and innovative leadership. Lessons learned were immediately incorporated into doctrine and applied to follow-on amphibious campaigns.

This case study begins with a brief review of Marine Corps pre-World War II amphibious mission and doctrine development. A synopsis of the Tarawa campaign follows. The next section examines lessons learned from Tarawa and their implementation. The conclusion discusses the context and parallels between the Tarawa invasion and the 2011 political and operating environment, thus demonstrating the applicability and importance of studying Tarawa for today's Marine Corps leader.

PRE-WAR DOCTRINE AND DOCTRINE DEVELOPMENT

Following the cessation of World War I hostilities, and the resulting demobilization, the Marine Corps was forced to fight for its continued existence and to prove its relevance. As historian Ronald Spector noted, “of all the U.S. combat services, the Marine Corps emerged from World War I in the most precarious and discouraging position, but in the end its response was the most creative.”³ Major General John A. Lejeune, then the Commandant of the Marine Corps, advocated for and received the amphibious assault mission.

Unfortunately, in military circles, “amphibious warfare was a little-known and much-despised form of war[fare]” at the time.⁴ Following the World War I Gallipoli disaster, where Allied amphibious forces met a bloody defeat, many military professionals believed that landings against defended beaches had little chance of success. Deeper and more recent analysis has shown, however, that the Gallipoli failure had more to do with the conduct of the mission and not the type of operation. Historians of amphibious warfare attribute Allied failure to “...faulty doctrine, ineffective techniques, poor leadership, and an utter lack of coordination between the services.”⁵ Tasked with the development of a forcible entry amphibious capability, the Marines set out to improve upon mistakes made by the Allies during the Gallipoli campaign.

General Lejeune overcame negative thinking on amphibious assaults. Under his direction, “in 1920, the Advanced Base Force was reorganized to emphasize offensive landing operations rather than simply the defense of bases already held.”⁶ General Lejeune reorganized Marine Corps schools, utilizing them as a development and proving ground for amphibious doctrine. Continuing the Marines evolution toward offensive amphibious warfare, Major General Ben H. Fuller, Commandant of the Marine Corps from 1930-1933, implemented the Fleet Marine Force (FMF) concept. Organization as a Fleet Marine Force created the structure

necessary for operating as an advanced force with the Navy, but further doctrine development was necessary in the following areas: command relationships, naval gunfire support, air support, ship-to-shore movement, and combat unit loading.⁷

To address the doctrinal deficiencies, Marine Colonel Ellis B. Miller, Assistant Commandant of Marine Corps Schools, enlisted the assistance of students and faculty to write a manual for landing operations. Significant work by the students and staff resulted in publication of the *Tentative Manual for Landing Operations*.⁸ Revised and renamed the *Tentative Landing Operations Manual*, the doctrine contained therein was approved by the Navy in 1938 as, *Fleet Training Publication 167, Landing Operations Doctrine (FTP-167)*.⁹ Developed by the Marine Corps, "the doctrine laid down in this remarkable document was destined to become the foundation of all amphibious thinking in the United States Armed Forces."¹⁰

Development and promulgation of amphibious doctrine was a necessary first step in the evolution of amphibious warfare; the next step was to test the theory with practical application.¹¹ To accomplish this, landing exercises "were held each winter from 1935 through 1941 on the islands of Culebra and Vieques in conjunction with fleet exercises in the Caribbean, or on San Clemente off the California coast."¹² Modifications were made to the amphibious doctrine based on the landing exercises, especially in the areas of command relationships and ship-to-shore movement. As the year 1941 approached, "...the Marine Corps had made long strides towards amphibious preparedness."¹³ Doctrine developed and tested during peacetime was soon to be put to the ultimate test, Operation GALVANIC in the Central Pacific. This section described how the Marine Corps prepared to meet the amphibious challenges of the future. The next section will address geography of the Tarawa atoll.

GEOGRAPHY

The Gilbert Islands

The Gilbert Islands, a chain of 16 atolls, are located 2,390 miles southwest of Pearl Harbor. Tarawa atoll is a triangular-shaped grouping of approximately 47 coral and sand islands of various sizes, surrounded by a continuous coral reef. The island of Betio is located in the southwest corner of Tarawa atoll and is completely surrounded by a coral reef. Betio is about 2.5 miles long and 800 yards in width at the widest point (See Appendix A and B).

Tidal conditions in the vicinity of Betio raised immediate concerns for GALVANIC planners. Successfully assaulting Betio required crossing the perimeter barrier reef. Lacking reliable records or charts of the tidal conditions, planners turned to former British residents for assistance, but no consensus emerged. Low tidal conditions were anticipated, but intelligence analysts expected at least 4 feet of water to be over the reef at high tide. Unfortunately that was not to be, a tidal condition known as a "dodging tide" appeared on the morning of November 20th, giving a mere foot of water over much of the reef, making it impossible for traditional landing craft to cross.

JAPANESE FORCES AND DEFENSIVE PLANS

Japanese Forces Securing The Gilbert Islands and Betio

Japanese Forces arrived in the Gilbert Islands during December 1941 in search of an airfield location. Betio proved to be suitable and an airfield was constructed there. Japanese Forces remained small in number until August 1942, when Lieutenant Colonel Evans F. Carlson and the 2nd Raider Battalion conducted a surprise raid on the Makin atoll. Carlson's raid on Makin demonstrated the Japanese vulnerability in the Gilberts.

The Japanese however were quick to reinforce, deploying the 6th Yokosuka Special Naval Landing Force to the islands.¹⁴ Japanese Forces defending Betio consisted of approximately 4,836 Imperial Marines, commonly known as *Rikusentai*, commanded by Rear Admiral Keiji Shibasaki.

Japanese Defense Plan for Betio

Admiral Shibasaki envisioned stopping an American landing force while in its assembly phase, prior to its reaching the beach. To destroy the landing force at sea, he had a variety of weapons: large caliber coastal-defense guns, anti-aircraft guns, anti-boat guns, and heavy and light machine guns. Admiral Shibasaki integrated Betios' barrier reef, an excellent natural obstacle, with "concrete and steel tetrahedrons, minefields, and long strings of double-apron barbed wire..."¹⁵ in an effort slow the invading force.

Betio was not large enough for a true maneuver defense. If American Forces were successful in establishing a beachhead, Japanese Forces were to immediately counterattack, forcing the invaders back into the sea. Fortifications on the island were constructed of reinforced concrete, coconut logs, and layers of sand. Defensive structures such as, command posts, ammunition dumps, and communications bunkers were designed to withstand direct hits from aerial and naval bombardment.¹⁶ The Japanese had 14 light tanks with which to counterattack invading forces. Lacking maneuver space to conduct a mobile defense meant that Japanese defensive positions would need to survive the preliminary naval and air bombardment sure to precede the landing force.

AMERICAN FORCES

Admiral Chester W. Nimitz, Commander in Chief of Pacific Ocean Areas, was tasked to execute Operation GALVANIC. Admiral Nimitz created the Central Pacific Force and selected

Vice Admiral Raymond A. Spruance to command it. Task Force 53, commanded by Rear Admiral Harry W. Hill, was the subcomponent designated to capture the Tarawa atoll.

Task Force 53

Task Force 53 contained five significant components: transport group, minesweeper support group, fire support group, landing force, and a carrier support group. Embarked on seventeen U.S. Navy ships, the landing force for Tarawa consisted of elements of the 2nd Marine Division commanded by Major General Julian C. Smith. Three infantry battalions were contained within the 2nd Marine Division along with an artillery force, an engineer force, an amphibian tractor battalion, and a tank battalion.

AMERICAN PREPARATIONS

American Strategy

Upon receipt of the GALVANIC mission, "...[Admiral] Spruance's decisions were governed by a paramount consideration-namely, the pressing necessity of completing the attack with the utmost speed, once it was launched."¹⁷ With the Japanese Combined Fleet lurking in the Pacific, fear of a counter-attack was a constant concern for naval planners and commanders. Air and sea superiority in the amphibious objective area were considered key requirements for the successful prosecution of an amphibious campaign. Air superiority for the Tarawa operation came from the Army Air Forces and nearly 900 carrier-based planes. The Central Pacific Fleet provided sea superiority for the operation.

With the significant threat of a naval and air counter-attack, secrecy was of utmost importance. To maintain strategic surprise, pre-bombardment fires were extremely limited. Scattered air raids were conducted throughout the Gilbert and Marshall Islands during the weeks preceding the invasion with the goal of reducing Betios defenses and confusing the Japanese as

to the invasion location. Naval pre-bombardment would begin a mere three hours prior to the landings, but was expected to pummel the Japanese defenders into death or a dazed submission.

Planning and Rehearsals

Major General Julian Smith, commander of the 2nd Marine Division, received notification of the Tarawa mission in early August 1943 and immediately initiated planning for the invasion. Selection of landing sites emerged as a major concern due to the heavily fortified island defenses. Betios southern beaches were densely mined and contained the strongest enemy defenses, along with heavy swells which came from the open sea. Western beaches required "...crossing both the barrier and fringing reefs as well as battling strong and unpredictable currents."¹⁸ The northern beaches were the least defended and nearest to the sole lagoon entrance, but the coral reef was at its widest, compounding any potential tidal issues.

Betios barrier reef, gently elevating from sea to shore, presented a significant challenge not yet seen in American amphibious operations. Landing craft available at the time drew 3.5 feet of water, making them unable to float over the reefs in the event of low or dodging tides.¹⁹ To overcome this challenge, Marine leaders proposed utilizing the Landing Vehicle Tracked (LVT).²⁰ The LVT, being a tracked vehicle, had the inherent ability to climb over the reef. LVTs, also referred to as "Alligators" or amphibian tractors, were originally envisioned as logistic vehicles, capable of ship-to-shore swimming and overland movement of combat supplies.²¹

Unfortunately there were only 75 LVTs available for the invasion. General Smith, in search of additional LVTs, learned of 100 new LVT-2s located in San Diego, and was able to obtain 50 of them.²² With the additional LVT-2s there would be enough LVTs to transport only the first three waves of Marines ashore. The remainder of the landing force would be transported

to shore by Landing Craft, Vehicle and Personnel (LCVP). In the event of poor tidal conditions, LCVPs would transport the remaining waves of the landing force to the reef, where they would be shuttled to shore by LVTs.

The 2nd Marine Division conducted battalion and regimental level amphibious training exercises in June and October 1943 in the vicinity of New Zealand. Departing New Zealand on November 1st under guise of a training exercise, the division arrived in the New Hebrides on November 7th. Division level amphibious landing rehearsals were conducted on November 7th and 9th off the island of Efate.²³ On November 13, the Task Force set sail for its pre-assault assembly areas.

THE 96 HOURS OF TARAWA

D-Day, November 20, 1943

Task Force 53 arrived in the vicinity of Tarawa Atoll during the early morning hours of November 20, 1943. Japanese shore batteries opened fire at 0507. American warships immediately answered with naval gunfire, attempting to eliminate the shore batteries and enemy defenses. At this point in WWII, it was not believed that naval gunfire could be conducted simultaneously with air strikes, due to the presence of the naval shells in the air. The lack of simultaneity caused lulls in fire. In addition, strong currents and a mix-up in the transport areas were wreaking havoc on the landing force, causing it to fall behind schedule.

Admiral Hill and General Smith monitored the landings from command posts aboard the U.S.S. *Maryland*. Communications became an immediate concern as the concussion from firing of the *Maryland's* main guns damaged the ship's radio equipment, leaving both leaders intermittently unable to communicate with the supporting airplanes and landing force.²⁴ This issue was to plague the commanders throughout the landing.

Lacking uninterrupted communications between assaulting force, air, and naval gunfire, and having reduced visibility due to previous bombing, supporting fires were forced to be lifted for fear of hitting friendly troops. With the assault waves behind schedule and fire support lifted, Japanese defenders had an approximately twenty minute gap with which to recover from the pre-bombardment shock before the first Marine LVTs hit the beach. Most of the assaulting LVTs were able to reach the beach, although many were damaged. Confusion abounded as the landing force was hit with murderous machine gun fire, killing many of the small unit leaders and stymieing the advance inland. Small beachheads were carved out under intense enemy fire, but the landing was in peril.

Subsequent waves of the landing force, embarked in LCVPs, ran aground on the coral reef, covered by only one to three feet of water. The irregular dodging tides had struck, forcing the Marines to wade the final 500 yards to shore. With most of the LVTs and LVT-2s destroyed or heavily damaged, few were able to assist with shuttling troops to shore. Heavy Japanese fire causing inordinate numbers of casualties combined with the long movement toward shore caused units to become separated and intermingled, adding to the confusion. Excellent small unit leadership and the heroic efforts of several Marines helped the Marines to avert disaster.

D+1, November 21, 1943

Following a restless night of consolidation and reorganization, the Marines on Betio prepared to continue the drive inland. Using grenades, explosives, and fire and movement, Marines advanced inland. Flamethrowers proved to be the most effective weapon for clearing enemy positions, but there were limited numbers of them available. Fighting raged on the island as the Marines attempted to expand their beachhead. The situation ashore remained tenuous

during the second night. Supplies were brought ashore and casualties sent back to the ships for treatment.

D+2, November 22, 1943

During the early morning hours of D+2, much needed artillery was landed on the island of Bairiki to support the Marine attacks on Betio. The day was marked by slow and steady progress as the Marines pushed inland. Later in the evening, the Japanese counterattacked with a small force, but were annihilated by artillery fire. A second counterattack followed at 2300, again repelled by the Marine defenders and artillery support.

D+3, November 23, 1943

At 0800, Marines supported by two medium tanks and seven light tanks attacked eastward to secure the long thin tail of the island. Enemy resistance crumbled, but “emplacements, dugouts, and pillboxes were blasted and burned all afternoon.”²⁵ The first American planes began landing on Betios airstrip at 1200. Sniper positions continued to be discovered and cleared. General Smith declared an end to organized enemy resistance on the island at 1330, although Japanese snipers continued to be rooted out.

Victory on Betio

On the battle-scarred island of Betio, a flag raising ceremony took place on November 24, 1943. All in all, “of the estimated 4,386 Japanese troops and Korean laborers who defended Betio, only 146 were taken prisoner, and a mere 17 of these were Japanese.”²⁶ Critical to American strategy, the seizure of Tarawa provided an important airfield to further prosecute the Central Pacific drive toward Japan. Securing Tarawa came at a very high cost, roughly 3,400 Marine and Navy casualties, with 1,115 killed in action, 2,234 wounded in action, and 88 missing in action and presumed dead.

TARAWA, THE AMPHIBIOUS PROVING GROUND

Tarawa's enduring legacy is that of being the first American amphibious assault against a heavily defended island. Tarawa presented American war planners the opportunity to test a doctrine developed by the Marines in the aftermath of World War I. The question as to whether an island fortress could be isolated by air and sea, successfully assaulted by an amphibious force, under the constant threat of counterattack by a superior naval force, remained unanswered until Tarawa. The American amphibious task force was a self-sustaining force. Significantly, the majority of supporting fires came from naval gunfire provided by the supporting fleet and carrier-based air, with additional support from land-based aircraft. Tarawa was a test of new amphibious doctrine and a necessary first step in the Central Pacific drive toward the Japanese heartland. The successes achieved by the 2nd Marine Division and the naval task force, not only gave war planners airfield locations for future assaults, but more importantly, "the Tarawa operation became a tactical watershed: the first, large-scale test of American amphibious doctrine against a strongly fortified beachhead."²⁷

TARAWA'S IMPACT ON AMPHIBIOUS DOCTRINE

Seizure of the Betio airfield was important, but "far more valuable was the experience amassed by American Army, Navy, and Marine Corps Commanders."²⁸ Moreover, Tarawa "show[ed] means by which losses could be reduced in future amphibious operations."²⁹ Lessons in the effectiveness of preliminary bombardments, air-ground bombing and naval gunfire coordination, communications, and reef crossing operations were learned and applied to future campaigns, saving countless lives during the drive toward Japan. On the heels of the battle, "...the 2nd Marine Division compiled and forwarded fourteen specific recommendations, ranging from amphibian tractors to signal communications."³⁰ Many of these recommendations would

be implemented in time for the next amphibious operation, FLINTLOCK, the invasion of the Marshalls.

Intelligence

Intelligence support for the Tarawa operation was mostly derived from photo-interpretation; analysts were able to pinpoint the majority of Japanese defensive positions and determine the size of the defending force.³¹ Intelligence specialists did not make accurate tidal estimations.³² The Tarawa operation was planned for late November 1943, a time when the tides were known to be irregular and uncertain. According to Admiral Spruance, "The planners had known that in the past there had been 'dodging' tides at Tarawa-irregular neap tides which ebb and flow several times a day at unpredictable intervals, which maintain a constant level for many hours."³³ Spruance went on to say, "The Americans could not predict the dodging tides for want of accurate tide tables for the Gilberts; they gambled for a high tide on the morning of 20 November and guessed wrong."³⁴ They may have guessed wrong, but their plan had a built in solution to compensate for irregular tidal conditions, the LVT.

Landing Craft

One of the most significant tactical innovations to come as a result of the Tarawa operation was in the area of landing craft.³⁵ Landing craft at the time had drafts of 3.5 feet, requiring at least that much clearance in order to pass over reefs. Experiments with rubber rafts and other boats proved ineffective, but the LVT proved to be the answer. During the initial Tarawa landings just about every LVT made it to the beaches, landing "...more than 1,500 Marines on Betio's north shore...."³⁶ What the LVT lacked was sufficient armor.

Originally designed as a logistics vehicle, the LVT was only lightly armored.³⁷ Although many of the LVTs used were modified with the addition of "hillbilly" armor plating, it was not

enough and slowed the vehicles, not designed to carry the extra weight.³⁸ As a result of lessons learned at Tarawa, modifications were made to the design of future LVTs. Enhancements would be made to the engine's power generation capability, and future generations of the LVT would include an armed variant, mounting a 37mm gun.³⁹ Critical to future successful amphibious operations was the realization that the Marines would need many additional LVTs. Based on the Tarawa experience, marine commanders recommended that the division allotment increase to at least 300.⁴⁰

Naval Gunfire

In support of the Betio landings, "...three battleships, four heavy cruisers, and twenty-odd destroyers of [Admiral] Hill's bombardment force fired a total of about 3,000 tons of shells at Tarawa in two and a half hours, interrupted for air strikes by American carrier planes,"⁴¹ but the effects failed to meet expectations. According to author James Stockman, "Tarawa served to reduce to proportion the exaggerated concept of what surface and air bombardment could do to a heavily fortified, concentrated target."⁴² To achieve the desired effectiveness, the preparatory phase of naval gunfire would need to be extended to several days in length.⁴³ However, increasing the length of preparatory fires caused an inverse relationship with the ability to achieve surprise.

Coordination between the assault force and ships firing batteries was an area for improvement. Smoke and debris from preparatory fires obscured the ships spotters, forcing them to shift and or lift fires earlier than necessary for fear of hitting friendly forces. Many of the salvos fired by supporting batteries completely missed the island.⁴⁴ Marines riding in the assault waves were in a position to control the naval gunfire but lacked the ability to communicate with the ships spotters.

The point-detonating, high capacity ammunition used at Tarawa proved to be ineffective against the fortifications found on Betio.⁴⁵ To penetrate the Japanese positions, "...a base-fused, armor-piercing shell plunging at a steep angle" was necessary.⁴⁶ Errors were also made in determining "...range, deflection, trajectory, ammunition selection, and fuse settings."⁴⁷ Naval leaders realized that additional training and "a simpler and more effective target designation system needed to be developed."⁴⁸

Artillery Support

During the planning stages for the Tarawa invasion, General Smith and his staff proposed placing artillery on adjacent islands to support the landings. Unfortunately, in an effort to maintain surprise and owing to a lack of transport assets, the pre-staging of supporting artillery was not possible.⁴⁹ On the second day, Marines established artillery support positions on the neighboring island of Bairiki, which provided excellent fire support for forces engaged on Betio. This technique would be often repeated during future amphibious campaigns.

Air Support

Air support for the Tarawa invasion received mixed reviews. Supporting air raids "made prior to the assault accomplished little, for not enough bombs were delivered, and those dropped were not heavy enough to damage Japanese emplacements."⁵⁰ Smoke and airborne debris caused battlefield obscurity, limiting the pilot's ability to identify targets and provide close support for the engaged Marines. Communication difficulties further limited effective coordination with the Marines, reducing the impact of aviation support. Operations at Tarawa indicated "...that effective air support was impossible unless the pilots and ground troops had trained as a team."⁵¹ Significantly, Tarawa demonstrated that naval gunfire and aviation support could be run simultaneously as "no danger of shells striking aircraft existed as long as the pilots

pulled out of their dives at an altitude higher than the maximum ordinate of the naval guns.”⁵²

Tarawa also demonstrated the need for combined training between Marine Corps ground forces and Naval aviation forces.

Communications

Communication problems abounded aboard Admiral Hills flagship the U.S.S. *Maryland*. Concussions from the ships firing batteries caused damage to the radio system, making communications intermittent at best during critical times of the operation.⁵³ To solve these communication problems, the AGC amphibious force flagship was developed, dedicated solely to command and control operations.⁵⁴

Other Tactical Lessons Resulting From Tarawa

Logistical procedures were revamped as a result of Tarawa. Tarawa planners anticipated stockpiling supplies on an established beachhead; unfortunately “...Marines fought the first day with their backs against the sea.”⁵⁵ Supplies unloaded on the small beachhead limited the Marines maneuver space, and were not necessarily the supplies needed by the Marines at the time of unloading. Based on the experiences of Tarawa, supplies sent ashore would be determined by the commander ashore and not the amphibious task force afloat.⁵⁶

One of the most effective weapons against the Japanese defensive positions turned out to be the flamethrower.⁵⁷ Unfortunately, there were not enough of them-only 24 in the division. Based on their experience at Tarawa, commanders recommended one flamethrower per infantry platoon.⁵⁸ Commanders also recommended development of a flame-throwing tank; the ‘Zippo’ tank was a direct result of this recommendation.⁵⁹ Marines improved coordination procedures at the tactical level to better integrate flamethrower, demolition, and infantry operations.

Tanks proved to be an instrumental force multiplier on Betio. Although the 37mm guns of the light tanks proved to be ineffective against Japanese fortifications, the heavier 75mm guns mounted on Sherman tanks were extremely effective.⁶⁰ Sherman tanks utilized on Tarawa lacked a means to communicate with the infantry they were supporting. Most of the casualties among tank commanders occurred while they were dismounted outside of their tank coordinating with the infantry.⁶¹ Improvements such as the tank-phone, a phone on the outside of the tank allowing infantryman to speak with the tank crew, were a result of the experiences gained during the Tarawa campaign.

The need for divers became readily apparent during the Tarawa operation. Necessary to gather information on reef, beach, and surf conditions divers could play a decisive role in future amphibious campaigns.⁶² Mines and underwater obstacles emplaced by the Japanese demonstrated the need for an underwater demolition team. Based on the lessons from Tarawa, Operation FLINTLOCK, the subsequent operation to invade the Marshalls saw the first use of the newly created Underwater Demolition Team (UDT) 1.⁶³

LESSONS FROM TARAWA AND THEIR APPLICABILITY TO 2011

The Marine Corps ability to establish, define, and develop doctrine and capabilities for their pre-World War II mission of the amphibious assault is a lesson applicable to the 2011 operating environment. As with the climate following World War I, during which the Marine Corps very survival as an individual service was at stake, the year 2011 finds the Corps facing an increasingly similar situation. A worldwide economic crisis is creating the need for drastic and severe budget cuts in military spending, leaving each branch of service to defend its contribution to the nation's defense. Department of Defense officials, most notably Secretary of Defense Robert Gates, have questioned the Marine Corps role in the future, resource-austere, operating

environment. According to Nathan Hodge and Alicia Mundy, writing for the *Wall Street Journal*, "Marines are fighting to protect their future after comments by Mr. Gates and other civilian leaders suggesting that the military may not need the kind of history-making-and costly-amphibious assaults that have defined the Marines."⁶⁴

Causing further concern for the Marines are comments by Secretary Gates and other defense officials indicating that the Corps has become too heavy and is operating as a second land army.⁶⁵ These concerns have been voiced by the 34th Commandant of the Marine Corps, General James T. Conway, as well.⁶⁶ Force protection operations have caused the Corps to adapt its equipment set, adding to its arsenal a fleet of the extremely heavy, Mine Resistant Ambush Protected (MRAP) vehicles. As the insurgency in Iraq turned to improvised explosive devices in late 2003, the Marine Corps demonstrated the same innovative spirit as was found in the build-up to Tarawa by jury-rigging armor to existing vehicles and fielding MRAP's. Unfortunately, as a result, the Corps has become a much heavier force, distancing itself from previous expeditionary capabilities, leading to the calls of becoming a second land army. The United States does not need a second land army, nor can one be afforded.

The Marine Corps in 2011 is in a comparable position as it was in the 1920-1930s, fighting for its continued existence and a clearly defined and relevant mission separating it from the other military services. Just as was mentioned in the aftermath of World War I, the conduct of an amphibious forcible entry landing appears unlikely at first glance. Challenging this thought requires a deeper look at today's operating environment. Potential flashpoints such as the Korean Peninsula, Taiwan, and a host of others demonstrate the need to maintain an amphibious forcible entry capability. Amphibious forcible entry operations are a pertinent

mission for which the Marine Corps can remain relevant in the current era and which separate it from the other services.

Just as the Corps did in the 1930s, the Marine Corps of 2011 must create innovative methods for conducting amphibious assaults. The Marine Corps also must conceptualize innovative use of available and emerging technology. By utilizing Tarawa as a case study, Marine Corps leaders can draw parallels to the current environment. The 35th Commandant's Planning Guidance calls for the Corps to "...aggressively experiment with and implement new capabilities and organizations."⁶⁷ General Amos also mentions, "although the world has changed, one thing has not: America needs an expeditionary force in readiness that is prepared to respond to any crisis."⁶⁸

Marine leaders are concerned that the Corps has lost its expeditionary character. Many Marine Corps professionals have called for a return to the Corps amphibious roots, most notably 34th Commandant General Conway and 35th Commandant General James F. Amos.⁶⁹ Innovation and forward thinking must remain hallmarks of Marine leaders. Developing creative solutions, tactics, techniques, and procedures to address the operating environment of the future are critical to the Marine Corps remaining relevant during a time of constantly changing asymmetric threats.

Careful examination of the Tarawa campaign demonstrates why it is vital for the Marine Corps to return to its amphibious roots. Having a doctrine in place for the conduct of a new method of operation was absolutely vital to the successful outcome of the Tarawa invasion in November 1943. As the Corps focus has become countering insurgencies and irregular threats, thought must be provoked for creating innovative methods for the conduct of amphibious forcible entry operations and a study and analysis of Tarawa can provide the basis. There are a

significant number of Marines who have combat experience in Iraq and or Afghanistan, but have not served aboard a Navy ship. Many Marines who have served on board Navy ships have not done so since 2001.

The nation's need to win the current counterinsurgency campaigns in Iraq and Afghanistan has caused a shift in focus for Marine Corps training. Current training has focused on counterinsurgency, thereby limiting the amount of time and resources available to conduct amphibious training. The change in focus of training combined with an incredibly high operational tempo has seriously degraded the amphibious operational capabilities of the Marine Corps. It is imperative that Marine Corps leaders place emphasis on the study of amphibious warfare. The Marine Corps should maintain one regiment, trained and capable of conducting amphibious operations.

Amphibious assaults in the operating environment of 2011 may not play out in the same manner as the Tarawa invasion, but lessons learned there are certainly applicable to future assaults. The process of identifying a mission in the 1920s and developing doctrine for the conduct of the determined mission is both applicable and directly related to today's operating environment. With advances in modern weaponry such as anti-ship missiles and Global Positioning System (GPS) guided bombs, it is imperative that a new method of conducting amphibious assaults be developed, tested, and imprinted in doctrine.

Forcible entry operations in 2011 are unlikely to utilize the same methods employed during the Tarawa campaign, but due to the inability to select battlefields, they may look surprisingly similar. What is certain is that the world remains a dangerous place and forcible entry operations may be necessary. Many potential conflict areas looming on the horizon may require a forcible entry from the sea. Amphibious operations can be restricted by anti-access

weapons systems or by the desire for secrecy. Operations may take place in the midst of sensitive political climates, requiring entry of forces from the sea at night, combined with the need for those forces to be off the beach and out of sight by sunrise. Operations of this type will require innovative doctrine development and planning for movement and sustainment. Marine Corps leaders must consider innovative methods of entry and supporting weapons systems employment, but should not forget the lessons learned from the past. Tarawa demonstrates innovation and the ability to learn and employ lessons in a rapidly evolving environment.

The innovative use of the LVT for ship-to-shore movement became one of the critical lessons from the Tarawa battle. The ability to realize a problem, the barrier reef, and develop a workable solution, the LVT, was a hallmark of creative thinking displayed by Marine leaders in 1943. Speed, armament, and armor are design requirements for a new amphibious vehicle; those same design challenges were similar in nature to the challenges faced by Marine leaders in 1943, utilizing the LVT in an innovative new role. Advances in modern anti-access weaponry, forcing naval warships to have greater stand-off, force Marine leaders to again search for innovative solutions in both doctrine and equipment to solve the access problems inherent with Amphibious operations.

The shortage of LVTs during the Tarawa campaign proved to be one of the most significant challenges for the 2nd Marine Division to overcome. Transporting Marines ashore in 2011 could involve ferrying forces to widely distributed landing areas, exacerbating the requirement for a large number of transport vehicles. The Marine Corps of 2011 must not only determine requirements that are technologically possible with current engineering capabilities, but must also determine the appropriate number to procure. Further complicating the procurement process is funding, especially during a time of decreasing budget authorizations.

Critical to the timing of the Tarawa invasion was the availability of amphibious shipping. The Marine Corps of 2011 is challenged with a potential shortage of amphibious shipping. According to the *Report of the 2010 Marine Corps Force Structure Review Group*, “the dual demands of sustained forward presence and sufficient lift for the assault echelons of two Marine Expeditionary Brigades (MEB) result in a requirement for 38 amphibious ships.”⁷⁰ The Navy and Marine Corps have determined that due to budgetary constraints, only 33 amphibious ships would be maintained.⁷¹ Confronting the reality of lift capacity reduction requires Marine Corps planners to lighten the load of operational forces and consider innovative techniques to employ forcible entry operations. Marines will also need to address the potential shortfall of adequate shipping resources.

Tarawa demonstrated a need for coordinated, sustained, and punishing fire support from naval gunfire and aerial bombardment. Significant advances have come in the form of GPS-guided bombs and GPS-guided cruise missiles. One of the problems identified at Tarawa was the close coordination of fire support. Primarily conducting counterinsurgency operations in 2011, the Marine Corps has not conducted sustained amphibious fire support operations with naval gunfire and air support. A return to amphibious training exercises is necessary to rehearse and refine fire support coordination skills. The Marine Corps will need to determine whether or not appropriate fire support is available from existing platforms and weapon systems and if it is available and sustainable in the necessary volume required to conduct a successful assault. Naval gunfire requires precise timing which can only be maximized through training.

Marines conducting the Tarawa landing had limited time and resources for the conduct of rehearsals. Many of the lessons learned from the Tarawa landings demonstrated the need for proficiency in landing operations. Maintaining the ability to land Marines with appropriate

support and sustainment requires constant training. Study of the Tarawa invasion can provide a starting point for commanders as the Marine Corps moves toward redefining its amphibious traditions.

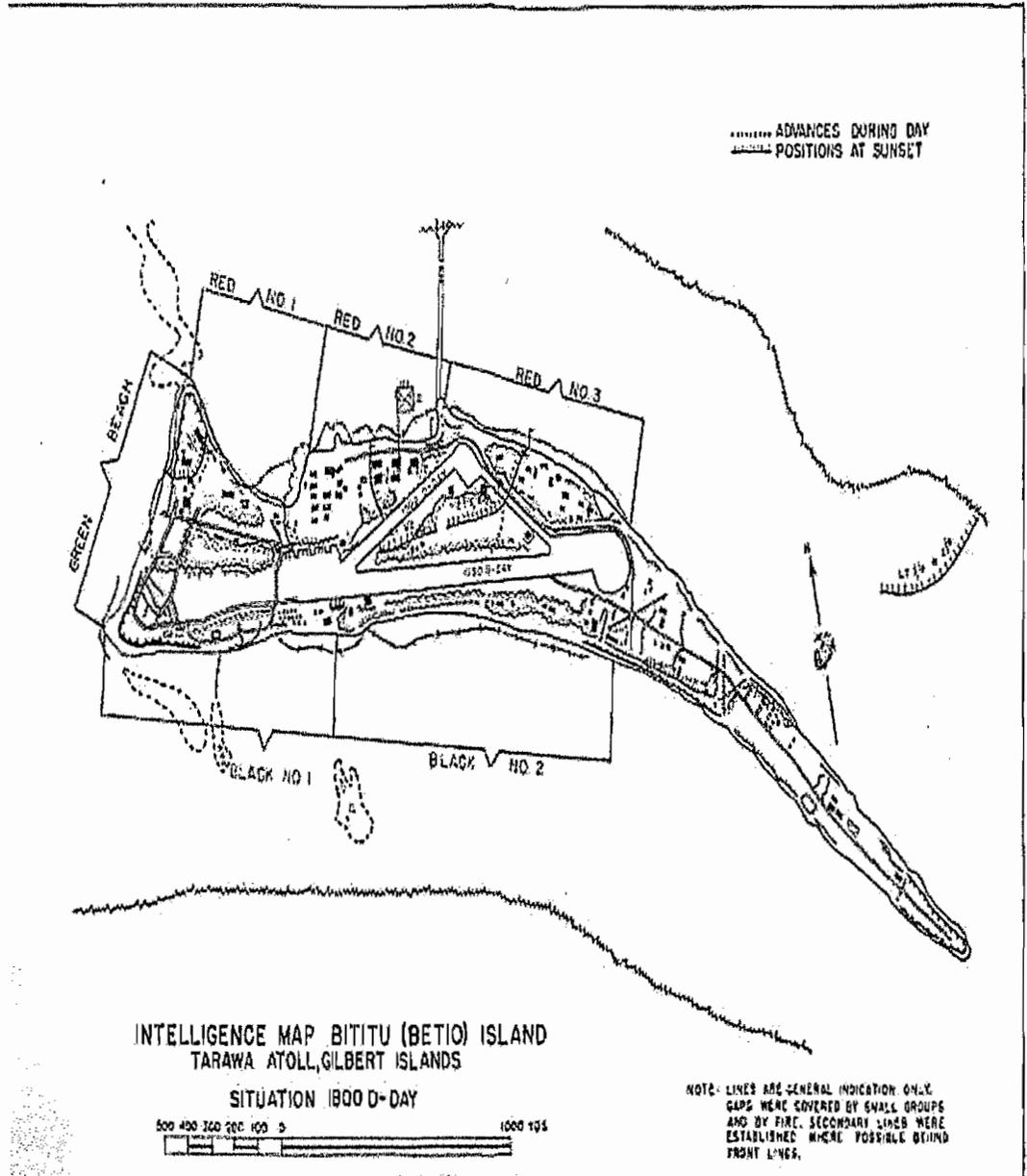
CONCLUSION

The Marine Corps development of the amphibious assault can be traced back to the 1920-40s, culminating in the first actual assault against a heavily defended beachhead, the battle for Tarawa atoll. The iconic victory at Tarawa was a direct derivative of innovative thinking combined with a dedication to amphibious doctrine development by Marine leaders during the inter-war years. There are many similarities in the political and operating environment confronting the Marine Corps of the 1920-40s and the Marine Corps of 2011. As with the climate following World War I, during which the Marine Corps' very survival as an individual service was at stake, the year 2011 finds the Corps facing an increasingly similar situation. During World War I the Marine Corps operated primarily in conjunction with the Army; following 10 years of counterinsurgency operations, calls that the Corps is again operating as a second Land Army continue to strengthen. Senior Marine Corps leaders have called for a return to the Corps amphibious traditions. Studying the lessons of the Tarawa experience is a starting point for a return to the Corps amphibious roots.

The Marine Corps ability to establish, define, and develop doctrine and capabilities for their pre-World War II mission of the amphibious assault is a lesson applicable to the 2011 political and operating environments. Careful examination and analysis of Tarawa can provide Marine Corps leaders with lessons, context, and insight for the conduct of future amphibious assaults in the operating environment of 2011 and beyond.

Appendix B

Betio



Stockman, James R. *The Battle for Tarawa*. Washington: Historical Sect., Division of Public Information, Headquarters, U. S. Marine Corps, 1947, map inset following p.28.

Glossary

FLINTLOCK-Code name for the World War II American Marshall Islands Campaign

FMF- Fleet Marine Force

GALVANIC- Code name for the World War II American Gilbert Islands Campaign

GPS- Global Positioning System

LCVP- Landing Craft, Vehicle and Personnel

LVT- Landing Vehicle Tracked

LVT-2- Landing Vehicle Tracked, 2nd Version

MRAP- Mine Resistant Ambush Protected Vehicle

SNLF- Special Naval Landing Force

TG- Task Group

UDT- Underwater Demolition Team

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- ⁶⁸ Amos, 5.
- ⁶⁹ Flaherty; See also Amos. Both references discuss the Corps' amphibious nature.
- ⁷⁰ Headquarters, U. S. Marine Corps, *Reshaping America's Expeditionary Force in Readiness, Report of the 2010 Marine Corps Force Structure Review Group*. (Washington, D.C.:U.S. Marine Corps, March 14, 2011), 2.
- ⁷¹ Headquarters, U. S. Marine Corps, 2.