MARINE CLOSE AIR SUPPORT IN WORLD WAR II

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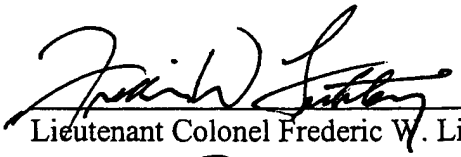
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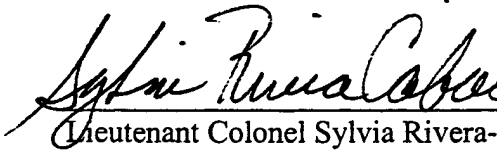
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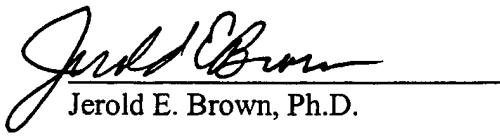
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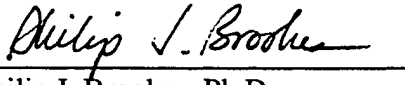
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

MARINE CLOSE AIR SUPPORT IN WORLD WAR II, by Major Brian S. McFadden, USA, 75 pages.

This paper traces the development of close air support (CAS) by the United States Marine Corps in World War II. The study examines how the Marines started developing their doctrine in the 1930s and adapted their (CAS) system based on the outcome of battles on Guadalcanal, Tarawa, Iwo Jima, and Okinawa, as well as during operations in support of the U.S. Army in the Philippines. Particular emphasis is placed on the development of Marine CAS doctrine, liaison organizational structures, aircraft, and air-to-ground weapons. This study is pertinent because it describes how the Marines developed a very effective weapon that greatly increased the potency of its amphibious operations. Additionally, this was initially accomplished during a period of very limited financial resources (before the start of World War II) and then limited time resources (during the war crisis). This study also shows how the Marines worked to support the forces on the ground with the best CAS system possible despite the opposition.

ACKNOWLEDGMENTS

Thanks to the committee of Lieutenant Colonels Lickteig and Rivera-Cabassa, and Dr. Brown for their insight and support in the development of this thesis. My father's assistance in finding retired Marines who were willing to share their stories was of great support and encouragement. Thanks to my uncle, Major John P. McFadden, USMC, retired, whose stories of combat as a Marine in Korea and Vietnam inspired me to investigate this subject of Marine close air support. Thanks to Major Mark Dillard, himself an "airedale," for proofreading this text. Lastly, thanks to my wife, Deborah, for enduring too many lonely nights while I sat behind the keyboard.

FOREWORD

The story of how the Marines developed a close air support system needs to be told. It is a story that is distinct from the volumes of literature written about the controversial strategic bombing campaign or the more glamorous air-to-air battles that raged in the skies of Europe and the Pacific. It tells of the commitment to support the ultimate instrument of National policy: a soldier or Marine on the ground. The story of Marine CAS is important because it shows how a force, while constrained by lack of money and hindered by administrative opposition, became a more effective fighting organization. Marine CAS development is a pertinent subject for the study of modern day air and ground operations for the same reasons. As an Army aviator with a vested interest in supporting the commander on the ground, any lessons learned from the past will make future operations more effective and avoid needless loss of friendly lives. This study of how the Marines developed and integrated CAS in World War II is my attempt to do that.

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LIST OF ABBREVIATIONS

AAF	Army Air Force
ALO	Air Liaison Officer
ALP	Air Liaison Party
ASC	Air Support Commander
ASCU	Air Support Command Unit
CAP	Combat Air Patrol
CAS	Close Air Support
CV	Aircraft Carrier
CVL	Light Aircraft Carrier
CVE	Aircraft Carrier Escort
FAC	Forward Air Controller
FS	Fighter Squadron
FSCC	Fire Support Coordination Center
HVAR	High Velocity Aerial Rocket
ID	Infantry Division
IJA	Imperial Japanese Army
IJN	Imperial Japanese Navy
JASCO	Joint Assault Signal Company
LAFASCU	Landing Force Air Support Coordination Unit
LCA	Landing Craft Assault
LCVP	Landing Craft Vehicle and Personnel
LD	Line of Departure
LST	Landing Ship Tank
LVT	Landing Vehicle Tracked
MAG	Marine Air Group
MAGSDAGUPAN	Marine Air Groups, Dagupan

NGF	Naval Gunfire
SAP	Support Air Party (Army liaison organization)
SFCO	Shore Fire Control Officer
SBD	Scout Bomber Douglas (Dauntless dive-bomber aircraft)
SCR	Set Complete Radio (Army radio nomenclature)
TAF	Tactical Air Force
TBF	Torpedo Bomber Grumman (Avenger torpedo bomber)
USMC	United States Marine Corps
VB	Navy Bomber Squadron (followed by a number)
VF	Navy Fighter Squadron
VHF	Very High Frequency radio
VMF	Marine Fighter Squadron
VMO	Marine Observation Squadron
VMSB	Marine Scout-Bomber Squadron
VS	Navy Scout Squadron
VSB	Navy Scout-Bomber Squadron

CHAPTER 1

THE FOUNDATIONS OF MARINE CLOSE AIR SUPPORT

The airplane's ability to move troops and equipment, perform reconnaissance, and conduct strategic bombing all have been important contributions to the development of warfare. The role of close air support (CAS) in ground combat is arguably one of the most important developments in the use of aircraft by the military during this century. This use of aircraft in the CAS role has greatly enhanced a ground commander's ability to mass the effects of lethal fires as he crossed the final few hundred yards in front of the enemy. The development of this capability provides an interesting study in the relationship among technology, leadership, and innovation during wartime. In particular, the development of CAS by the United States Marine Corps (USMC) during World War II clearly shows the interrelation of these factors and brings out several important lessons for future CAS employment.[1]

Prior to World War II, the USMC searched to find the proper role for its growing fleet of aircraft. During World War I, Marines used their aircraft in a variety of ways, including a few missions of what could be termed CAS. During the conflicts in Central America in the 1920s, Marine aviators flew reconnaissance and support missions for the ground forces. Not until a group of rebel Nicaraguans surrounded thirty-seven leathernecks in Ocotal were the Marine aircraft put to use in the CAS role. Major Russell

[1]As used in this paper, CAS is defined as aerial bombing of an enemy in close proximity to friendly forces in a way that requires close coordination. During World War II in the Pacific, Marines typically employed CAS within 500 yards of friendly ground troops. At that time, the term "CAS" was unknown. Instead, the term "air-ground cooperation" was used.

Rowell led a flight of five De Havilland biplanes from Managua and dropped small bombs on the Nicaraguans and inflicted enough damage to relieve the surrounded Marines below. These actions leading up to 16 July 1927 set the stage for integrating the airplane into a CAS role by the USMC.[2]

The concept of employing CAS was not written into Marine doctrine until July 1935 when the Marine Schools in Quantico drafted the first amphibious landing doctrine, titled the *Tentative Landing Operations Manual*. This attempt to standardize the combined use of forces during an amphibious assault assigned naval aircraft the missions of air superiority followed by support to the ground forces. Marine aircraft would be used to augment the Navy. Then as airfields were available on shore, Marines would begin to operate their aircraft from land. The use of aircraft in the air superiority role over the landing force was clearly the priority, and the manual did not identify the means to command and control the aircraft in response to a request for support from the landing force commander.

From that time until the start of the USMC's involvement in World War II, the Fleet Landing Force Exercises were held to refine amphibious assault tactics and techniques. These exercises, held in several locations in Virginia, Puerto Rico, and California, rectified many problems and established functional tactics for the assaulting force, but did not address the shortcomings in Navy and Marine doctrine concerning CAS

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[2]Robert L. Sherrod, *History of Marine Corps Aviation in World War II* (Washington: Combat Forces Press, 1952), 25 (hereafter referred to as Sherrod, *History*). A civilian correspondent for *Time* magazine, Sherrod saw many Marine operations firsthand and is uniquely qualified as a primary source.

employment.[3] Then, in 1935, the Marines established its aviation branch as an independent section under the direction of a major general who reported directly to the commandant. The new Marine air division's mission, as stated by the Navy General Board in 1939 was "to be equipped, organized and trained primarily for the support of the Fleet Marine Force in landing operations and in support of troop activities in the field; and secondarily as replacement squadrons for carrier-based naval aircraft."[4]

In spite of the seemingly good progress being made in the Marine air branch's organization and mission prior to the war, it was severely hindered by a lack of modern equipment and trained personnel. If the Marines were to be primarily responsible for providing CAS to the landing force as directed in their 1939 mission statement without the luxury of operating from land, then they would clearly need to have dedicated CAS squadrons on aircraft carriers to support the amphibious assault. Competition with the Navy for resources and mission priorities left the Marines lacking until the last year of the war. The Navy held to the position that naval aviation's primary mission of providing air coverage over the fleet was the most important; Marine aviation was left with few resources to support the assault force. The Marine landing force, often unable to position its own field artillery to support an assault and uncertain of the Navy's commitment to provide naval gunfire (NGF) for an amphibious assault landing, would have to depend on its own CAS. Again, this implied assigning Marine squadrons to aircraft carriers.[5]

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[3]Joint Staff Task Force *Report to the Secretary of Defense CAS Study, Phase II Executive Summary* (Washington, 1971), 5-2, 5-3 (hereafter referred to as Joint Staff, *Executive Summary*).

[4]Sherrod, *History*, 32.

[5]Headquarters, USMC, *Tentative Landing Operations Manual* (Washington, 1935), Chapter 6.

War with Japan was looming. The Fleet Marine Force trained to conduct that war as an integrated, combined arms organization with the assets and capabilities to conduct CAS. The lessons from the Fleet Landing Exercises indicated many deficiencies, especially in CAS integration, that should have been corrected. These lessons would have to be relearned in the Southwest and Central Pacific and corrected prior to each successive amphibious assault.

This study examines the Marines' landmark battles in the Pacific and their development of CAS doctrine, the growth and changes to their organizational structures, the improvement of their equipment, and their tactical employment of CAS. The sum of all these changes will be determined and an assessment made of the total impact on the USMC's ability to conduct amphibious warfare. The battles to be examined are Guadalcanal, Tarawa, Luzon Island, Iwo Jima, and Okinawa (figure 1). Important developments between these battles will also be assessed for their impact on Marine CAS development.

The amphibious assault on Guadalcanal on 7 August 1942 was the Marines' first major combat action of World War II. The 1st Marine Division (1st Division), commanded by Major General Archibald A. Vandegrift, fought a savage jungle war under extremely harsh tropical conditions to seize the Japanese airfield near the island's north shore. The plan for air support called for Navy aircraft from the USS *Saratoga,* USS *Enterprise*, and USS *Wasp* to provide air cover for the landing force. In accordance with prewar doctrine, the naval aviation planners gave priority to providing air defense

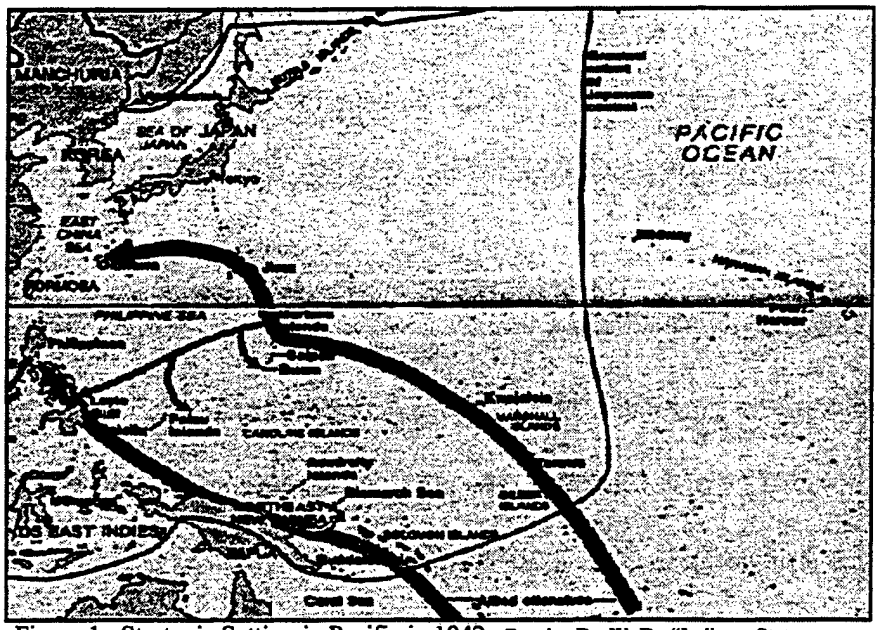

Figure 1. Strategic Setting in Pacific in 1942. Brooks, Dr. W. D. "Indiana State University Geography Department" [Online] Available baby.indstate.edu/gga/gga_cart, 7 May 1999.

over the fleet with no detailed provision for CAS after the initial assault had been made. This method of CAS employment was a result of several flaws in existing doctrine and plans. Major General Vandegrift captured the lessons learned from the battle for Guadalcanal in his action report to the Navy Department and provided several recommendations to correct them. Most were implemented prior to operations in the Gilbert Islands.[6]

During the assault landings at Tarawa in the Gilbert chain in November 1943, air liaison parties (ALPs) were attached to the ground commanders to assist in selecting and identifying targets for CAS. Air coordinators (the precursor to modern-day Forward Air Controllers, or FACs) were employed to observe the progress of Marines on the ground

[6]Joint Staff, *Executive Summary*, 5-7.

and to identify the target locations for the CAS pilots prior to their arrival. The plan also included moving the air command and control element from ship to shore after the tactical situation on the island permitted. All support was to come from carrier-based aircraft. These CAS plans were put into action with improved effect.[7] When compared to the battle on Guadalcanal, the CAS as used on Tarawa was more effective and was praised by many ground commanders.

The US Army invaded Luzon Island in the Philippines in January 1945. The USMC provided Marine Air Group 24 (MAG-24) to support the US Army's 1st Cavalry Division as it moved to capture Manila. MAG-24 deployed ALPs and established flexible command and control procedures that allowed the ground commanders to use Marine aircraft as an integrated maneuver arm. The result was an effective, responsive, and flexible air-ground team.[8]

The Marines' operation to capture Iwo Jima in February 1945 saw another step in the development of CAS by introducing the Landing Force Air Support Coordination Unit (LAFASCU). This provided many lessons that led to the largest amphibious assault of the war in the Pacific, the landings on Okinawa.

The final amphibious operation of the war in the Pacific was the assault on the island of Okinawa in April 1945. The entire operation, under the command of Tenth Army, called for the 1st and 6th Marine Divisions to assault beaches to the north of the

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[7]Joint Staff Task Force CAS Study, *Report to the Secretary of Defense, History of CAS Command and Control* (Washington, 1971), 5-15, 5-16. (hereafter cited as Joint Staff, *History*).

[8]Joint Staff, *History*, 5-24.

Army's 7th and 96th Infantry Divisions. The CAS employment plan established rigid communications and control procedures. Marine squadrons initially provided CAS from escort carriers for the first time, then ground-based aircraft assumed the CAS mission as airfields on Okinawa were secured. The organizations, equipment, and tactics had been honed to a razor's edge, and the procedure to request and approve CAS was tailored to meet the demands of a very crowded battlefield with multiple divisions operating across a narrow front.[9]

The lessons learned from the Marines' development of CAS during World War II are still applicable today. They describe success in combat as coming from flexible, integrated, and controlled use of combat power. Marine CAS in World War II was most effective when employed in concert with the ground commander's plan because it became flexible enough to react quickly to changes on the battlefield. The Marines' struggle to develop their CAS doctrine, tactics, equipment, and supporting organizations was accomplished during the crisis of war against Japan and during administrative battles with the Navy. The results show that the Marines' commitment to providing dedicated, integrated, and effective support to the forces on the ground was the single determining factor in their development of close air support. CAS in the next war will be successful or it will fail for these same reasons.

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[9]Joint Staff, *History*, 5-28 to 5-30.

CHAPTER 2

OPERATION WATCHTOWER: THE BATTLE FOR GUADALCANAL

To most Americans prior to August of 1942, the name Guadalcanal was only an obscure listing in the index of geography books. By the end of that year it would become a household word because of the bloody battle for control of that small but very significant piece of earth. This island in the Solomon chain had become a critical link in the Japanese strategy to control the Southwest Pacific, mainly because the airfield under construction there would allow Japanese aircraft to protect the Imperial Fleet as it attempted to dominate the region. The airfield, in conjunction with the small harbor at nearby Tulagi Island, would provide the Imperial Japanese Navy (IJN) with an operational base from which it could control the vital sea-lanes between Hawaii and the Southwest Pacific and support the planned invasion of Australia. By July 1942, the airfield on Guadalcanal was nearing completion. The United States was forced to respond quickly if it were to stop the rapid Japanese advance into the Southwest Pacific.

On the third of July, Vice Admiral Robert L. Ghormley (the newly assigned Commander of the South Pacific Forces) notified Marine Major General A. A. Vandegrift that his 1st Marine Division was to attack the Japanese at Tulagi on 1 August, hardly four weeks away. Major General Vandegrift was incredulous; less than half of his Division was available for planning and rehearsal. He had arrived in New Zealand just one week prior with only one of his three regiments, the 5th Marines. The 1st Marine Regiment had only just departed San Francisco four days prior and the 7th Marines were defending Samoa. The 2nd Marines from the 2nd Marine Division would be given to Vandegrift,

replacing the 7th Marines for the operation.[1] Ghormley's staff was unable to provide essential intelligence about Guadalcanal (code named "Cactus") to Vandegrift's staff and Vandegrift was forbidden from sending reconnaissance elements to Guadalcanal for fear of alerting the Japanese. Additionally, the staff belonging to the Commander of the Amphibious Force (Rear Admiral Richmond K. Turner) was not in New Zealand and would not arrive until two weeks before the scheduled assault. This led to very poor coordination between the 1st Division and the Navy staff; the resulting CAS plan was equally poor. The Navy would provide air support for the assault phase of the operation from the *Enterprise*, *Saratoga*, and *Hornet*. The commander of the Expeditionary Force Vice Admiral Frank J. Fletcher had reluctantly agreed to provide air support to the Marines for only three days after the assault.[2] After that, the Marines would have to fend for themselves. Rear Admiral Turner would command the assault from his flagship, *McCawley*. All requests for CAS would have to travel from the ground unit through the Division headquarters to the flagship, where it would be passed to the carrier air group or to aircraft overhead. The ground forces had no direct means to communicate with and direct the employment of CAS.[3] This was the Navy and Marine's first attempt at

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[1]Sherrod, *History*, 69, 70. Vandegrift was in New Zealand with his headquarters and one of his regiments. The assault was later postponed from 1 August to 7 August.

[2]Sherrod, *History*, 73. These were three of only four carriers available at the time of the assault. After one day of fighting, Fletcher requested to withdraw his carriers rather than risk their loss to an impending IJN counterattack. The Navy pilots, experienced at Midway and the Coral Sea, did not have the training or experience for CAS in support of Marine ground forces.

[3]Joint Staff, *Executive Summary*, 5-5.

constructing a CAS system for an actual combat assault. It could not have been planned under worse circumstances.

The Marines and Navy had no suitable CAS aircraft for the amphibious assault and ensuing land operation on Guadalcanal. The aircraft available for CAS missions .were the Grumman F4F Wildcat (figure 2), the Douglas SBD dive-bomber (figure 3), and the Army P-400 (figure 4), an export version of the outdated P-39. As CAS aircraft, these ships were very limited. The F4F was designed as an air-to-air fighter equipped with six .50 caliber machine guns; no provisions for bombs or rockets had been designed for it at this point in the war. The P-400 had also been designed as an air-to-air fighter, but because of very poor performance at altitude, it was assigned low-level attack missions. Its complement of .50 and .30 caliber machine guns, along with a 20-millimeter cannon firing through the propeller hub, made it somewhat more suited for CAS missions than the F4F. As with the Wildcat, the P-400 had no provisions for bombs or rockets. The only aircraft able to deliver bombs was the SBD Dauntless dive-bomber. Its slow speed made it a much easier target for ground gunners and defending fighters to destroy. However, it did have two forward firing machine guns useful for strafing and two swivel-mounted .30 caliber guns in the aft cockpit for the radio operator to fend off attackers from the rear.

As the day of the assault drew near, there were only two land-based Marine squadrons in the Southwest Pacific: VMF-212 and VMO-251. Both were located too far to the south to support for the forces on Guadalcanal. VMO-251 was an observation squadron trained to adjust naval gunfire or field artillery from the air, and was not trained at conducting either CAS or air-to-air combat. VMO-251 was stationed over 550 miles

Figure 2. Marine F4F Wildcat on Guadalcanal. Hanson, Dave. "A Tribute to the Cactus Airforce." [Online] Available ixpress.com/aglcaf/cactus/cactus.htm, December, 1998.

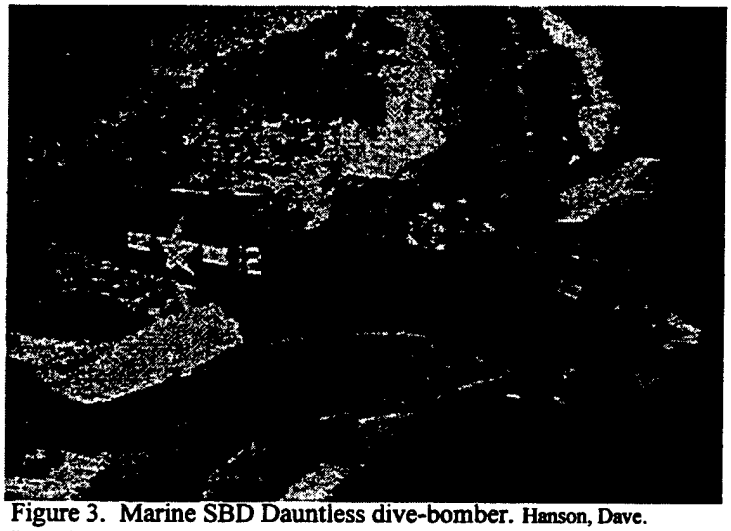

Figure 3. Marine SBD Dauntless dive-bomber. Hanson, Dave. "American Aircraft of WWII." [Online] Available ixpress.com/aglcaf/usplanes/american.htm, April, 1999 (hereafter referred to as Hanson, *WWII*).

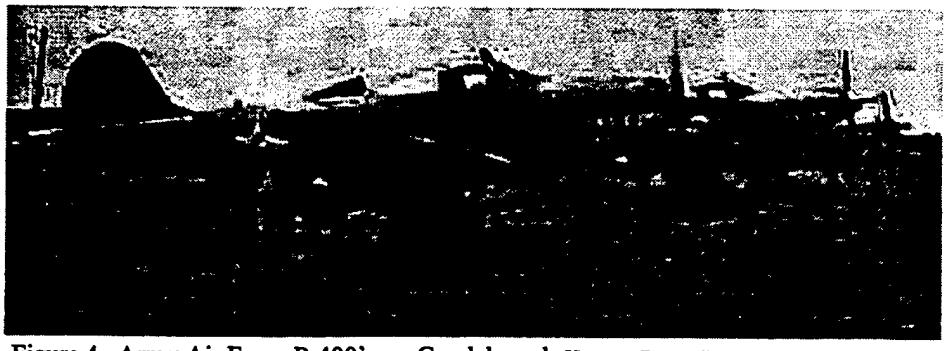

Figure 4. Army Air Force P-400's on Guadalcanal. Hanson, Dave. "A Tribute to the Cactus Airforce." [Online] Available ixpress.com/aglcaf/cactus/cactus.htm, December, 1998.

away on the island of Espiritu Santo, too far to directly support the Marines on Guadalcanal.[4] Since arriving at Efate in May, VMF-212 (another F4F-equipped squadron) initiated a rigorous training program to meet the demands of long-range navigation over water and fighting against a superior Japanese air threat. However, the commander of VMF-212 focused his training on countering the Japanese air-to-air threat and did not emphasize training his squadron at providing CAS.[5] Although VMF-212 was able to reach a higher level of precombat readiness than most other Marine squadrons, it was still over 700 miles southeast of Guadalcanal leaving its F4Fs out of range to provide CAS to the 1st Division. This left only carrier-based aviation to provide CAS for the Marines on Guadalcanal.[6] Vandegrift knew that until he captured the airfield on Guadalcanal and secured a base from which Marine squadrons could operate, he could not guarantee CAS for his Division. Even if VMF-212 and VMO-251 were within range of Guadalcanal, they still would have to work through the inflexible command and control system in order to provide CAS until the airfield could be secured.[7] Knowing this, Vice Admiral John S. McCain, Commander, Air, South Pacific ordered Marine Air Group 23 (MAG-23) to Guadalcanal in order to provide enough squadrons to support a

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[4]Sherrod, *History*, 71. VMO-251's Wildcat were designated F4F-3P. However, it deployed to Espiritu Santo without the long-range fuel tanks it needed and did not receive them until 20 August, after VMF-223 arrived at Henderson Field on Guadalcanal.

[5]Max Brand, *Fighter Squadron at Guadalcanal* (Annapolis: Naval Institute Press, 1996). Chapters 5 and 6 (hereafter referred to as Brand, *Squadron)*.

[6]Because the majority Marine squadrons in the theater at that time were not trained to operate from carriers, Vandegrift was at the mercy of the Navy for any tactical air support.

[7]Sherrod, *History*, 71. In all, over 290 Allied aircraft were stationed in the area. Army B-17s were available from New Caledonia (almost 900 miles away) and did fly some reconnaissance missions in support of the 1st Division. Army B-26s, P-400s, and P-39s were also on New Caledonia (as well as other obsolete types on other islands) but did not have the range to support operations on Guadalcanal.

long campaign on the island. From MAG-23 on Oahu, VMF-223 and VMSB-232 would sail on *Long Island* to Efate and exchange eight of its pilots for eight more experienced pilots from VMF-212. The two squadrons would then sail toward Guadalcanal and fly ashore.

When the nearly completed airfield was discovered on 6 July, plans were hastily changed to move the main assault from Tulagi to Guadalcanal. Vandegrift's task would be to drive the IJA from the island so that Allied forces could use the airfield on Guadalcanal for future operations.

Remarkably, CAS for the assault phase became an irrelevant issue when the Japanese let the Marines land unopposed on Guadalcanal.[8] The only instance of an air support mission during the assault phase of the operation was a sortie requested by the commander of the Marines on Tulagi the day before the air attack was required. When the Navy dive-bomber arrived over the target area at the coordinated time, the ground forces fired a flare to indicate that the strike was cleared to commence. The pilot dropped his bomb on the prearranged hilltop and returned to his aircraft carrier.[9]

The 1st Division landed on Guadalcanal at 0900 on 7 August, surprising the Japanese defenders who abandoned the airfield and adjacent support facilities. As the Japanese rapidly retreated into the jungle, Vandegrift quickly moved his forces inland, established a defensive ring around the airfield, and brought his supplies ashore (figure 5). After his engineer battalion finished constructing the airstrip, Vandegrift sent word to

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[8]Joint Staff, *History*, 5-5. Because of the time constraint in planning the assault, both staffs decided to create a CAS request system that was uncomplicated, although inflexible. Landings at Tulagi were heavily resisted.

[9]Joint Staff, *Executive Summary*, 5-5.

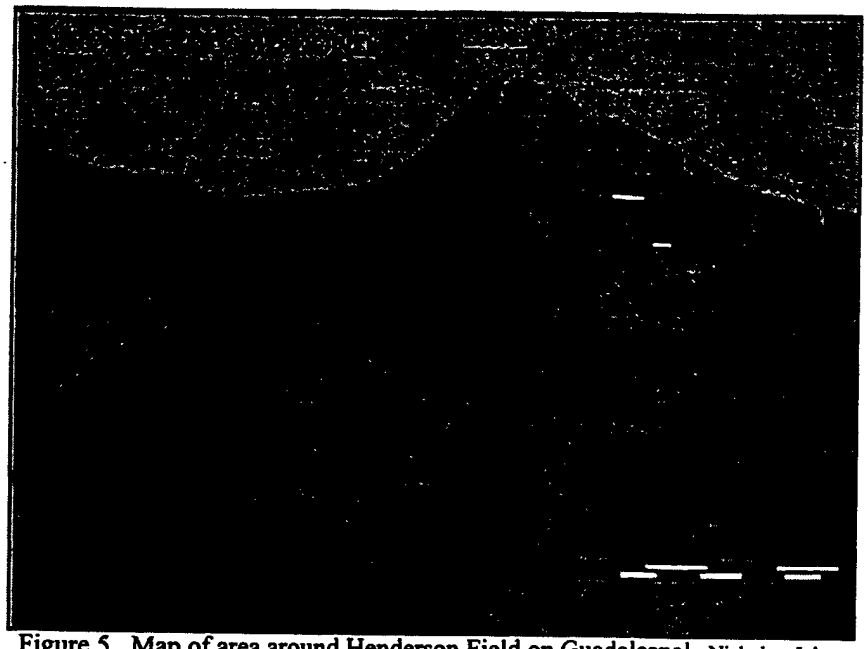

Figure 5. Map of area around Henderson Field on Guadalcanal. Nicholas, John. "Guadalcanal Online." [Online] Available geocites.com/heartland/plains/6672/canal.index.html December, 1998.

Turner on 12 August, "Airfield Guadalcanal ready for fighters and dive-bombers."[10] These squadrons finally arrived at Henderson Field at 1700 on 20 August, much to the relief of the weary Marines there.[11] The aviators would get their first taste of combat only twelve hours later.

The 1st Division had occupied Guadalcanal for thirteen days prior to VMF-223's arrival. Fighting had been limited to sporadic firefights and the staff of the 1st Division knew that a major counterattack by the IJA was imminent. That attack came at 0240 on the morning of 21 August when a force of over 900 Japanese soldiers crossed the Tenaru

[10]Sherrod, *History*, 79. So meager was the supply flow to Guadalcanal that only 400 gallons of aviation fuel were available at the airfield, scarcely enough to refuel two F4Fs!

[11]Sherrod, *History*, 79. Average flight time among VMF-223 was a scant 275 hours. Japanese pilots at Rabaul, the main IJN base, averaged over 800 flight hours. Most VMF pilots had only recently qualified on carrier takeoffs and landings when it became necessary to quickly get them to Guadalcanal on *Long Island*. Additionally, the MAG-23 squadrons received several critical items of equipment and supplies from VMF-212 before departing for Cactus.

River from the east and slammed into the eastern perimeter guarded by 2nd Battalion, 1st Marines (2/1).[12] Second Battalion, whose defensive positions were only three thousand yards from the airfield, blocked the attack and maintained its perimeter intact. At daybreak, the Japanese force attempted to outflank the defending Americans by boarding assault boats and moving out to sea just beyond the breakers, landing again a few hundred yards west of 2/1's defense.

Early in the morning of 21 August, 1st Division headquarters directed Captain John L. Smith, commander of VMF-223 to provide CAS to 2/1 along the shoreline adjacent to the Tenaru River. Smith immediately took the information and map and ran to his squadron flight line, where Captain Loren D. Everton (a replacement pilot from VMF-212) and three others were in their F4Fs, warming up the engines. Smith showed the map to Everton, explained the situation to him, and directed him to "go out, investigate, and use your own judgement about strafing or returning." Everton clearly understood the importance of the mission, having been jolted awake by the clamor of the early morning machine gun fire. He quickly departed the airfield with the other three Wildcats and located the Japanese still in their boats approaching the shore. The four F4Fs made short work of the fragile boats, spoiling the Japanese counter move. What Everton's flight did not destroy in the sea was annihilated by 2/1 when it reached the beach. The Japanese attack was halted; the remaining soldiers quickly withdrew into the jungle to the east. [13]

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[12]Actually the Alligator Creek. Early maps identified it as the Tenaru and the battle is most often referred to by that name.

[13]Brand, *Squadron*, 66, 67. Brand collected the information during interviews with pilots from VMF-212 while it was still clear in their minds after their return to California in 1943.

This CAS mission showed several weaknesses in the CAS procedure. First, no direct means of communication could be established between Everton's flight and 2/1 due to the lack of doctrine that emphasized air-ground liaison as well as proper radios. The flight had no way to adjust to a changing situation on the ground if it had occurred. Due to the unique situation on the island, the battle took place only a few seconds' flight from the airfield, leaving little time for the situation to change. Second, there was no formal way to contact and brief the aircrew prior to launch. The squadron commander was able to quickly pass the mission and the sketchy details to the flight leader because of the close proximity of all the concerned headquarters.

The next crucial CAS mission on Guadalcanal occurred on 14 September during the defense of Bloody Ridge. Five aircraft from the Army Air Force's (AAF) 67th Fighter Squadron (67th FS) began arriving on Guadalcanal at around midday on 22 August. The 67th FS was equipped with obsolete P-400s that had been redirected to them after the fall of the Dutch East Indies. The squadron arrived in New Caledonia in March 1942 and quickly began to get to an operational status. As with VMF-212, the bulk of training centered on air-to-air combat with less emphasis on air-to-ground operations.[14] As the battle for Guadalcanal continued, USMC and AAF aircraft losses mounted to the point that, on 10 September, only eleven F4Fs, twenty-two SBD dive-bombers, and three P-400s were available.[15]

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[14]Robert L. Ferguson, *Guadalcanal: The Island of Fire Reflections of the 347th Fighter Group* (Blue Ridge Summit, PA: TAB Books, 1987), 18 (hereafter referred to as Ferguson, *Island*).

[15]Sherrod, *History*, 88. Eleven SBDs from VS-5 aboard *Enterprise* landed on Cactus on 24 August when their ship was damaged after the flight was airborne. They served on Guadalcanal until 27 September.

The battle on the ground was getting just as critical as the battle in the air. Only two thousand yards to the south of Henderson Field lay Bloody Ridge where Lieutenant Colonel Merritt A. Edson's 1st Raider Battalion had established a last line of defense against an expected Japanese attack out of the jungles to the south. What Edson's battalion did not know was that a Japanese brigade over 2,000 strong was preparing to attack on the night of 13 September.[16] The Japanese attackers mounted two major assaults before midnight. Edson's Battalion bent but did not break, falling back a few yards at a time into successive positions along the ridge toward the airfield. If the Japanese could break the thin Marine line, the airfield would be theirs for the taking.

Before sunup on 14 September, an officer from the 1st Raider Battalion met with the commander of the 67th FS, Captain John A. Thompson. Using a crude map, the battle-fatigued Marine described the precarious situation to Thompson and requested a CAS mission at first light. Thompson agreed and readied his flight of three P-400s at the end of the runway just before sunup. As dawn began to break over the island, Thompson's flight departed. Bloody Ridge was located almost within the aircraft traffic pattern around the airfield and Thompson kept the Marine position in view as his aircraft lifted off the ground and began a slight turn to the south. Maintaining altitude just above the trees, Thompson led his flight below the level of Bloody Ridge and pointed at the suspected Japanese assembly area. When the area came into view, Thompson spotted large groups of Japanese soldiers massing for an attack and he immediately began to fire. After two passes, Thompson's and another aircraft, piloted by Lieutenant B. W. Brown, were critically damaged by small arms fire and had to make emergency landings back at

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[16]Samuel B. Griffith, II *The Battle for Guadalcanal* (Philadelphia: J.B. Lippencott Co. 1963), 118.

the airfield while the third P-400, piloted by Lieutenant B. E. Davis, continued to strafe until out of ammunition. The Japanese attack was repulsed by the iron defense of the 1st Raider Battalion. Thompson's CAS mission had thrown the final weight that broke the Japanese assault. Later that afternoon, Vandegrift visited Thompson, Davis, and Brown saying, "You'll never read it in the papers, but that three P-400 mission of yours saved Guadalcanal."[17]

As with Everton's CAS mission on 21 August, the CAS mission by the 67th FS was successful despite a lack of better coordination. Had the units been further away from the airfield, the situation might have differed from what was briefed to Thompson that morning. Only a dedicated liaison team and direct ground-to-air communications would be able to redirect a CAS mission based on changes in the tactical situation. Additionally, if the P-400s had been able to carry rockets or bombs then the CAS mission of 14 September would have had even greater effect against the target of massed troops.

By February 1943, the Japanese evacuated the last of its forces from Guadalcanal. Their losses were staggering; of the 37,000-man ground force committed on the island, 14,800 were killed or missing, 9,000 died of disease, and 1,000 were captured. American (Marine and Army) losses were 1,594 killed and 4,173 wounded.[18]

In his action report to the Navy Department, Vandegrift identified some crucial weaknesses in the use of CAS. He indicated that the pilots on Cactus were very poorly trained for CAS. Too much emphasis had been placed on air-to-air combat during their

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[17]Ferguson, *Island,* 104-106. Meeting with the pilots later that day, Vandegrift produced a bottle a rye whiskey from under the seat of his jeep and gave it to Thompson. Captain Thompson was awarded the Navy Cross for his actions at Bloody Ridge. Davis and Brown both received Silver Stars.

[18]Sherrod, *History*, 127. No account was made for USN losses at sea.

training. He also stated that communications and liaisons between air and ground forces needed to be established for effective CAS. Lastly, he stated that the ground commander's plan must be clearly understood by the CAS pilots to avoid fratricide and to ensure the correct target is attacked.[19]

In evaluating the state of Marine CAS after the first action on Guadalcanal, it is safe to say that the equipment, organization, and doctrine did not meet the highest standards of combat efficiency. However, the tactics employed were simple and effective because of the very close distance between the airfield and the battlefield. This reduced the time the tactical situation could change, reducing the need for air-ground liaison and direct communications. However, Vandegrift foresaw the need for these capabilities in future battles where ground commanders would not have the same short CAS response times that he enjoyed on Guadalcanal. He also understood that the commander of the landing force must have command of the air support assets if he is to derive their full effect. From this point forward, the Marines fought to employ all their assets in an air-ground task force that included close air support. However, the battles for competing resources against the Navy would not be as quickly won as the battles against the Japanese.

When considering the haste in which the Operation WATCHTOWER was planned and the austere tactical environment on the island, it was near miraculous that the 1st Division was able to achieve its mission. The victory on Guadalcanal is a tribute to the fighting spirit, ingenuity, and determination of the Marines and soldiers who fought there.

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[19]Joint Staff, *History*, 5-7.

CHAPTER 3

OPERATION GALVANIC: THE BATTLE FOR TARAWA

After the successful operation to drive the Japanese from Guadalcanal, the US forces in the Pacific continued the island hopping campaign designed to seize critical land masses that would serve as airbases to support future operations. In the South Pacific, islands like Munda, the Russells, and Bougainville became important as the Americans closed the ring around the Japanese naval and air force stronghold at Rabaul. In the Central Pacific, assaults were planned to take the heavily defended Makin and Tarawa islands in the Gilbert chain of atolls. Vice Admiral Raymond Spruance (Commander, Central Pacific Force) issued the directive to assault Tarawa to Major General Julian Smith, the commander of the 2nd Marine Division (2nd Division). The 2nd Division moved to New Zealand to reconstitute after its combat operations on Guadalcanal. When Smith received the directive for the operation (code named GALVANIC) in August 1943, he immediately set his staff on course for planning the amphibious assault on Tarawa. The date for the assault was set for 20 November 1943. Smith's 2nd Division would assault the southern island of Tarawa and the U.S. Army's 27th Infantry Division would assault the northern island of Makin. After months of planning and rehearsals, the 2nd Division was prepared to sail for the Gilberts.[1]

The 2nd Division's primary objective was Betio Island, a small strip of coral and sand, rising barely ten feet above the surface of the ocean and measuring under half of a

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[1]Stanley E. Smith, ed., *The United States Marines in World War II* (New York: Random House, 1969), 499 (hereafter referred to as Smith, *USMC*).

square mile in total area. The island had been occupied by the 7th Special Naval Landing Force of the IJN and an IJA defense unit, altogether 4,836 men. Its defenses were an elaborate series of concrete bunkers and pillboxes, antiboat guns, heavy machine guns, and a pair of eight-inch naval guns in a revetment of logs and sand. Log and concrete obstacles were erected on the coral reefs to channel the assaulting boats into prepared killing zones covered by the defenders' direct fire weapons. The Japanese airfield on Betio was home to IJN fighter aircraft and, once captured, would provide a base for American bombers during the campaign in the Marshall Islands. The Marine planners divided the shore around Betio into six landing beaches named Red Beaches 1, 2, and 3, Green Beach, and Black Beaches 1 and 2. The initial assault waves would land from the calm lagoon side (over the coral reefs) onto Red Beaches 1, 2, and 3. Marine intelligence reports indicated that defenses on the lagoon side of Betio were lighter than on the seaward side of the island, although the Japanese built five-foot high log barriers on Red Beaches 1, 2, and 3. These barriers would force the US invaders to crawl over the obstacles and expose themselves to direct fire as they moved inland.

The assault on Tarawa would see the first use of three new innovations. First was the use of assault landing craft able to move over land with tractor treads (Landing Vehicles Tracked, or LVTs in official nomenclature). These LVTs would be able to bring the assault waves up onto the beach regardless of the depth of the water. During GALVANIC, only the first assault waves would be transported by LVTs due to their limited number, and the remaining waves would be landed by flat bottom craft (LCAs).[2]

[2]Smith, *USMC*,500 Additional LVTs were being rushed to the Tarawa atoll from California to support the assault. They arrived on D-1.

The second innovation would be the use of tanks in support of the assault waves. Tanks would be unloaded by LSTs (Landing Ships, Tank) as close to shore as possible where they could continue toward the beach under their own power. The last innovation would be the integration of naval gunfire (NGF) and aerial bombardment as preparatory fires and as cover during the actual landing. To facilitate this, air liaison parties (ALPs) consisting of Navy air liaison officers (ALOs) and shore fire control officers (SFCOs) were attached to battalion and regimental headquarters for the first time. The ALOs were naval pilots who, although well versed in naval air superiority doctrine, were not thoroughly trained in coordinating CAS for an assaulting infantry force. The ALOs would pass requests by radio to the Air Support Command Unit (ASCU) aboard the attack force flagship, battleship *Maryland.* The ASCU would then pass the CAS request to the aircraft in the air or to the aircraft carrier. The CAS pilots would be directed to a spot on the ground as referenced by a grid system that subdivided the island into number and letter coded boxes. The ground forces were issued brightly colored panel markers to identify friendly troop locations in an attempt to avoid fratricide by the CAS aircraft.[3]

The CAS aircraft available for the assault were the Grumman F6F Hellcat and the Douglas SBD dive-bomber that had served so well during several major land and sea battles. The F6F was a newly arrived fighter that had been designed to defeat the Japanese Zero fighter (figure 6). The F6F was fast and agile with very good range and

[3]COMINCH Pub-001, *Amphibious Operations During the Period August - December, 1943,*(US Fleet Headquarters Commander-in-Chief, 22 April 1944), 2-2 (hereafter cited as COMINCH, *Amphibious Operations*).

Figure 6. Navy F6F Hellcat fighter. Hanson, *WWII*

rate-of-climb performance. Its six .50 caliber machine guns made it a lethal air-to-air weapon. Pilots found it easier to fly than most contemporary fighters, a fact that multiplied its effectiveness in the hands of younger, less experienced pilots. The Hellcat's drawback as a CAS aircraft was its limited payload. In November 1943, Hellcats could only carry 1,000 pounds of bombs in addition to the machine guns. Later in the war, Hellcats would be able to carry 2,000 pounds of bombs or eight five-inch rockets for attacking ground targets.[4]

The ALPs with the ground units would communicate with the ASCU aboard the flagship *Maryland* using the Navy's portable TBY radios as they moved ashore. These radios were complex to operate and not waterproofed.[5] This vulnerability would be crucial to the ALP's and SFCO's ability to call for CAS and fire support. The Navy's

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[4]David Anderton, *The Great Book of World War II Airplanes* (New York: Bonanza Books, 1984), 200.

[5]Fletcher Pratt, "*Tarawa: The Tough Nut*" *Marine Corps Gazette*, (April, 1947):52.

radio acquisition system was separate from the Army's and resulted in unnecessary duplication and lack of standardization. Eventually, the Marines would adopt the Army's more capable and rugged radios for their ALPs.[6]

Navy squadrons would provide CAS during the assault at Tarawa. The Navy's priority for its fighter squadrons was still to provide combat air patrols over the fleet to intercept Japanese air attackers. Accordingly, it did not provide well-trained, dedicated aircrews for the CAS mission. Furthermore, the aircrews had not even participated in the rehearsals for the Tarawa assault

Admiral Turner's task force arrived on station off the Gilbert Islands and prepared for the assault. The southern attack force (commanded by Rear Admiral Harry Hill aboard *Maryland)* initiated two days of preparatory fires on 18 November. Air strikes from Rear Admiral Montgomery's southern carrier group of three aircraft carriers dropped 115 and 69 tons of bombs on Betio on 18 and 19 November, respectively. Although the barrage was massive and US confidence was high that the defenders on the island would be obliterated, the Japanese suffered only minor losses.[7]

The fire support plan for D-day was a time-driven schedule of fires calling for two hours of NGF and aerial bombardment, followed by a CAS strike as the first assault wave was landing on Red Beach 1. From the outset, the carefully crafted time schedule for D day was plagued by problems. The Marines began climbing down the cargo nets into the LVTs at 0300 on 20 November. Then, at 0441 the Japanese eight-inch guns fired

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[6]Chief of Military History, *US Army in World War II; The Technical Services Signal Corps: The Outcome (*Washington: Government Printing Office, 1957), 227 (hereafter referred to as CMH, *Outcome*).

[7]Jeter A Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War* (Princeton: Princeton University Press, 1951), 225-226, 232 (hereafter referred to as Isely and Crowl, *USMC).*

on the large troop-laden transports (LCVPs), causing them to rapidly cease unloading Marines and move to avoid the incoming Japanese rounds. This caused a delay as the small LVTs had to relocate their assigned LCVPs in the pre-morning darkness. To suppress the Japanese guns, Admiral Hill ordered the *Maryland* to fire her sixteen-inch main guns, causing all radio systems aboard to temporarily malfunction. In keeping with the contingency plans for the assault, all other ships stopped firing until radio communications were reestablished with the flagship. Admiral Hill moved H-hour from 0800 to 0830 and ordered the loading of LVTs be resumed. Meanwhile, the counter battery fire from the US ships obscured the island with smoke and dust, making it temporarily impossible for pilots to see and identify their targets on the ground.

Finally the LVTs were loaded and moved toward the line of departure (LD). However, the LVTs were overloaded and could not travel as fast as planned and rehearsed. Additionally, they encountered a stronger current than was expected and were further slowed. As a result, they crossed the LD at 0823 instead of 0740. Admiral Hill again moved H-hour back to 0845 and planned to maintain NGF coverage until the CAS strike. Then, at 0825 the pilots flying the CAS aircraft (unaware of the recent change to H-hour and the actual situation below) made their strafing runs on Red Beaches 1 and 2. Admiral Hill immediately recalled the aircraft, ordering them to remain on station until H-hour at 0845. When Admiral Hill recognized that the LVTs were not going to make the beach at 0845, he again moved H-hour to 0900 and notified the ASCU. The NGF was lifted at 0855 and the CAS aircraft attacked the beach from 0855 to 0900,

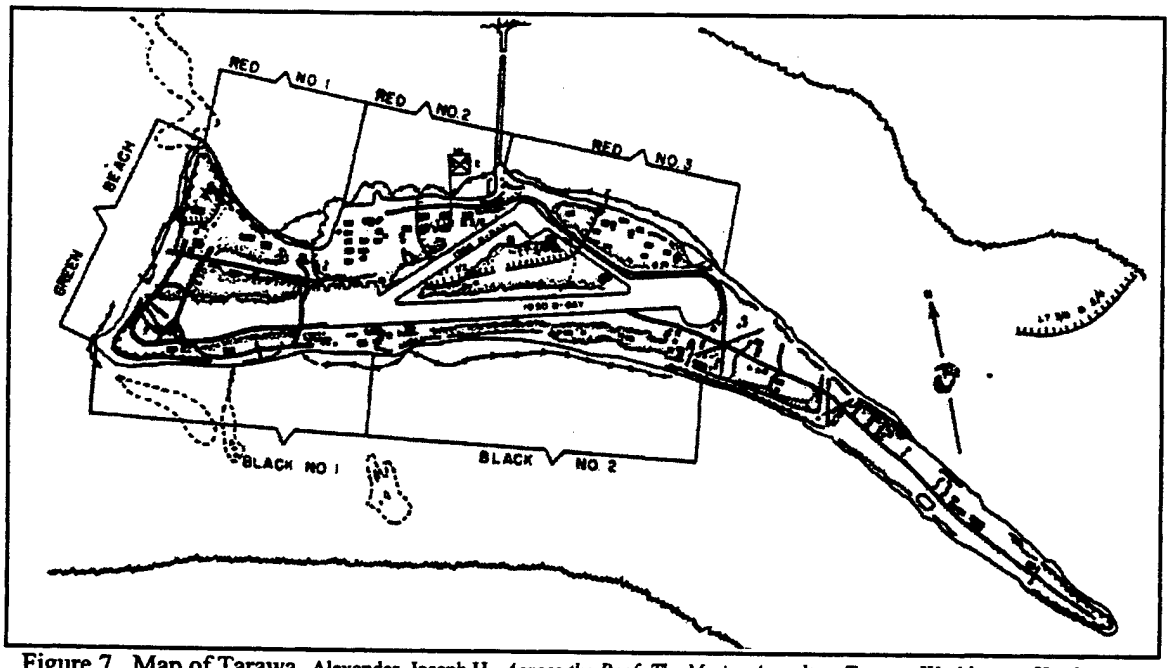

Figure 7. Map of Tarawa. Alexander, Joseph H., *Across the Reef: The Marine Assault on Tarawa* Washington: Headquarters, USMC, 1993

expended all remaining ammunition and returned to their carriers. The LVTs continued to labor through the water and over the exposed coral reefs much more slowly than expected.

The first assault wave, 3rd Battalion, 2nd Marines, finally reached Red Beach 1 at 0910 after travelling the last 2,000 yards without supporting fires and exposed to Japanese observation. The second and third assault waves landed at 0917 and 0923 after suffering heavy losses from the withering fire of the waiting defenders.[8] Out of the eighty-seven LVTs used to transport the three assault waves, only sixty-four returned to the transports for a second trip to the beach.[9] The following waves behind the initial assault were transported in the shallow-draught LCAs. When the LCAs attempted to

[8]Isely and Crowl, *USMC*, 227-231.

[9]Smith, *USMC*, 507.

cross the reefs, their hulls scraped to a dead stop on the coral. The coxswains quickly dropped the troop landing ramps and the Marines were forced to cross the remaining 800 yards by foot. The Japanese were quick to mass their fires on the exposed Marines before they could reach safety behind the log barriers on the thin strand of beach. The LVTs returned to the LCAs and cross-loaded as many Marines as they could take. Some LVTs returned to the large transports to do the same. From that point forward, all organized loading and landing of waves deteriorated as the LVTs rushed as fast as possible to shuttle the Marines to the beach and bring the wounded off the island.[10]

The tanks suffered a similar fate. Each of the three assaulting infantry battalions was assigned at least four M3 Shermans to land behind the initial wave of infantry in LVTs. The tanks were unloaded out on the reef and guided across the coral by Marines wading in front with marker flags. As one guide was hit by fire and went down, another man would step up and continue to lead the tank to shore. Several tanks were disabled by Japanese fire or were driven into craters in the coral caused by errant bombs or NGF from the preparatory fires. Of the fourteen supporting tanks that were unloaded, only five made it ashore.[11]

The next phase of the fire support plan directed the use of calls for fire by the landing force. However, the fragile TBY radios used by the ALPs had gotten wet during the assault and had to be disassembled and left to dry in the hot sun. There would be no

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[10]Robert L. Sherrod, *Tarawa: The Story of a Battle* (New York: Duell, Sloan, and Pearce, 1944), 66, (hereafter referred to as Sherrod, *Tarawa*). War correspondent Robert L. Sherrod went ashore with 2nd Battalion, 2nd Marines as part of the first assault wave. His eyewitness account of the assault and three days of fighting is remarkable.

[11]Isely and Crowl, *USMC*, 248. Several light tanks were also used in follow-on waves. They were largely ineffective due to their small main cannon of 37mm.

calls for fire until they could be dried and reassembled.[12] As a result, the three battalions on Red Beaches 1, 2, and 3 were pinned down behind the five-foot high log barriers. From time to time, a small group of heroic Marines would brave the fire from the defending Japanese and rush up and over the walls to destroy the nearest pillbox and gain a few feet of beachhead. This continued throughout the morning as subsequent waves trickled piecemeal onto Betio.

Once the TBY radios belonging to the ALPs were operational, CAS request began to flow. Most of the requests on D-day were for strafing runs on the pillboxes facing the Marines on the beach. Since most Marine commanders would not request dive-bombers so close to their own troops, their only option was to request strafing runs. The .50 caliber guns from the Navy F6Fs were virtually useless against the reinforced concrete and log defensive positions. The Marines were understandably unwilling to use their high-visibility panel markers to identify friendly forces to the pilots because it would also reveal their position to the enemy. As a result, several Marines fell victim to strafing attacks and the CAS attacks were halted until more beachhead was gained and dive-bombers could be employed.[13]

By 1330 on D-day, Major General Smith had committed all but one battalion to Betio. He planned to land the Division reserve at 0600 on D+1. Fully grasping the gravity of the situation, he requested and was given the 6th Marine Regiment, the V Amphibious Corps' reserve, which would land on Green Beach on Betio's western shore on D+1.

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[12]Isely and Crowl, *USMC*, 241-242.

[13]Sherrod, *Tarawa*, 93.

As the 2nd Division reserve was landing early in the morning of D+1, they received sniper fire from a partially sunken Japanese freighter in the lagoon. CAS was called in at 0730 and six F6Fs each loaded with two 100-pound bombs began to attack. After six passes and twelve bombs were dropped, only one hit the target.[14] Later at 1100, the regimental commander, Colonel David Shoup, called for a dive-bomber strike on an enemy position using the grid-box designation. His ALO passed the message from the regimental headquarters to the *Maryland* and within ten minutes, four SBD dive-bombers attacked the position and silenced the enemy guns.[15] Strafing attacks continued throughout the day, although largely ineffective. Then on D+2, all CAS and NGF was moved away from the concentration of Marines and directed to attack the eastern end of Betio where concentrations of Japanese were suspected.[16] By 1330 on D+3, Betio was secured. The fighting had degenerated to mopping up small pockets of defenders and snipers on the island.

The successful elements of CAS employment at Tarawa were very apparent. First, the ALPs were effective and received praise from the ground force commanders because they provided, for the first time, a direct link between the infantry commanders and the ASCU. The ALPs were now battle proven and would remain a part of unit organizations. Next, the use of airborne liaison aircraft to relay information, coordinate CAS and NGF, and monitor the progress of the battle was a new capability that gave the force commander greater situational awareness. Although the initial assault wave lacked

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[14]Sherrod, *Tarawa*, 89.

[15]Ibid, 93.

[16]Ibid, 106.

the necessary fire support, the subsequent use of the airborne coordinator was effective and would be developed in future battles.[17]

The effort to integrate CAS had some very obvious shortcomings. The major problem of initial CAS was that it did not adjust to changes in the time schedule based on the changing situation on the ground. Admiral Nimitz commented that the CAS over Tarawa was disorganized and ineffective.[18] Additionally, Navy fighter and dive-bomber crews still were not well-trained, integrated, and rehearsed for providing CAS to an assaulting force, as the poor bombing performance by the F6F crews indicate. The clear lesson was that a dedicated and trained CAS force had to be created if landing forces were to receive the full benefit of air support.[19] The commander of the V Amphibious Corps, Lieutenant General H. M. Smith, recommended in his action report to the Navy Department that a Marine Aircraft Wing be assigned to an aircraft carrier and tasked to provide CAS for future amphibious assaults. He had seen enough ineffective CAS employment to simply acquiesce to the Navy's giving CAS second priority without the necessary training.[20]

Poor pilot training and inappropriate weapons also lead the aircrews to believe their strikes had much greater effect than they actually had. The unique composition of the soil and the small, hardened bunkers created target conditions that the existing weapons could not overcome without an excessive amount of rounds and time to deliver

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[17]COMINCH, *Amphibious Operations*, 2-2.

[18]Isely and Crowl, *USMC*, 251-252.

[19]COMINCH, *Amphibious Operations*, 2-3.

[20]Sherrod, *History*, 224.

them.[21] Additionally, the simultaneous use of CAS and NGF had to be coordinated if the ground commanders were to maximize their lethal combined effects. This directly implied a higher commitment to CAS by the Navy and increased training and rehearsals by all participants prior to an amphibious operation.[22]

Finally, after reviewing the after-action reports from GALVANIC, the Combined Chiefs of Staff directed that a Joint Assault Signal Company (JASCO) be organized and assigned to each division prior to an amphibious assault. The mission of the JASCO would be to coordinate CAS and NGF for the assaulting division.[23] The JASCO would provide the assault division commander a dedicated staff to coordinate supporting fires through its Shore Fire Control Section, Air Liaison Section, and the Shore Party Communication Section. Now, for the first time, a single staff element would be able to coordinate between supporting arms. Establishing this organization was a major step toward better integration of combined arms during an amphibious assault.[24]

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[21]COMINCH, *Amphibious Operations*, 2-11.

[22]Ibid, 2-6.

[23]Isely and Crowl, *USMC*, 252.

[24]Lieutenant Colonel Robert D. Heinl, USMC "Minority Report on (J)ASCO" *Marine Corps Gazette* (June, 1947): 28.

CHAPTER 4

MARINE CAS FROM THE PHILIPPINES TO IWO JIMA

After the assault on the Gilbert Islands in November 1943, the war in the Central Pacific continued north and west to the Marshalls, the Marianas, and the Palau Islands. Marine infantry regiments continued to use their ALPs primarily in the same manner as they had at Tarawa. As at Tarawa, these operations were supported mainly by Navy squadrons to provide CAS for the assault and subsequent movement inland. In one unusual circumstance between 22 and 24 June, AAF P-47s were actually launched from the decks of escort carriers to support Army and Marine forces advancing on Saipan and later on Tinian. These Army aircraft were used in the very role for which Marine aviation had been preparing for years.[1] Although shore-based Marine squadrons supported the landings at Bougainville and Ngesebus in the Palaus, it was not until the assault on Iwo Jima that Marine squadrons first operated from carriers in support of an assault.

For the majority of 1944, Marine air was given the task of supporting smaller operations in the northern Solomons as well as bombing the bypassed islands in the Gilberts and the Marshalls from the closest island airbases. Although they were not providing large CAS missions to friendly forces on the ground, Marine pilots used these operations as opportunities to develop techniques and hone their proficiency at bombing small targets with hostile occupants. Other than during the limited operations in the northern Solomons, no real opportunity arose to refine the tactics of employing close air

[1]Sherrod, *History* 251. These aircraft landed on the secured airfields on Saipan and continued operating from there.

support in front of advancing Marines. Then, in early October of 1944, MAG-24 was directed to begin preparations to support the Sixth Army on the island of Luzon in the Philippines.[2]

Almost immediately, the staff of Marine Air Group 24 (MAG-24) began to collect the pertinent doctrinal manuals and other literature on close air support in order to train to support the Army divisions. MAG-24 had recently fought a very successful campaign on Bougainville in support of the 3rd Marine Division and was still stationed there awaiting orders. MAG-24's success on Bougainville became well known in the Solomons and was largely a product of the intensive air-ground integration training sponsored by the 3rd Division prior to the campaign. In preparation for his own CAS integration training, the group operations officer, Lieutenant Colonel Keith B. McCutcheon, found out very quickly that the existing documents were published in piecemeal fashion, and that Army and Navy writings often used contradictory terms and data. Seeing the lack of standardized doctrine, McCutcheon selected the best ideas from the entire collection of documents and developed a hybrid solution that would prove highly successful in combat. His plan included creating ALPs that would live and move with their supported unit, rotating dive-bomber pilots as liaison officers weekly. The ALPs assigned to the battalions and regiments would request each mission and talk directly to the CAS pilots on radio nets designated for that purpose.

The group's foundational approach was that CAS provided "an additional weapon

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[2]Sherrod, *History*, 291.

at the hands of the Infantry Commander" and based its training on that premise.[3] This was a very radical concept for the Army. Up to this point, the AAF system of CAS provided one liaison team (called a "SAP" for support air party) to the supported division. The SAP would approve CAS requests (normally submitted twenty-four hours prior to the mission) or pass an immediate request by radio directly to the airfield and brief the pilots on the situation. The pilots would launch for the target area, arriving sometimes up to two hours after the initial request. The regiments and battalions had no means to talk directly to the Army CAS pilots and often had to wait for an extended period of time for the CAS to arrive. Since the situation on the ground would continue to change constantly, AAF CAS pilots would often arrive only to find the mission had been cancelled or would do their best to hit the target amidst friendly forces. McCutcheon's plan called for the ALPs to communicate directly with the CAS pilots as well as with the CAS approving authority at MAG Headquarters. An air coordinator would circle the battlefield overhead in a TBF bomber to provide target marking and a communications link when needed (figure 8).

Traditionally, both the Army and Navy, as the primary providers of CAS, considered it much lower on the list of aerial priorities behind air superiority, strategic bombing, and interdiction (termed "tactical attack" at the time). Furthermore, the 1943 version of Army Field Manual 100-20, *Command and Employment of Airpower,* stated that missions "in the contact zone" were inefficient, ineffective, and too dangerous to be

[3]Keith B. McCutcheon, *Close Support Aviation* (Washington: Headquarters, USMC, August 1945), 3.

seriously considered, except at "critical times."[4] This concept was born out of the notion that air power was at least equal in fighting ability to ground forces and, accordingly, should not be directly controlled by a ground commander. The Marines of MAG-24, taught to be infantrymen first and aviators second, held no such notions. To them, supporting the men on the ground held highest priority. McCutcheon's tasks were to produce highly proficient CAS aircrews and ALPs, and to convince the Army ground unit commanders that his pilots and liaison teams could provide exceptionally accurate and responsive support.

To meet these training goals, McCutcheon devised a program consisting of forty classes on subjects ranging from "Psychology of the Japanese" and "Map Reading" to "Lessons from the Leyte Campaign." The courses were taught by the staffs of MAG-24, the 7th Fleet, the 37th Infantry and Americal Divisions (also on Bougainville and scheduled to fight on Luzon). Classes were presented to the Marine air and ground crews as well as to Army intelligence and operations staff officers.

After two months of instructing and building a solid foundation of common expectations between the Marines and the Army during indoor training, the new air-ground team put their knowledge to work during dry-fire force rehearsals on Bougainville. Toward the end of the training, newly arrived MAG-32 and its three squadrons of SBDs were added to the list of Marine aviation units going to Luzon to support Army operations there. The aircrews of MAG-32 were trained as they arrived. In all, MAG-24 trained over 500 officers and gunners prior to departure for the

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[4]Department of the Army, *Field Manual 100-20, Command and Employment of Airpower.* (Washington: Headquarters, US Army, 1943), 12.

Figure 8. TBF Avenger used by both the USN and SMC. Hanson, *WWII.*

Philippines.[5] By the time MAG-24 and MAG-32 departed for Luzon, their seven squadrons of SBD dive-bombers had become fully integrated members of the Army air-ground team.

Colonel Clayton C. Jerome, Commander of MAG-32, arrived on Luzon on 11 January, 1945; two days after the initial landings at Lingayen Gulf by the Sixth Army's I Corps (6th and 43rd Infantry Divisions) and XIV Corps (37th and 40th Infantry Divisions). After contacting his higher headquarters (the AAF 308th Bombardment Wing), he found there was no room for the Marines at the 308th airfield at Lingayen. He quickly set about finding a suitable airfield for his seven squadrons. He and McCutcheon scrambled about the local area in his jeep and finally located a suitable site in a dry rice paddy near the town of Mangaldan. With Army engineer support, the airfield was soon under construction and aircraft from MAG-24 began to arrive on 25 January. The first missions were flown from Mangaldan on 27 January and the entire group finally

[5]Sherrod, *History* 294.

assembled on 31 January. Both groups were placed under Jerome's command and the new organization was designated Marine Air Groups, Dagugpan (MAGSDAGUPAN).[6]

The first air missions flown by the group were not conducted as planned by MAG-24. In fact, the requests for air support had to travel from the regiments to Headquarters, Sixth Army, to the 308th Wing for approval, then back down to the group. This clearly would preclude responsive CAS, so liaison teams from MAGSDAGUPAN traveled to Sixth Army and 308th Wing to try and convince the authorities that the Marine system would work.

When the 1st Cavalry Division landed on 27 January and was given a high-priority mission by General MacArthur, the tide began to change in favor of the Marines. The 1st Cavalry was to make an audacious penetration to Manila to rescue the Allied prisoners there and to seize the legislative buildings. On the 1st Cavalry's right would be the 37th ID and on the left and to the front would be MAGSDAGUPAN. Such an unorthodox use of aviation as a moving flank screen and advance guard was provocative and gave the Marines the sway they needed in dealing with the Sixth Army staff. As a result, the Army provided jeeps and radio equipment to the Marines for additional ALPs.

The group's training with the 37th ID on Bougainville resulted in mutual trust and a foundation for effective combined operations in combat. The 1st Cavalry still had to be convinced. By a remarkable coincidence, the air liaison officer sent to coordinate with the 1st Cavalry had been a college professor for the Division's Intelligence officer before

[6]Sherrod, History 299. Mangaldan was near the town of Dagupan. Since Dagupan made a better sounding combination with "MAG", it was chosen over Mangaldan.

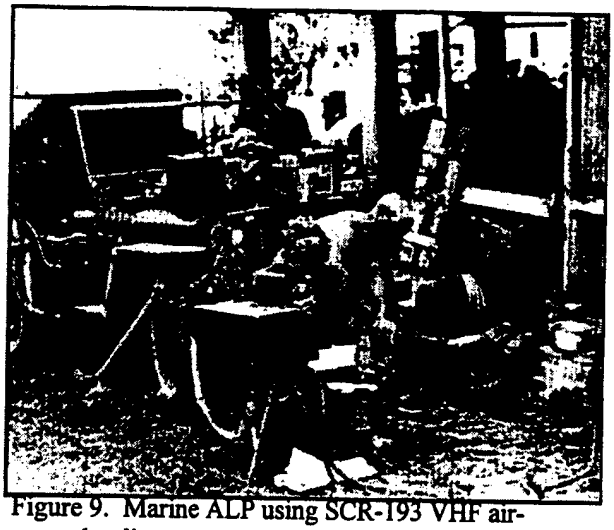

Figure 9. Marine ALP using SCR-193 VHF air-ground radio. Jonathan Gawne *The War in the Pacific from Pearl Harbor to Okinawa 1941-1945* (London: Greenhill Books, 1996), 64.

the war. The coincidental friendship built the bridge that gave the Marines a chance to sell their plan to the cavalrymen. With some skepticism, the Army commanders relented. The dash for Manila began just after midnight on 1 February.[7]

The 1st Cavalry's swift penetration to Manila was spearheaded by the 1st Brigade, commanded by Brigadier General William C. Chase. The 2nd Brigade, commanded by Brigadier General Hugh F. T. Hoffman, was to follow 1st Brigade. The ALPs (figure 9) assigned to the brigades were to travel forward with the lead battalions in jeeps and coordinate the Marine aircraft as they reconnoitered routes, identified and attacked enemy strong points, or found alternate routes. Often, the Marine SBD pilots were called upon to drop their bombs in close proximity to the advancing cavalrymen. Initially, the Army unit commanders were skeptical of the Marines' ability and would not allow them to bomb targets within 1,000 yards of friendly troops. When

[7]Sherrod, *History*, 300.

the Marines showed their accuracy time and again, ground commanders allowed this distance to be reduced to the point that CAS was eventually provided within 100 yards of U.S. soldiers.

Marine air also showed great flexibility as a maneuver arm. Not all missions involved dropping ordinance or expending rounds. On 2 February, the 2nd Squadron, 8th Cavalry was blocked along a road by a Japanese battalion in prepared defensive positions on high ground. The Marine ALP quickly called down the SBD patrol. The Marine pilots made low passes at the Japanese battalion without firing their machine guns due to the extremely close proximity of American soldiers. The Japanese, anticipating a strafing attack, quickly dove for cover, allowing 2/8 Cavalry to close with and destroy the enemy.[8] Chase, after experiencing the outstanding coordination and superb precision of the Marine dive-bombers, said, "I have never seen such able, close and accurate close support as the Marine flyers are giving us."[9]

The 1st Cavalry Division entered Manila on 4 February and quickly liberated the prisoners held in the Santo Tomas University complex. The campaign then turned to the east where the Japanese had positioned 80,000 troops in mountain caves and pillboxes that threatened Manila and its supply of fresh water. The 1st Cavalry brought the full effect of its lethal air-ground team to bear on the Japanese defenders. On 8 February,

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[8]Sherrod, *History* 302.

[9]Brigadier General Chase, as quoted in Major B. C. Wright *The 1st Cavalry Division in World War II* (hereafter cited as Wright, *1st Cav)*, 127.

Hoffman's 2nd Brigade captured the Balera water filtration plant and was engaged by Japanese mortar, machine gun, and rocket fire.

That night, the brigade ALP officer climbed onto the roof of the water plant and took azimuths to the Japanese position as the enemy continued to fire rockets at the buildings. The next morning, the 2nd Brigade ALP directed the air coordinator to mark the target and prepared to call in seven SBDs for the air strike. When the white phosphorous smoke from the marker rocket was positively identified by the air strike leader, the ALP officer cleared the aircraft for the attack. All seven SBD pilots placed their bombs on the target located just behind the crest of a ridge overlooking 2nd Brigade's positions. When patrols went forward to clear the site after the strike, they found over 300 dead Japanese, eight silenced machine guns, and fifteen destroyed mortar positions. The Division Commander, Major General Verne D. Mudge, watched the CAS strike from the ALP jeep along with fellow division commander of the 6th ID, Major General Edwin D. Patrick. Said Mudge of the Marines' performance, "I cannot say enough in praise of these men of the dive-bombers."[10]

Patrick, accustomed to the AAF style of CAS that restricted bombing to no closer than 1,000 yards from U. S. troops, asked the Marine ALP officer for some CAS like that for his Division. Mudge replied that they would have to drop bombs much closer than the 1,000 yard buffer area. Patrick replied, "I don't give a damn how close they hit."[11]

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[10]Major General Verne D. Mudge USA, interview with Staff Sergeant Bill Allen, USMCR, in Manila, 5 February, as quoted in Sherrod, *History*, 303, from MAG-32 history.

[11]John A. DeChant, *Devilbirds* (New York: Harper & Brothers, *1947),* 192.

The Marines of MAGSDAGUPAN continued to provide well-integrated, responsive, and accurate CAS to the 1st Cavalry until April 1945, when they moved south in support of the Eighth Army's campaign on the Zamboanga peninsula. A new standard for CAS had been set. MAG-24 had evaluated their requirements, developed a practical solution, and trained to ensure success. The key to their solution was providing decentralized control of CAS aircraft to the ground commanders through the ALPs. The unique circumstances of the 1st Cavalry's mission provided the perfect opportunity for MAGSDAGUPAN to demonstrate the increased potential of CAS. The ingenuity of the ALP teams, the flexibility of the aircraft, and the shared confidence with the supported Army units all played major roles. But it was only when the ground commanders were given tactical control of the aircraft that CAS became an effective part of the ground commander's arsenal.

During the month of February 1945, on an island named Iwo Jima one thousand miles to the east of Luzon, three divisions of Marines assaulted and captured the small piece of rock eight miles square in size. Iwo Jima became strategically important because it provided Japanese early warning radar and interceptor aircraft enough time to attack approaching American bombers headed for Japan from the Mariana Islands. To greatly reduce the losses to the bomber crews and shorten the distance to the targets on the Japanese home islands, Iwo Jima would have to be taken and converted into an American bomber base.

For the amphibious assault, the 4th and 5th Marine Divisions were assigned to the Marine V Amphibious Corps (VAC), commanded by Major General Harry Schmidt. Vice Admiral Turner, as the commander of the Joint Expeditionary Force, commanded

all Navy and Marine forces for the assault on Iwo Jima. Between Schmidt and Turner was Lieutenant General Holland M. Smith who commanded the Expeditionary Troops. Smith's tough personality would ensure all necessary support for the troops ashore. Overall commander of the entire operation was Admiral Raymond A. Spruance, Commander, U.S. 5th Fleet.

The Marine divisions would land on Iwo Jima's eastern shore and move to cut the island defenses in half, then proceed north to secure the three airfields reinforced by the 3rd Marine Division (figure 10). The operation would be proceeded by seventy-two days of preparation by naval gunfire and aerial bombardment. Just prior to the amphibious assault, three days of continuous NGF would blast Iwo Jima's defenders.[12] Then, for the first time in a major assault, Marine squadrons operating from fast fleet aircraft carriers would provide CAS in front of Marines as they landed on the beaches.

The journey to put Marine squadrons on aircraft carriers in support of an amphibious assault had been a long one. Dating back to the Fleet Landing Exercises in 1939 and 1940, Marine leadership had seen the need to put Marine aircraft dedicated to the CAS mission on aircraft carriers. This point had been reemphasized after the poor CAS performances at Guadalcanal and Tarawa. Due to a shortage of Navy pilots in August 1943, Admiral Nimitz actually supported a proposal from his staff that stopped Marine aviators from qualifying on carriers during flight school to make room for more Navy officers. The Navy clearly had no hesitations about keeping the Marine flyers on shore. This decision was reversed in late 1944 when the Navy needed still more carrier-

[12]Isley and Crowl, *USMC*, 433. Marine planners at VAC estimated that ten days of preparatory fires were required to erode the Japanese defenses to an acceptable level. Turner's staff allotted three days.

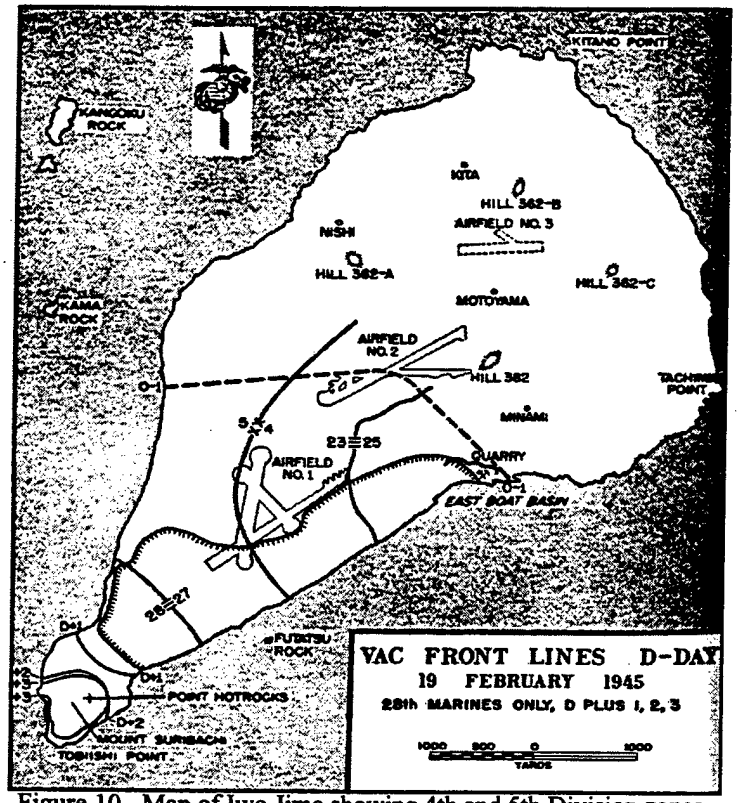

Figure 10. Map of Iwo Jima showing 4th and 5th Division zones.
Lieutenant Colonel Whitman S. Bartley, USMC *Iwo Jima: Amphibious Epic* (Washington: US Government Printing Office,1954), 66.

based aircrews to counter the growing kamikaze threat. Up to 1944, the Navy had cited competing missions, lack of carriers, and the threat to the fleet from Japanese air power as the main reasons not to give the Marines carrier-based CAS. In actuality, the Navy had ten CVs, nine CVLs, and thirty-five CVEs.[13] Allocating only five of the CVEs to the Marines would have had minimal adverse impact on naval operations

From Marine aviation's standpoint, 1944 was a year to be forgotten. Marine air was left with the mission of attacking by-passed islands in the Solomons and the Central Pacific. Senior Navy staff officers actually moved to reduce the number of squadrons in the Marine inventory because of competition for resources. Lieutenant General

[13]Secretary of the Navy, *Annual Report,* fiscal 1945 as quoted in Sherrod, *History* page 325.

Vandegrift (the Corps's new Commandant), in a shrewd compromise with Fleet Admiral King, reduced the total number of Marine squadrons by fifteen but increased the total number of aircraft per remaining squadron so as not to lose a single aircraft.[14] But, it was not until the Navy eliminated the Japanese carrier-based air threat in the Pacific during the Marianas "Turkey Shoot" of June 1944 that they became amenable to giving the Marines escort carriers for providing CAS. Although landings at Bougainville in the Solomons and Ngesebus in the Palaus were supported by shore-based Marine squadrons, Iwo Jima would be their first opportunity to operate from carriers in support of an assault.[15]

Seeing the opportunity for Marine squadrons to operate from carriers, Vandegrift directed in October 1944 that Marine air groups in California begin training for shipboard operations.[16] By February 1945, training on the West Coast produced four Marine Carrier Aviation Groups (MCVGs), each with a fighter and a dive-bomber squadron. Vandegrift's plan was for these MCVGs to operate from smaller escort carriers (CVEs) instead of the large fast-fleet carriers (CVs). The CVs were typically used by the Navy for large-scale missions while the smaller and slower CVEs were dedicated to support the fleet with replacement aircraft or to provide air support for smaller operations. The Navy quickly placed these MCVGs onto the fast carriers (instead of the escort carriers) and sailed for the Japanese island of Honshu to attack kamikaze bases that could interfere

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[14]Archibald A. Vandegrift, *Once a Marine* (New York: W.W. Norton & Co. 1964), 247. In September 1944, new Marine Carrier Groups would go from 4 squadrons of 18 aircraft each to 3 squadrons of 24 aircraft each.

[15]Isley and Crowl, *USMC*, 421.

[16]Sherrod, *History* 328, 329.

with the landings at Iwo Jima.[17] The Marines had fought their way onto the carriers but now found themselves sailing away from the amphibious assault.

Marine CAS aircraft at Iwo Jima had improved tremendously since Operation GALVANIC in November 1943. The primary CAS aircraft was the F4U Corsair (figure 11). Fast and agile, the Corsair was able to carry a sizeable weapons load, deliver it accurately, and depart the battle area rapidly. Although deemed not suitable for shipboard operations by the Navy, Marine squadrons found the Corsair versatile and very effective. Another CAS aircraft, the Grumman TBF Avenger, was originally designed as a Navy torpedo bomber (figure 12). Large and rugged, the Avenger carried forward and rearward-firing .50 caliber machine guns, rockets, or sixteen hundred pounds of bombs. The Avenger could also serve as an airborne coordination aircraft, using its large fuel capacity to stay aloft for long periods of time.[18]

The first use of napalm as a CAS weapon occurred on the island of Tinian in July 1944. Napalm, a mix of aircraft fuel and a jelling compound, was quickly recognized as a very useful way to clear brush and other flammable obstacles from a proposed landing beach or to destroy an enemy position. As the Marines began to use the new weapon they discovered that, when mixed with engine oil, it had greater effect and burned longer. This made it suitable for attacking defenders in well-covered positions, or to protect troops as they advanced toward an enemy position.[19]

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[17]Isely and Crowl, *USMC*, 433.

[18]Christopher Chant, *Encyclopedia of World Aircraft* (New York: Mallard Press, 1990), 152.

[19]Isely and Crowl, *USMC*, 363.

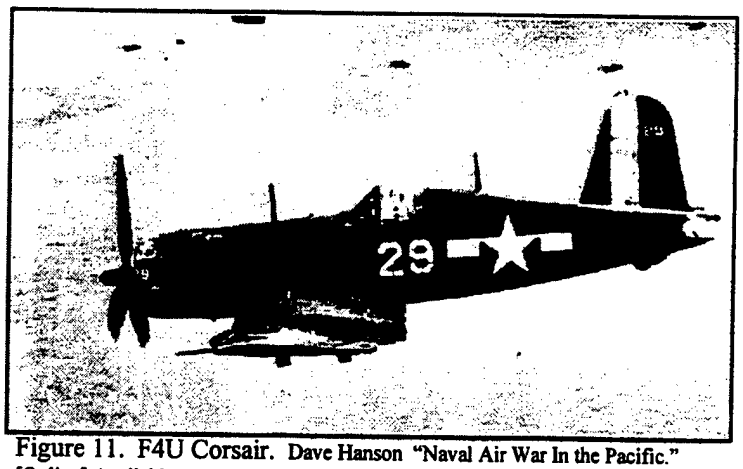

Figure 11. F4U Corsair. Dave Hanson "Naval Air War In the Pacific." [Online] Available xpress.com/aglcaf/navalwar/frames.htm, 19 April, 1999 (hereafter referred to as Hanson, *Naval War).*

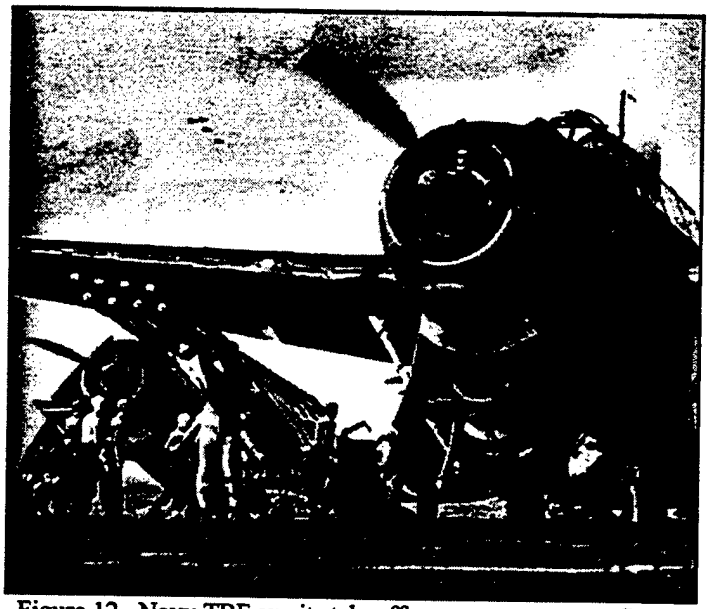

Figure 12. Navy TBF awaits takeoff as a crewman arms five-inch rockets. Hanson, *Naval War.*

The development of aerial rockets also increased the effectiveness of CAS. Rockets provided a large explosive round that was easily adapted to the airframe of CAS aircraft. Rockets gave the pilot an effective weapon to destroy hardened sites or armored vehicles without the excessive weight or recoil of a large caliber cannon. The Navy developed the five-inch high velocity aerial rocket (HVAR) for use against ground targets

and surface vessels. It carried a 7.8-pound warhead and could accurately reach targets out to 1,000 yards. Navy HVARs were launched from simple and lightweight mounts on the aircraft (called "zero-rails") that allowed the rocket to take flight without having to travel down a long tube. In contrast, the Army Air Force (AAF) developed 4.5-inch rockets that had similar characteristics to the HVAR but required a long launch tube under the wings of the aircraft. Later, the AAF adapted its rockets to the Navy "zero-rails." Due to delays in development, air-to-ground rockets were not readily available in the Pacific until late 1944.[20]

With larger, stronger CAS aircraft came the ability to drop heavier bombs. The Marines faced determined defenders in reinforced positions during several assaults and only well-placed, heavy ordinance would dislodge them. Naval gunfire was not always able to provide the amount of fire or achieve the accuracy needed to destroy the defending enemy, especially when the enemy position was masked behind the back side (reverse slope) of a hill. As Marine aviators' dive-bombing accuracy improved with continued training, ground commanders grew more confident in requesting CAS. Typically, ground commanders or their ALPs requested 1,000-pound bombs.

The CAS organization for combat on Iwo Jima developed from lessons learned in the previous forty months of fighting. To provide command and control of all fire support missions including CAS, a Fire Support Coordination Center (FSCC) was created. A part of the FSCC was the Landing Force Air Support Coordination Unit (LAFASCU) that was designed to coordinate multiple air missions over a Corps area and

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[20]Constance M. Green et al., *The US Army in World War II The Technical Services: The Odnance Department Planning Munitions for War* (Washington: Department of the Army, 1955), 423-449.

deconflict fire support missions with aircraft over the battlefield. The LAFASCU belonging to VAC at Iwo Jima was commanded by Colonel Vernon E. Megee, and had fifteen officers and forty enlisted Marines to operate two radio vans and an operations tent. The primary radios used by the LAFASCU were the SCR-299 for long-range high and medium frequency shore-to-ship communications and the jeep-mounted SCR-193 for medium and very high frequency (VHF) communications with CAS aircraft and ALPs deployed forward with the divisions. This organization had the dedicated personnel and equipment to effectively coordinate CAS and fire support for the operation.[21] The plan for CAS coordination directed the Air Support Control Unit (ASCU, located on the flagship during the assault) to plan and control all CAS requests during the landings. Once a secure beachhead was established, the LAFASCU would move ashore and take control from the ASCU.

There were three major shortcomings in this system. First, there were not enough distinct radio frequencies for the request, control, and direction of CAS aircraft, which caused extremely crowded and confused communications. Second, once the airfields on Iwo Jima were secured and the LAFASCU had moved ashore on 1 March, the majority of CAS missions were flown by shore-based aircraft, mostly AAF and some Navy squadrons. Since the AAF had not dedicated the same amount of training to CAS as the Marines, longer delays followed as airborne coordinators attempted to direct the Army flyers through the procedures and onto the target. This proved to be a very time-consuming process. Last, the battalion and regimental ALPs were not normally

[21]Captain John McJennett, USMCR *Report on Air Support in the Pacific* (Washington: Headquarters, USMC, August 1945), 6, 7 (hereafter referred to as McJennett, *Report*).

authorized to communicate directly with the CAS aircraft due to the higher density of aircraft over the battlefield than in previous operations. If the situation permitted direct communications between ALP and CAS pilots, the LAFASCU would authorize the radio contact. But during normal operations this reduced the amount of flexibility available to the ground commanders in employing CAS in front of their units.[22]

The air bombardment in support of the landings commenced at 0645 on 19 February 1945 when Lieutenant Colonel William A. Millington of VMF-124 led a flight of twenty-four F4Us and twenty-four F6Fs from the *Essex*. The flight swept the west beach with machine guns, rockets, and napalm from H-45 to H-35. The flight then strafed from H-5 until the actual landing by incrementally moving forward of the assault waves and firing their .50 caliber machine guns 200 yards ahead of the troops. This attack was conducted simultaneously with NGF, testimony to the improvement in coordination between the two systems. The flight them went on standby status for CAS missions but none were assigned.[23]

For two hours the Japanese allowed the Americans to assemble on the beaches before mounting a major attack. During the remainder of the day, only twenty-six CAS missions were flown. The 28th Marines of the 5th Marine Division was assigned the task of seizing Mount Suribachi on the southernmost tip of the island and saw some of the most difficult fighting on the island. In the Regiment's official action report, the commander stated that pre H-hour CAS was very good and subsequent attacks were coordinated through the ALP in an excellent manner. The major complaint was that the

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[22]Isely and Crowl, *USMC*, 504.

[23]Sherrod, *History* 347.

radio net for requesting CAS was often used to direct pilots to the target instead of the net designated for that purpose. All requests for CAS were flown from fifteen minutes to two hours after the time of the request.[24] This shows that the plan to coordinate NGF, artillery, and CAS worked well for the 28th Marines. Similar examples are found among the two divisions. The technology, training, and new organizations had successfully integrated major weapons systems on a densely occupied battlefield.

The fast carriers remained off Iwo's shore for only three days, then returned to attack the kamikaze bases on Honshu Island, taking the Marine squadrons with them. On 11 March, AAF fighter aircraft moved onto Iwo's airfields and provided the bulk of the CAS (along with Navy squadrons on CVEs) until the island was declared secure on 26 March. Marine CAS had taken a giant step toward fighting as an air-ground task force.

[24]Headquarters, 28th Marine Regiment, *Action Report CT-28 Iwo Jima Operation* (Headquarters, 28th Marines, 1945), page F-1.

CHAPTER 5

OPERATION ICEBERG: THE ASSAULT ON OKINAWA

The war in the Pacific was quickly reaching a climax by the Spring of 1945. The American forces had fought across the vast ocean for the previous three and a half years and was now at the threshold of the Japanese home islands. Okinawa, the last bastion of defense only 350 miles south of Kyushu Island, had three major airfields and was defended by 77,000 thousand Japanese soldiers of the 32nd Army. Okinawa was selected as the next objective in order to provide a forward staging base for the planned invasion of the Japanese Islands as well and to serve as an anchorage from which the American Fleet could secure command of the surrounding waters.[1]

To accomplish this momentous task, Admiral Nimitz appointed Admiral Spruance, Commander 5th U.S. Fleet, as the overall commander of Operation ICEBERG. Spruance's Joint Expeditionary Force Commander would be Vice Admiral Turner, who commanded the Joint Expeditionary Troops (Tenth Army), commanded by Army Lieutenant General Simon B. Buckner. Under Buckner's command were two corps of troops, the III Amphibious Corps (IIIAC) commanded by Marine Lieutenant General Roy S. Geiger and the XXIV Corps commanded by Army Lieutenant General John R. Hodge. This was clearly a large land force that would require more CAS than had been employed at any time in the Pacific (figure 13).[2]

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[1]Major Charles S. Nichols and Henry I. Shaw, *Okinawa: Victory in the Pacific* (Washington: US Government Printing Office, 1955), 3 (hereafter referred to as Nichols and Shaw, *Okinawa).*

[2]Nichols and Shaw, *Okinawa*, 16-19.

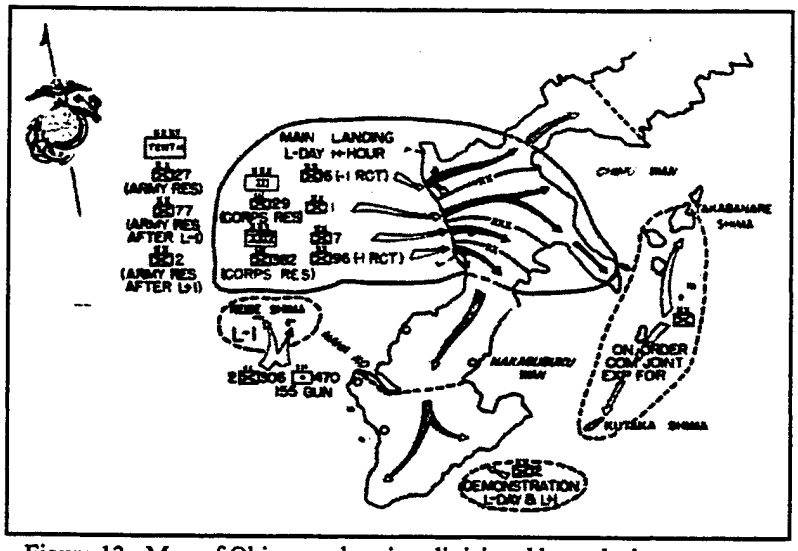

Figure 13. Map of Okinawa showing divisional boundaries. Nichols and Shaw, *Okinawa, 22.*

In organizing for combat, Turner's Air Support Commander (ASC, Rear Admiral Calvin T. Durgin with 18 CVEs under his command) would coordinate and control all support requests from the Task Force flagship *Eldorado* during the assault phase until airfields on shore were captured and made operational. At that time, Tenth Army's Tactical Air Force (TAF) would move ashore with its air groups and provide support to the ground forces as well as defend the island from Japanese air attack. To provide the liaison between the ASC and the ground forces, the LAFASCU would be employed in the same way as on Iwo Jima. This time, three LAFASCUs would be fielded, each equipped with SCR-299 radio vans (figure 14). LAFASCU-1 was assigned to IIIAC, LAFASCU-2 with XXIV Corps, and LAFASCU-3 with Tenth Army Headquarters (figure 15). In command of all LAFASCUs would be Colonel Megee who coordinated CAS on Iwo Jima. Each of the LAFASCUs assigned to the corps had a staff of twenty-two officers and sixty-five enlisted and would have wire communications with the

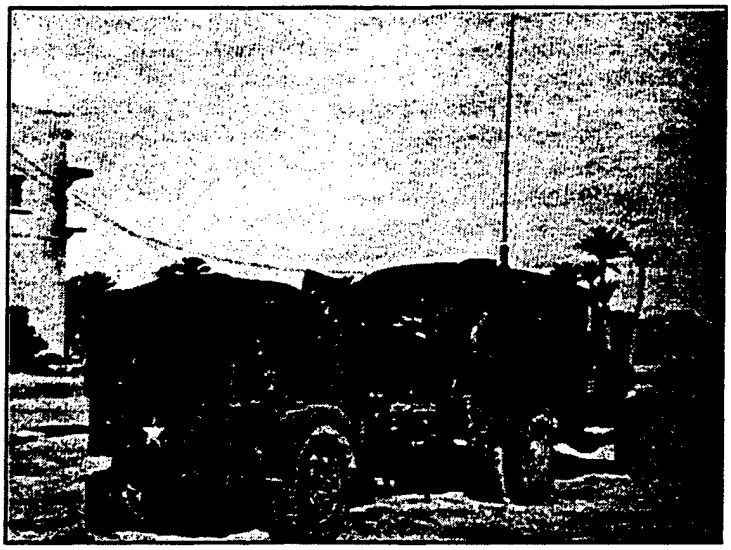

Figure 14. SCR-299 radio van as used by LAFASCUs on Okinawa. The SCR-299 could reach stations over 100 miles away and was well suited for LAFASCU operations ashore. George R Thompson ed., *US Army in World War II; The Technical Services Signal Corps: The Test* (Washington: US Government Printing Office, 1957), 364.

division ALPs. The majority of CAS missions would be preplanned by the ASC during the assault or by the TAF once ashore. This would preclude excessive radio messages on the request net from ground units. This system of "pushing" CAS down to the ground commanders was selected due to the very high concentration of friendly troops across a relatively narrow front. If requests were to come from the lower echelon units, then regimental and battalion ALPs would pass requests to their respective LAFASCU at corps by jeep-mounted very high frequency (VHF) radio (SCR-542 or 233).[3] Division ALPs would monitor the request and indicate approval by silence. The corps LAFASCUs would then pass the request to LAFASCU-3 at Tenth Army where the request would be coordinated with the ASCU afloat or with aircraft on station.[4] This

[3]McJennett, *Report*, 7.

[4]Nichols and Shaw, *Okinawa*, 265.

Figure 15. LAFASCU-3 in operation on Okinawa 1945. Sherrod, *History, 368.*

approach to controlling CAS had been battle tested on Iwo Jima and was now expanded to accommodate two corps instead of one. However, the problem of no direct radio communications between ALPs and CAS pilots would remain. Since Operation ICEBERG began before the conclusion of the fighting on Iwo, lessons from that battle would not be written into the plans for Okinawa. The major complaint from ground commanders was that they lacked direct communications with CAS pilots. This was not due to a lack of either equipment or training. The ALPs had the VHF radios to contact the aircraft and had rehearsed that procedure with the 1st and 6th Divisions during rehearsals for ICEBERG (as had MAG-24 and the 1st Cavalry Division with great success on Luzon). Megee, in directing the procedure to be used on Okinawa, was convinced that allowing the ALPs too much control would create chaos in the skies above the island. Recognizing that no single procedure would apply to every situation, Megee

agreed that if the situation on the ground permitted (a regiment or battalion in an uncrowded area) then control of the CAS mission would be passed down to the ALP.

The aircraft available for CAS were the Marine F4U Corsairs and Grumman TBF Avengers, Navy F6F Hellcats, and the AAF P-47D Thunderbolts (figure 16) and P-51D Mustangs (figure 17). All have been described in previous chapters except the Thunderbolt and Mustang. The Thunderbolt was designed before the war as an interceptor. It was built around a powerful radial engine that pulled the aircraft to over 430 miles an hour. Its eight .50 caliber machine guns, 1,000 pounds of bombs or napalm, and eight rockets made it an effective CAS aircraft.[5] The P-51 was initially designed for the Army as a ground attack aircraft (designated A-36). After nearly two years of modifications, it became the premier long-range fighter of World War II. Its armament included six .50 caliber machine guns, two five hundred-pound bombs, or 200 gallons of napalm. Later versions could be fitted with five rockets. The Mustang was fast and had tremendous range. Its biggest shortfall was a relatively small bomb load and a more delicate inline engine, when compared to the rugged radial engines used in Navy and Marine fighters.[6] Most Army pilots, like their Navy counterparts, received much more training emphasis on air-to-air combat than on CAS. However, given enough time to train with the ALPs, the AAF pilots produced good results in the later stages of fighting on Okinawa.

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[5]Christopher Chant, *Encyclopedia of World Aircraft* (New York: Mallard Press, 1990), 274. Later versions of the Thunderbolt could carry 2,000 pounds of ordnance and ten rockets.

[6]Robert Grinsell, *The Great Book of World War II Airplanes* (New York: Bonanza Books, 1984), 100.

The Marines still fought to get CAS aircraft aboard CVEs for Operation ICEBERG. Prior to the landings on 1 April 1945, the Marines had ten squadrons on carriers; six fighter squadrons on CVs, two fighter and two bomber (Avenger-equipped) squadrons on CVEs. Each CVE had an MCVG containing one fighter and one bomber squadron on board. Two other CVEs were loaded with MCVGs but arrived at Okinawa too late to see combat. These squadrons were controlled by Durgin, the ASC, and would provide combat air patrol (CAP) over the fleet as their primary mission, then be available for CAS missions. Durgin, in clarifying why he felt it necessary to assign the Marines CAP missions over CAS stated,

> The advent of Marine Air Groups in CVE's should not be permitted to complicate the support carrier picture any more than necessary...[they] should expect no preferential treatment...To assign all Marine squadrons to direct support work would probably work to the detriment of morale of the Navy groups and squadrons and this command sees at the present writing no reason for such assignments and has no intention of allowing it to occur.[7]

This clearly shows that senior officers in the Navy were against allowing the Marines the full opportunity to employ CAS as would best benefit the ground forces.

Regardless of the fighting between the services, the Tenth Army assaulted the western beaches of Okinawa early on 1 April 1945. The ground forces quickly attacked inland to seize the airfields and to remove the defending Japanese. The terrain on

Okinawa was rugged in places with scores of caves, streambeds, and steep slopes that favored the defenders and made progress extremely slow for the attackers. Marine squadrons aboard the CVs *Bunker Hill* and *Bennington* provided CAS during the assault

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[7]First endorsement of ComCarDiv 22 confidential letter 0215 20 July 1945 to Adm Nimitz by ComTG 32.1 (Ex), 27 September 1945, as quoted in Sherrod, *History*, 397.

Figure 16. AAF P-47 Thunderbolt. Hanson, *WWII.*

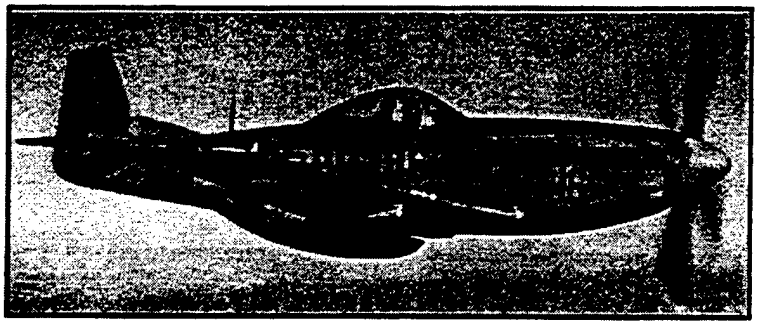

Figure 17. AAF P-51D Mustang. Hanson, *WWII*

landing and conducted pre-planned strikes on enemy gun positions and supply areas. On 2 April, the majority of missions were pre-planned because the Japanese were concentrating their defenses inland and allowing the Americans to get ashore with less resistance than expected. This resulted in fewer CAS missions. Then on 6 April, the Japanese launched a major kamikaze assault with 355 suicide aircraft determined to ram American ships off the coast of Okinawa. Turner, in an attempt to protect the large fleet CVs, ordered the Marine squadrons to put all efforts into defending the fleet. This continued through May 1945. Meanwhile, Navy squadrons aboard the CVEs were tasked with providing the bulk of CAS missions. In fact, of the 4,130 sorties flown by Marine

fighter squadrons during the entire month of April, only 609 were for CAS; the remaining 3,521 were CAP.[8] It was truly ironic that the Marines, flying from CVs, were defending the fleet and Navy fighter squadrons aboard CVEs were providing the majority of CAS to the divisions on Okinawa (figures 18 and 19).

As CAS provided by the Navy improved during the course of the fighting, so did the performance of the LAFASCUs. The LAFASCUs proved invaluable during the conduct of the assault, especially during a major attack on the Shuri line of defense on 19 April. During that attack LAFASCU-2, assigned to XXIV Corps, coordinated over 650 sorties--376 in one hour--with twenty-seven battalions of field artillery, six battleships, six cruisers, and six destroyers. In a forty-minute period, over 19,000 rounds of NGF or artillery were expended as preparatory fires as air strikes simultaneously attacked seven targets. The ground attack continued until 29 May when the Shuri line fell to the Americans. This example shows an unprecedented ability of the LAFASCU to synchronize large air strike missions with enormous amounts of supporting fires onto multiple targets. This was probably the zenith of the LAFASCU's performance during the war and shows how tailoring an organization to meet a battlefield requirement returned large dividends.

On 11 May, just before the fall of the Shuri line, several Army and Marine squadrons moved onto the airfields on Okinawa as the TAF became operational. One outstanding example of Marine CAS took place on 20 May when VMTB-232 supported the 383rd Regimental Combat Team of the 96th ID on a mountain named "Charlie Hill." The 383rd had fought for days to take Charlie Hill and had lost over 300 casualties in the

[8]Sherrod, *History*, 375-385, 389.

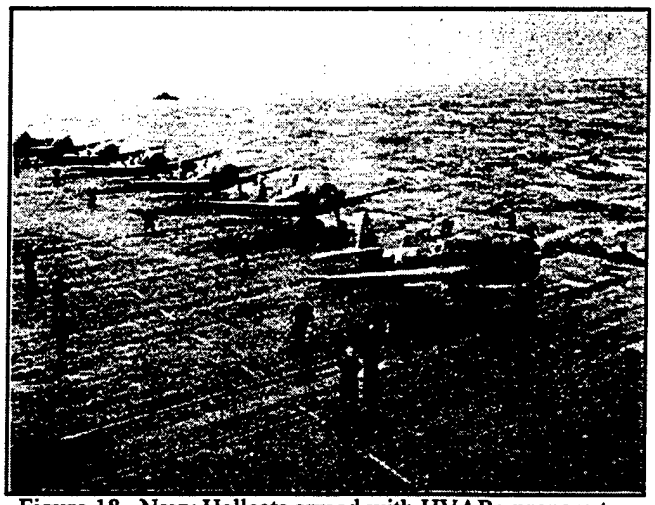

Figure 18. Navy Hellcats armed with HVARs prepare to launch from USS Yorktown in support of Operation ICEBERG February 1945. Scott Davis, "Scott's World War II Homepage." [Online] Available geocities.com\pentagon\5133, 19 April, 1999.

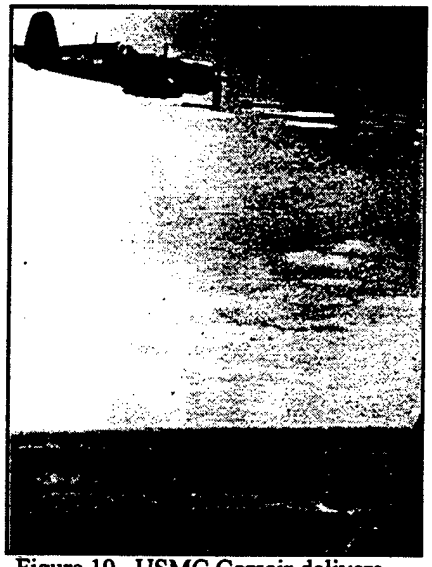

Figure 19. USMC Corsair delivers HVARs on Okinawa. Hanson, *WWII.*

process. LAFASCU-2 coordinated a CAS mission with VMTB-232 operating from an airfield on the island, and eight TBFs from *Essex.* The pilots were to bomb a Japanese strongpoint on the reverse slope of Charlie Hill within 100 yards of the 383rd's soldiers.

Due to the difficult terrain, the CAS pilots would have to fly their bomb runs towards the friendly troops. Between bombing runs, Marine Corsairs strafed the target. As the Avengers dropped their loads the Japanese were forced to take cover, allowing the 383rd to occupy key ground that enabled them finally to overrun the defenders.[9]

Not all CAS missions ended with such dramatic success. There were at least ten instances of fratricide reported to the LAFASCUs. Considering that over 10,000 sorties were flown in support of the troops, this figure seems understandable. Additionally, the facts that only 37 percent of all CAS missions were requested by the ALPs and that only rarely were the ALPs allowed to control the CAS pilots and direct them onto the target by radio indicate that another procedure might have reduced the amount of fratricide by CAS.[10] If the ALPs had direct radio contact with the pilots, as had been practiced on Luzon by MAG-24 and had been rehearsed prior to ICEBERG by the 1st and 6th Divisions, it is safe to say that at least some of these incidents might have been avoided. But it is certain that CAS on Okinawa reached a higher level of effectiveness mainly due to the LAFASCU's ability to mass large amounts of aircraft in coordination with the other supporting fires.

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[9]Sherrod, *History*, 410.

[10]Ibid., 409.

CHAPTER 6

CONCLUSION

By April of 1945, the Marines had developed their CAS system into an effective and flexible tactical weapon. Their doctrine, tactics, aircraft, weapons, and liaison organizations all had advanced from the prewar makeshift approach of 1940 to an efficient and well-trained force able to mass large amounts of lethal close air support at the critical point on the battlefield. The Marine commitment to fighting as a combined-arms organization was probably the single driving factor that brought these changes about. Their initiative to develop CAS and integrate it into ground operations provided a great deal of added firepower to a ground commander's arsenal.

Marine CAS doctrine began with the *Tentative Landing Operations Manual* in 1935 that vaguely assigned the air support mission for an amphibious assault to the Marines. This doctrine did not result in the resources needed to carry out the assignment, though. The Navy General Board, after initially directing the Marines to provide air cover over the fleet, finally agreed in 1939 that Marine air should provide air support to the landing force. Although this air support mission fell to the Marines, few resources to equip, train, transport, and employ this force resulted. After the battles on Guadalcanal and Tarawa where the deficiencies in CAS became painfully evident, the Navy began to place more emphasis on assisting the Marine CAS effort. This shift in doctrine resulted in the eventual assignment of Marine Carrier Air Groups (MCVGs) onto the small escort aircraft carriers (CVEs) for the express purpose of providing CAS for an amphibious assault. The CAS provided by the Navy at Tarawa stands out as an example of poorly trained aircrews and badly coordinated use of CAS resulting from a distinct lack of

emphasis. After much wrangling and administrative maneuvering, the Marines' aspirations were realized. Although MCVGs were first employed on fast fleet carriers (CVs) instead of the smaller CVEs, plans for the invasion of the Japanese home islands (named Operation OLYMPIC) called for no less than eight MCVGs to suport the assault. Based on the progress made thus far in Marine CAS development, employing MCVGs as planned for OLYMPIC probably would have allowed for outstanding CAS for the assaulting forces.

Marine (and Army) aircraft used for providing CAS progressed from largely ineffective airframes to aircraft designed solely for the CAS mission with greatly increased capabilities. The fighting on Guadalcanal saw the use of the P-400, F4F, and SBD. Although pressed into service at a critical stage in the war and forced into a mission for which they were not well suited, these aircraft performed admirably and had limited success. Close air support on Tarawa was provided by F6F Hellcats and TBF Avengers. These aircraft were limited in their CAS capability and were still not able to directly impact the battle below as desired by the ground commanders. The introduction of the F4U Corsair (particularly the F4U-4 version in early 1945, figure 20) by the Marines was a large step in the right direction because of its ability to carry a larger payload over a longer distance at much higher airspeeds. With the F4U-4, the first 20-millimeter (mm) cannons were installed on a Marine fighter aircraft. The Army provided a large amount of air support to the Marines and had made similar advances in CAS aircraft. Their P-51s and P-47s were the primary CAS aircraft involved in Marine operations, the P-47 having a marked advantage over the two. By the end of the war, the P-47N was able to carry almost twice the payload of the F6Fs used at Tarawa.

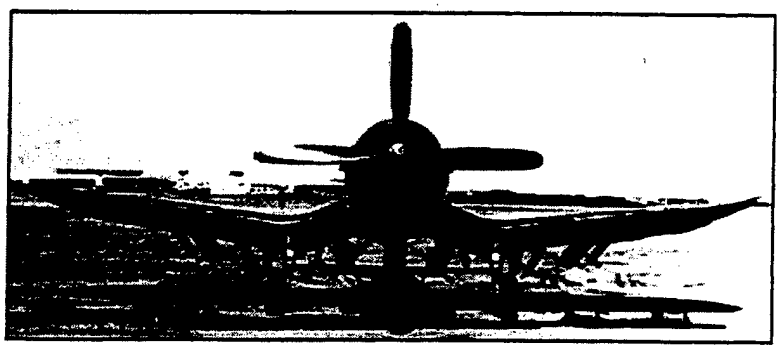

Figure 20. Marine F4U-4 Corsair. Hanson, *WWII.*

It was not until March of 1945 that the Douglas Aircraft Corporation flew the most capable CAS aircraft of the war, the AD-1 Skyraider (figure 21). The initial version of the AD-1 had tremendous capability. Its 2,400 horsepower engine could lift up to 6,000 pounds of bombs or twelve five-inch rockets. Mounted in the wings were two 20mm cannons. This aircraft shows the carrier-borne attack mission had driven the development of a very capable airframe that would be ideally suited for the CAS role. Although the AD-1 entered service too late to see combat in World War II, it was such an effective design that it continued to serve, with modifications, for twenty-five years ending with the war in Vietnam.[1]

Weapons mounted on CAS aircraft continued to improve during the nearly four years of fighting in the Pacific. Early CAS aircraft carried .50 caliber machine guns effective out to roughly 1,500 yards, depending on the type of projectile fired. This weapon, produced in very large numbers and readily available, served throughout the war. Its primary reason for being mounted in aircraft was for air-to-air combat and was very the

[1]Edward Bridgman, ed., *Janes' All the World's Aircraft* (New York: The Macmillan Company, 947), 222c.

Figure 21. Douglas AD-1 Skyraider in postwar markings. Hanson, *WWII.*

effective in that role. Its muzzle velocity and projectile weight made it suitable for majority of CAS mission until hardened targets were encountered. Weapons developers struggled to develop aircraft-mounted 37mm and 75mm cannons during the war but these large and heavy weapons were not practical for smaller CAS aircraft. A suitable compromise was the 20mm cannon whose heavier projectile and much higher muzzle velocity provided improved effects against harder targets. Although its rate of fire was lower than the .50 caliber, it was readily available and provided enough improvement to justify employment. Larger bomb loads were possible later in the war due to increased aircraft performance. The result was that as ground commanders faced well-prepared enemy defenses on Iwo Jima and Okinawa, they could rely on CAS aircraft to deliver 1,000-pound bombs. Napalm first became an effective weapon for CAS in June 1944 on Tinian. Simply adding engine oil to the mixture lengthened napalm's burning time, making it an even more effective weapon for burning off camouflage, clearing beach areas, or eliminating enemy positions. Rockets became an effective CAS weapon late in

the war due to developmental and production delays. They provided a large increase in explosive projectile weight without degrading aircraft performance associated with the heavier large-bore cannons. The Navy eventually employed the five-inch high velocity aerial rocket (HVAR) that could accurately deliver a 7.8-pound warhead out to 1,000 yards. This gave CAS pilots an effective weapon whose effects replicated an artillery round. By the end of the war, an 11.75-inch air-to-ground rocket (named the Tiny Tim) was employed in the Pacific on a limited scale. Although not as accurate as the HVAR, this weapon gave the ground commander a large increase in CAS-delivered firepower.[2]

The most conclusive developments, however, were the Air Liaison Party (ALP) and the Landing Force Air Support Control Unit (LAFASCU). These air-ground liaison organizations gave the infantry commanders the direct link they needed to integrate air support with their tactical plan. At Guadalcanal, the only types of liaison involved were members of the ground unit talking to the CAS crew in an ad-hoc manner, or the aircrews themselves walking forward to view the engagement area before the air strike. Obviously, this would not be practical for CAS missions flown from CVEs or nearby islands. The ALP, introduced on Tarawa, was refined on Luzon with Marine Air Group 24 by giving ALPs direct radio communications with the CAS pilots. On Iwo Jima and finally on Okinawa, LAFASCUs were able to coordinate massive air strikes with supporting artillery and naval gunfire. This ability to assemble large, well-coordinated air support was arguably the most important factor in Marine CAS development in World War II.

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[2]Constance M. Green, et al, *The US Army in World War II The Technical Services, The Ordnance Corps: Planning Munitions for War* (Washington: Department of the Army, 1955), 423-449.

Finally, when MCVGs were employed in combat from aircraft carriers in 1945, the Marines at last had the practical means to deliver the full effect of their CAS system in support of an amphibious assault. In retrospect, this should have been accomplished prior to World War II as a result of training exercises. The fact that these shortcomings were not corrected prior to hostilities is regrettable. Regardless, Marine close air support had come into its own as a member of the combined-arms force.

In viewing these lessons in light of current or future combat operations, only a similarly integrated and coordinated CAS system is sure to give maneuver commanders the flexible and responsive air support they need. Any aviation asset used in a segregated, piecemeal manner that relies on time schedules rather than close integration with forces on the ground is doomed to fail as a CAS weapon. If fighting as a combined arms "team of teams" is the goal of current tactical doctrine, then the lessons learned by the USMC in World War II serve as excellent touchstones for future training.

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