CACTUS AIR POWER AT GUADALCANAL

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

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This study examines the role of the CACTUS Air Force during the battle for Guadalcanal. Hurriedly planned and executed, Guadalcanal was the first U.S. ground offensive in the Pacific. Starting as an unopposed amphibious assault, the operation turned into a six-month-long air, land, and sea battle to secure the island. Operating from an expeditionary airfield, the U.S. Marine Corps employed air power as its primary means of defending the island. The CACTUS Air Force conducted the campaign with limited air assets and was plagued by a variety of critical shortages, yet it managed to play a key role in the U.S. victory.

This study focuses on the specific contributions of air power during this campaign. It examines the role of air power in reconnaissance, deep, close, and rear area operations. It also examines the factors that influenced how air assets were employed and the changes in U.S. concepts about air operations that were made to conduct the air campaign. CACTUS planes assisted in defeating several major Japanese attacks. However, the daily presence and routine operations of the CACTUS Air Force were its key contributions. CACTUS Air's most important contribution was its ability to deny the Japanese air superiority and disrupt their freedom of action in the lower Solomon Islands.

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ABSTRACT

CACTUS AIR POWER AT GUADALCANAL by Maj Timothy L. Clubb, USMC 143 pages.

This study examines the role of the CACTUS Air Force during the battle for Guadalcanal. Hurriedly planned and executed, Guadalcanal was the first U.S. ground offensive in the Pacific. Starting as an unopposed amphibious assault, the operation turned into a six-month-long air, land, and sea battle to secure the island. Operating from an expeditionary airfield, the U.S. Marine Corps employed air power as its primary means of defending the island. The CACTUS Air Force conducted the campaign with limited air assets and was plagued by a variety of critical shortages, yet it managed to play a key role in the U.S. victory.

This study focuses on the specific contributions of air power during this campaign. It examines the role of air power in reconnaissance, deep, close, and rear area air operations. It also examines the factors that influenced how air assets were employed and the changes in U.S. concepts about air operations that were made to conduct the air campaign.

CACTUS planes assisted in defeating several major Japanese attacks. However, the daily presence and routine operations of the CACTUS Air Force were its key contributions. CACTUS Air's most important contribution was its ability to deny the Japanese air superiority and disrupt their freedom of action in the lower Solomon Islands.

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LIST OF ABBREVIATIONS

AAF	U.S. Army Air Force
CAP	Combat air patrol
CAS	Close air support
CINC	Commander-in-Chief
CNO	Chief of Naval Operations
ComAirCACTUS	Commander, Aircraft Guadalcanal
ComAirSoPac	Commander, Aircraft South Pacific (land-based aircraft)
ComAmphibForSoPac	Commander, Amphibious Force South Pacific
ComSoPac	Commander, South Pacific Area
CUB	Naval Construction Base Unit
IGHQ	Japanese Imperial General Headquarters
JCS	Joint Chiefs of Staff
MAG	Marine Aircraft Group
MAW	Marine Aircraft Wing
MAWPac	Marine Aircraft Wings, Pacific
NGF	Naval gunfire
POA	Pacific Ocean Areas
SCAT	South Pacific Combat Air Transport Command
SWPA	Southwest Pacific Area
TACP	Tactical air control party
VB	Navy Bombing Squadron
VF	Navy Fighter Squadron
VMF	Marine Fighter Squadron
VMJ	Marine Utility Squadron
VMO	Marine Observation Squadron

VMSB	Marine Scout-bomber or Dive-bomber Squadron
VMTB	Marine Torpedo-Bombing Squadron
VS	Navy Scouting Squadron
VSB	Navy Scout-Bombing Squadron
VT	Navy Torpedo Squadron
VTB	Navy Torpedo-Bomber Squadron

CHAPTER 1

INTRODUCTION

> We were as well trained and as well armed as time and our peacetime experience allowed us to be. We needed combat to tell us how effective our training, our doctrines, and our weapons had been. We tested them against the enemy, and we found that they worked. From that moment in 1942, the tide turned, and the Japanese never again advanced.[1]
>
> Major General Alexander A. Vandegrift, Challenge for the Pacific

Guadalcanal, an island in the Solomon Island chain, was the location of the first United States ground offensive in the Pacific during World War II (figure 1). This offensive, which began on 7 August 1942, was intended to keep the Japanese from gaining complete control of the Solomons. Operating from a base at Rabaul in the northern Solomon Islands, the Japanese were attempting to establish a series of airfields and ports along the Solomon Island chain to the south that would support offensive operations into New Guinea. Guadalcanal was important to the Japanese plan because it lay at the southern tip of the Solomon Island chain (figure 2). Japanese possession of this island would not only facilitate operations into New Guinea, it would also sever U.S. lines of communication into the region. Because of this, if the U.S. hoped to stop the Japanese offensive in the southern Pacific, it could not allow the Japanese to hold Guadalcanal.

The Guadalcanal campaign was long, hard-fought, and a stellar example of American willpower and resolve to overcome adversity. It also serves as an example of the interdependency of air power, land forces, and sea power. Throughout the campaign, air, land, and naval

forces played a pivotal role in helping the U.S. ultimately achieve success.[2]

This study focuses on the contributions to the campaign made by the land-based air arm, the CACTUS Air Force. CACTUS was the code name for Guadalcanal, and air assets based on the island soon became known as the CACTUS Air Force. This small air force often changed in composition, sometimes on a daily basis, and routinely suffered from a variety of shortages including fuel and pilots. Yet, this force was able to defend against daily air attacks and assist in defeating several major Japanese offensives to retake Guadalcanal. This contribution was crucial at certain points in the operation.

The CACTUS Air Force consisted of U.S. Marine Corps, U.S. Navy, and U.S. Army Air Force aircraft and personnel operating from the island of Guadalcanal. Although numerous carrier-based Navy aircraft and land-based Army B-17s participated in the campaign, they were never under the direct control of the CACTUS Air Force commander. The examination of air power in this study is limited to aircraft that were based on Guadalcanal.

A variety of works have examined the CACTUS Air Force and its efforts that turned the tide at crucial times. Books have been written on the individual exploits of pilots and the innovative ability of the force to overcome adversity. However, there is no clear analysis of how air power was used to fulfill operational commitments and how the air campaign was planned and executed. The purpose of this study is to address these issues.

This study looks at the Guadalcanal campaign and focuses on the unique contributions of the CACTUS Air Force. It examines the organization of the CACTUS Air Force and how that force managed to conduct such a successful campaign in the face of adversity. Finally,

this study examines the lessons that the U.S. learned from this battle at the time and what lessons can still be learned from it.

The primary research question of this study is: How did U.S. air power contribute to the battle for Guadalcanal? To answer the primary question, several secondary questions must be answered. First, how was air power utilized? Second, what were the factors or circumstances that led to air power being employed in the manner it was? Finally, what changes in tactics and air power concepts were made which affected how air power was employed? To answer these questions, this study will examine the types of missions normally assigned to CACTUS aircraft and how these missions were prioritized. It will also examine the factors that determined which assets were used to execute different types of missions. Last, it will examine the influence of doctrine and the limitation of asset availability on air power employment.

The scope of this study is limited to the period of 20 August 1942 to 9 December 1942. The twentieth of August is the day that the first assets of what became known as the CACTUS Air Force arrived on Guadalcanal. The ninth of December marks the departure of the First Marine Division from Guadalcanal. When the First Marine Division was relieved by the U.S. Army Americal Division, the land battle for the island was not yet over. However, by then the air battle had been clearly won by the U.S.

Because of certain developments during these four and one-half months, the campaign will be divided into three phases. The examination of each phase will look at command and control, asset availability and the missions assigned during that particular period. Through the context of a historical narrative and analysis, this study examines the deep, reconnaissance, security, close, and rear area operations of the CACTUS Air Force. This methodology will enable a look across the full

spectrum of the air battle space in order to determine how air power was used and the contributions it made.

The battle at Guadalcanal was the first thorough test of U.S. Marine Corps' doctrine, training, and equipment against the Japanese. The testing of aviation was particularly important because it had been almost ten years since Marine pilots had flown in combat and even longer for those from the other services.

While preparing to fight their next war, the Marines had been aided by ideas developed during World War I and the years after. In the words of the first Marine aviator Alfred A. Cunningham the only reason for a service to have aviation was to support the troops on the ground. Whether he was aware of it or not, Cunningham's statement became the credo of Marine Aviation for all times.[3] Cunningham became the director of Marine Aviation in the 1920s and provided much of the early guidance and direction that made the primary mission of Marine Aviation supporting the Marine on the ground.

Prior to World War I, Marine Aviation had consisted of only 4 officers and 30 enlisted but by the war's end it had grown to 282 officers and 2,180 enlisted.[4] On 5 October 1918 nine DeHaviland-4 and -9 aircraft hand dropped bombs onto a German position south of the Yser river in support of ground forces.[5] After this first ground support mission, the Marine Corps spent the remainder of the war developing a focus on what it called close support bombing.

After World War I, Marine Aviation made noteworthy advances in tactics to support ground troops and conduct aerial combat. Marine aviators were the only U.S. pilots to actually participate in combat operations between World War I and II. Therefore, some of the doctrine, tactics, and techniques used at the beginning of World War II were derived from Marine Corps combat experiences. These lessons were learned in such places as Santo Domingo, Haiti, and Nicaragua.

Dive-bombing was first utilized in Nicaragua by Marines. Another aviation first also occurred in Nicaragua when a patrol was pinned down by bandits. Laying out cloth panels, the patrol directed Marine planes against the enemy forces. This was the first instance of an air attack being directed by personnel on the ground. Later, this technique became a critical part of close air support.[6]

Experience in these "small wars" gave the Marine Corps insight into the difficulties of providing air support for ground units in adverse conditions and terrain. The Marine Corps took these lessons and attempted to standardize its close air support procedures during the early 1930s. However, following the end of the interventions in Central America and the Caribbean, close air support was not given the training emphasis it deserved.

Marine pilots were trained by the Navy and were indoctrinated in the naval tactics of air power employment. This training focused on fighter tactics, dive bombing, torpedo attacks, scouting, searching, and some observation techniques. The Navy flight syllabus failed to include coordinated attacks in support of ground forces.[7] Also, because of their small size and scope, the "small wars" had not provided the Marine Corps with an opportunity to conduct a large-scale air campaign. Guadalcanal provided the Marine Corps with an extensive test of its air doctrine and required the Marine Corps to conduct its largest air operation to date.

In addition to testing U.S. doctrine and aircraft, the Guadalcanal campaign also tested the men who flew the planes and their leaders. The training and understanding of air doctrine by the senior leaders of the CACTUS Air Force at Guadalcanal were important. It influenced not only what they brought to Guadalcanal in terms of experience but also how they employed air power in the campaign. Unlike the 1920s when the majority of pilots were ex-infantry officers, many of

the pilots at Guadalcanal were brand-new, with little experience in the aircraft they were about to fly in combat. Most pilots were right out of college, eager to fight, but sadly lacking in air tactics and worse off in their knowledge of ground operations. Fortunately, the senior leadership of the CACTUS Air Force was not plagued with the same inexperience.

The commander of the CACTUS Air Force was Major General Roy S. Geiger, who was the fifth Marine to be designated as a naval aviator. Geiger brought a wealth of experience and aviation knowledge to Guadalcanal. He had flown every type of aircraft in the Marine Corps' inventory plus every type it had ever owned. As the former head of Marine Aviation in the early 1930s, he was intimately familiar with the current air doctrine and uniquely aware of air power's role in the campaign. Geiger and several members of his staff had gained their initial combat experience in the "small wars" of the 1920s. Their decisions on how to employ air power would be based on their experience and thirty years of doctrinal evolution.

The Guadalcanal campaign provided a thorough test of U.S. air power doctrine, tactics, and training. In doing so it had an impact on air tactics and doctrine throughout the remainder of the war. Both during the battle and afterwards, numerous changes were made. These changes varied from modification of tactics to the reassignment of primary missions for aircraft. Refinements were made in close air support that included improved means of identifying targets and air-to-ground communications. The Army Air Corps' P-400 received a change in its primary mission at Guadalcanal. The P-400 was originally designed as a fighter but proved virtually useless in that role at Guadalcanal. Japanese Zeros routinely approached at altitudes in excess of 25,000 thousand feet. The P-400 was unable to climb that high so it was incapable of conducting intercepts. Because of this shortfall, the

P-400 was restricted to reconnaissance and close air support missions in which it later proved invaluable.

Besides testing U.S. equipment and doctrine, the Guadalcanal campaign also demonstrated to the Allied forces that the Japanese could be stopped. Until then, Allied forces had habitually been on the defensive reacting to Japanese initiatives. A growing sense of defeatism was evident at even the highest levels of U.S. command. At times it seemed likely that the Japanese would force the U.S. off the island during the long campaign, but in the end U.S. forces prevailed and Japan suffered a devastating defeat. This outcome, many felt, turned the tide of the war in favor of the U.S.

Finally, the air campaign had an effect on the remainder of the air war in one other significant way. It destroyed the myth of the invincible Japanese Zero and the fearless pilots that flew it. Prior to the war, U.S. intelligence sources received reports that the Japanese had a fighter that was superior to U.S. planes. These reports were dismissed at the time because most Americans believed that the Japanese were incapable of producing any type of aircraft superior to those made in the United States. Intelligence sources regarded the Zero as a poor copy of current western fighters. This underestimation continued even when first-hand combat reports were received from Claire Chennault and the Flying Tigers in China.

The pendulum quickly swung in the opposite direction when U.S. pilots first confronted the Zero in aerial combat in the Pacific. As rumors spread, the Zero's "capabilities" grew with these tales. The Zero was soon overly feared and often regarded as nearly impossible to defeat. Pilots at Guadalcanal quickly shot down this theory by shooting down hundreds of these supposedly invincible fighters.

The lessons learned at Guadalcanal resulted in the refinement of doctrine and tactics that served the U.S. throughout the remainder of

World War II. The Guadalcanal campaign is of further significance because the origin of many of our current tactics and doctrine can be traced to this battle. At Guadalcanal, U.S. forces found themselves operating from an expeditionary airfield with limited supplies, personnel, and firepower, while the nation was engaged in two simultaneous major regional conflicts. A similar scenario is feasible today. Because of this, many lessons learned from the experiences of the CACTUS Air Force at Guadalcanal have current relevance.

CHAPTER 2

BACKGROUND

> What the hell we want to take some little place nobody ever heard of?[1]
>
> Marine on Guadalcanal, Airwar

Prior to the start of World War II in the Pacific, Japanese plans concerning the United States were defensive. Japan maintained a military advantage in the western Pacific due to its superior geographic position and the capability of the Combined Fleet to disrupt a U.S. defense or reinforcement of the Philippine Islands and Australia. When Germany started the war in Europe, Japan recognized an opportunity and made several aggressive moves in the Far East. In September 1940, Japan occupied northern Indochina and alarmed the world by signing the Tripartite Alliance with Germany and Italy.[2]

When Germany attacked Russia in the summer of 1941, the door was opened for the Japanese to pursue their objectives in the Far East. With Russia engaged in war, Japan no longer felt threatened by invasion from that direction. In July 1941, Japan occupied southern Indochina and the United States responded by freezing Japanese assets and restricting their access to oil exports.[3] This action stunned Japan. The Japanese had only eighteen months of oil reserves on hand to support their offensive actions. Ensuing diplomatic negotiations between the United States and Japan were fruitless and war loomed on the horizon.

Japan began its offensive in the Pacific on 7 December 1941 with the purpose of making itself economically self-sufficient.[4] Of particular importance to the Japanese were the objectives that provided

access to oil fields. The Japanese strategic plan involved three distinct phases. These were characterized as a "centrifugal offensive," a "period of consolidation," and a "defensive phase." In phase one, Japanese air, land, and naval forces would attack various objectives in the Pacific, the Far East, and the Netherlands East Indies. The purpose of the these attacks was to seize planned objectives and simultaneously destroy defending Allied Forces. Phase two would continue the attack into Burma. However, the main effort focused on consolidating forces and developing security for the new territories. Phase three involved defending the new territories against all potential enemies.[5]

The first phase was the only part of the overall strategic plan that actually had detailed plans developed for its execution. It also consisted of three separate parts. Part one called for an attack against Pearl Harbor, the seizure of Thailand, and attacks in Malaya, Hong Kong, the Philippines, Guam, Wake Island, and the Gilbert Islands. The attack on Pearl Harbor was a protective measure aimed at destroying the U.S. Pacific Fleet. Destruction of the Pacific Fleet would give the Japanese two advantages. First, it would protect the left flank of the Japanese forces that were attacking southward from serious American intervention. By the time the U.S. fleet could recover, Japan's objectives would be secured, and it would be in the defensive phase of its plan.[6] The destruction of the Pacific Fleet would also provide the Japanese with the time necessary to consolidate their forces in order to protect their new territories.

Since only eighteen months of oil reserves were available, Japanese planners knew that their offensive must be swift and decisive. This was best summed up in the words of Admiral Isoroku Yamamoto, Commander in Chief of the Japanese Combined Fleet: "If I am told to fight regardless of circumstances, I shall run wild for the first six months or a year, but I have utterly no confidence for the second or

third years."[7] Realizing this limitation, Japan launched its offensive using surprise, initiative, and a carefully developed plan. Japanese forces bolted through East Asia, the Indies, and Melanesia during the early months of 1942. It seemed that the U.S. and its allies could do little to stop the momentum of the Japanese attacks.

The United States had long considered the possibility of a war with Japan. From as early as 1922, U.S. war-planning efforts had focused on a war with Japan. War Plan ORANGE, a plan that envisioned a war with Japan as the sole enemy, was the primary plan for the U.S. in the Pacific Ocean theater. But the terms of the Washington Naval Limitation Treaty signed in February 1922, gave Japan naval dominance in the western Pacific and made the defense of the Philippines virtually impossible.

When Japan attacked the United States, it had ten fleet carriers. This was three more than the United States had in total and seven more than it had in the Pacific. After Pearl Harbor, the U.S. fleet could do little more than race back and forth, trying to block or impede Japanese advances. Japan rapidly expanded into the East Indies, easily defeating the weak, disorganized, and outnumbered Allied forces. Wake, Guam, Hong Kong, and Singapore all fell to the offensive. By early May, the Japanese held the Philippines as well as British Borneo. While all this was occurring, the Japanese South Seas Detachment and naval landing forces were occupying the Gilbert Islands and moving into New Guinea, the Bismarcks, and the Solomons. This enabled them to establish bases at Rabaul and Kavieng. In less than six months they had nearly completed phase one of their plan.

Shortly after the attack on Pearl Harbor, the U.S. decided that the U.S. Navy's first priority in the Pacific was to support the Army in the defense of Hawaii, Wake, Johnston, and Palmyra islands. Next, the Navy was tasked to ensure that sea routes to Australia and New Zealand

remained open and that the Japanese were prevented from advancing any deeper into the Western Hemisphere. Finally, carriers and submarines were to immediately begin tactical offensive operations against Japan. The objective of these operations was the destruction of Japanese sea communications and raids on forward bases.

The Japanese capture of Rabaul on New Britain Island in the Bismarck Archipelago and Bougainville in the northern Solomon Islands on 23 January 1942 alarmed Admiral Ernest King, Commander-in-Chief (CINC) U.S. Fleet. Japanese possession of Rabaul threatened New Guinea and capture of the Solomons would enable the Japanese to attack Allied ships bound for New Zealand and Australia (figure 3). In early March the Japanese conducted a large-scale amphibious landing on the northeast coast of New Guinea and seized additional islands in the northern Solomons. In early May they captured Tulagi in the southern Solomons and established a seaplane base. They also sent a large task force towards Port Moresby on the southern coast of New Guinea in an attempt to take this important Australian base.

U.S. efforts in the Pacific during this time were frustrating at best. Admiral King wanted Japan defeated, but General Marshall, in keeping with the strategy agreed upon by President Roosevelt and Sir Winston Churchill, considered that the war in Europe had first priority.[6] This policy was further strengthened by the London Conference of April 1942. At this conference, the Allies decided to limit the Japanese advance and plan for an invasion of Europe in 1943. The buildup for the offensive in Europe (BOLERO) was to take precedence over the war in the Pacific.

On 7 and 8 May 1942 a U.S. naval force consisting of two carriers, eight cruisers and thirteen destroyers moved into the Coral Sea south of New Guinea and engaged the Japanese force moving toward Port Moresby. The U.S. had been warned of the Japanese movement because

the U.S. Navy's Combat Intelligence Unit had broken the Japanese communication code. Acting on this information, Admiral Nimitz sent this large force into the Coral Sea to stop the Japanese invasion. The U.S. lost one carrier sunk, but one of the two Japanese carriers was heavily damaged and Japanese losses in aircraft were high. Most importantly, the Japanese invasion force turned back and Port Moresby was saved.

Even as the Battle of the Coral Sea was taking place, the Japanese were planning for another naval battle, the Battle of Midway. Admiral Yamamoto had two objectives in mind for this battle. He intended to take Midway in order to expand the Japanese defensive line and he hoped to engage the U.S. Pacific Fleet in order to destroy it.[9]

As was the case before the Battle of the Coral Sea, prior to the Battle of Midway U.S. communications intelligence made a significant contribution to the preparations for the battle. Several Japanese messages were decoded which made reference to a location called "AF." Through a clever ruse, U.S. intelligence determined on 12 May 1942 that "AF" stood for Midway Island. On 3 June the battle began, and this time the U.S. fleet was poised to seize the initiative from the attacking Japanese fleet. The battle ended in a devastating defeat for the Japanese. The defeat of the Combined Fleet was so embarrassing to Japan's leaders that they hid the results from the Japanese public.[10]

Coral Sea and Midway were the first containment of the Japanese offensive by the U.S. After these defeats, U.S. leaders thought it highly likely that the Japanese would increase their efforts in the southwest Pacific. With this in mind, Admiral King, now Chief of Naval Operations (CNO), considered it more important than ever that the U.S. respond immediately to protect the sea lines of communication with Australia. His proposal was for an offensive under the command of Vice Admiral Ghormley to seize the lower Solomons while General MacArthur

moved through New Guinea to attack New Britain Island and Rabaul. There was a sense of urgency behind King's plan. A delay by the U.S. would enable the Japanese to continue to build a strong foothold in the southwest Pacific.

Admiral King's plan represented a compromise in the debate about whether the Army or the Navy should control offensive operations in the Pacific Theater. The Pacific had been declared to be an American theater on 17 March 1942 and on that same date General MacArthur was appointed commander of the Southwest Pacific Area (SWPA). The Navy assumed command of the three Pacific Ocean Areas (POA) and appointed Admiral Nimitz CINC Pacific. Unity of command between these two commanders was provided at the JCS level with Marshall directing MacArthur and King directing Nimitz (figure 4).[11]

Admiral King's plan was adopted and preparation for the offensive began. On 2 July 1942 the JCS issued a directive to Admiral Nimitz to seize Tulagi, Santa Cruz Island, and adjacent islands in the area. This operation, code named WATCHTOWER, was to be executed on 1 August 1942. Guadalcanal was not even mentioned by name in the directive. However, on 5 July coast watchers reported that Japanese forces on Guadalcanal were constructing an airfield there.[12] This sent a streak of panic through the JCS. WATCHTOWER had to be executed as soon as possible.[13]

CHAPTER 3

OPERATION WATCHTOWER BEGINS

> Operation WATCHTOWER was hurriedly planned and hurriedly executed, and because it was carried out with such meager resources, the troops dubbed it Operation SHOESTRING.[1]
>
> Charles Bateson, The War with Japan: A Concise History

The execution order for Operation WATCHTOWER caught the U.S. Marine Corps by surprise. Prior to the decision to execute WATCHTOWER, the 1st Marine Division had been deployed to New Zealand in order to complete training before being committed to combat. Major General Alexander A. Vandegrift, the commanding general of the 1st Marine Division, was told not to expect combat operations until six months to a year after his division's arrival in New Zealand.[2] With this in mind, the Marines gave little attention to combat loading their equipment and supplies for the transit from the U.S. to New Zealand.

On 14 June 1942 the first echelon of the 1st Marine Division arrived in New Zealand while the second half of the division was not supposed to arrive until early July. Vice Admiral Ghormley had just become Commander South Pacific Area (ComSoPac), and Vandegrift's division became part of Ghormley's forces when it arrived in New Zealand. On 26 June General Vandegrift was informed by Vice Admiral Ghormley that the 1st Marine Division was to execute WATCHTOWER on 1 August. Vandegrift and his staff commenced planning immediately.[3]

The lack of combat loading was now a problem. All of the ships had to be unloaded and reloaded. This proved to be a disaster for several reasons. First, the port facilities at Wellington were

inadequate to handle this large number of ships reconfiguring at one time. The process slowed to a stop when the stevedores went on strike for increased compensation and did not resume until the Marines themselves took up the task. Very little equipment was available and temporary storage shelters did not exist. This meant that when a front blew through, literally thousands of cardboard cartons disintegrated in the rain.[4] A great deal of equipment and supplies were left behind simply because of lack of time. When the process was complete, the 1st Marine Division had sixty days of supply, ten units of fire for all weapons, and less than one-half of its organic motor transportation embarked aboard the ships.

The logistics side of the planning and embarkation process was not the only part troubled with unexpected problems. Intelligence planners were encountering difficulties, too. First and foremost, reliable maps and charts of Guadalcanal could not be found. Maritime navigational charts with sketchy depictions of the island were the best that could be located at the time. Eventually, a reconnaissance flight was sent out and returned with photographs.[5] Still, these photographs were inadequate for planning a major land operation. What little information that could be found out about the island was learned from former inhabitants. Their recollections were often less than accurate as the Marines would later find out. Another problem troubling the intelligence planners was the number of enemy forces on the island. Coast watchers had estimated the number to be somewhere between two thousand and ten thousand.[6] Vandegrift felt that this number was too vague. He requested that a reconnaissance team be landed by submarine in order to provide a more precise estimate. Ghormley disapproved this request in fear that the whole operation might be compromised if the patrol went awry.

Meanwhile, the Japanese were planning another major offensive against Port Moresby. The naval defeat at Midway had changed their strategy. Instead of an amphibious assault like the failed effort in May, Imperial Headquarters ordered that a land campaign across New Guinea from the north be conducted to take Port Moresby. Lieutenant General Haruyoshi Hyakutake, the commander of the Seventeenth Army, was tasked with this mission. He was supported by the Eighth Fleet with its naval and air assets at Rabaul as well as the Sasebo 5th Special Naval Landing Force. On 18 July, Hyakutake issued his final orders for the attack on Port Moresby and set forces in motion from Rabaul to the Buna area of New Guinea.[7] The Japanese landing took place successfully on the night of 21-22 July, forestalling a planned operation by MacArthur to secure the same general area.

Meanwhile, the U.S. Navy and Marine Corps were racing to complete their preparations for WATCHTOWER. General Vandegrift realized at this point that execution of the operation on 1 August was virtually impossible. The combination of the late arrival of his second echelon and the unbelievable unloading and reloading process had placed the forces well behind schedule. Vandegrift relayed this information to Ghormley who sent the request for delay up the chain of command. Admiral King made the final decision to delay until 7 August but would accept no further delays.[8]

Ghormley had divided the forces into three separate groups to support the operation. These forces were the Amphibious Task Force, the land-based air forces, and the carrier forces (figure 5). The Amphibious Force that would transport the Marines and their equipment was under the command of Rear Admiral Richmond Kelly Turner. The carrier air assets were under Rear Admiral Leigh Noyes, and land-based air assets were under Rear Admiral John McCain. Vice Admiral Frank Fletcher was placed in charge of the Expeditionary Force which

controlled the carriers and was also in command of the entire operation.[9] On 22 July the Amphibious Task Force ships set sail to join up with the carriers in the Fiji Islands and conduct rehearsals.[10] The rehearsals did not go well and Vandegrift was not pleased.[11]

One source of difficulty was that the senior commanders all met face to face for the first time in the Fiji Islands. Fletcher was less than optimistic about the operation and expressed his reluctance to putting his carriers in the confining waters surrounding the objective area. He totally stunned the other commanders when he informed them that he would remain on station for only two days to provide air cover for the landing. Both Turner and Vandegrift argued that the unloading process would take at least four to five days. Fletcher flatly refused to change his position and would hear no more of it. He told Turner that he could remain behind if he wished, but the carriers were leaving after two days. This meant that the Marines would be without air cover for an unclear length of time. Marine aircraft were to follow in later once the airfield was operational, but at this point Vandegrift had no idea of how long that might be.

On 31 July 1942 eighty-two ships sailed for Guadalcanal embarked with a landing force of nearly nineteen thousand Marines and sailors. The 1st Marine Division had several objectives, the first of which were the islands of Guadalcanal and Tulagi. Vandegrift arrayed his forces into two groups. Group X-ray would take Guadalcanal and Group Yoke would seize Tulagi (figure 6). Leading Group Yoke was the assistant division commander Brigadier General William H. Rupertus. His group consisted of over five thousand Marines including the 1st Raider Battalion and the 1st Parachute Battalion. The best trained and most experienced units were assigned to Group Yoke because the strongest resistance was expected to be on Tulagi. Vandegrift retained command of Group X-ray, which consisted of the over ten thousand men.[12]

As the Task Forces approached the amphibious objective area in the early morning hours of 7 August, the ships supporting Group Yoke separated from those carrying Group X-ray. Just before dawn, naval gunfire (NGF) ships bombarded the tiny harbor of Tulagi. After daybreak, numerous carrier air sorties were flown to further destroy enemy defenses. At 0800, the 1st Raider Battalion approached what planners had designated as Beach Blue on Tulagi. With the approach of the Marines, Japanese forces on the island realized that this was more than just an air raid and naval attack. Troops were coming ashore with equipment, which meant that the Americans intended to take the island. The 25th Air Flotilla at Rabaul was notified at once.

The landing time for Red Beach on Guadalcanal was set for 0915. The landing beach lay between the Tenaru and Tenavatu rivers and about three miles east of Lunga Point.[13] The supporting bombardment was complete, yet no fire had been returned and no enemy could be seen. Just how many Japanese were on the island at this time is uncertain. Most documents indicate that the Japanese force was composed mainly of laborers and numbered less than three thousand in total strength. When the bombardment started, the Japanese had dispersed into the surrounding jungle.

Vandegrift took his force ashore and secured a beachhead up to six hundred yards in depth without opposition. Once ashore, he quickly discovered that the terrain was not what he had anticipated. The jungle was almost impenetrable off the trails and a major stream was unfordable. The first day's objective was supposed to be a grassy knoll about four miles away, but it turned out to be a steep mountain over ten miles away.[14] The Marines advanced cautiously and established a defensive perimeter at nightfall.

The landing was a great success, but the unloading of equipment and supplies was a total disaster. Supplies quickly piled up on the

beach in total disarray. This was because the shore parties were too small to handle so many craft at once and the best they could do was unload the boats and pile the stocks randomly on the beach.[15] A cry for assistance went out but was unanswered. Later that evening, the Shore Party Commander sent a message to General Vandegrift telling him that the unloading process was totally out of control. He also requested that the ships stop unloading immediately until order could be reestablished on the beachhead. Several hours passed before his request was granted.[16]

When Rear Admiral Mikawa, commander of the Eighth Fleet at Rabaul, received word of these American landings, his response was immediate. He canceled the mission of a flight of aircraft scheduled to support the New Guinea campaign and reassigned them to attack Guadalcanal.[17] The Japanese pilots were stunned by the new mission. The round-trip flight was over twelve hundred miles which stretched the Japanese fighters to their absolute limits. Fuel had to be conserved throughout the entire flight in order to be able to return. This equated to little time over the target area.[18] Mikawa dispatched fifty-one aircraft in two separate waves to attack the invaders.

Around 1000 on 7 August, Australian coast watchers warned the Allies that twenty-four bombers were headed their way.[19] This allowed the Allies time to prepare for the inbound attack. The attacking aircraft were still able to sink two ships and down seven U.S. planes but at a loss of thirty of their own aircraft. A Japanese convoy on its way to New Guinea was stopped and turned around. It returned to Rabaul where it regrouped and then sailed for Guadalcanal.[20] Additionally, Mikawa intended to reinforce the Japanese forces on Guadalcanal with troops from Rabaul. He ordered troops to board six transports and dispatched them southward. The next day, a U.S. submarine spotted the

transports and sank one. The remaining transports returned to Rabaul with the troops still aboard.[21]

The next day, 8 August the unloading process did not start until nearly 1000 but was now augmented with some extra personnel. Group Yoke on Tulagi was finally able to defeat most of the remaining pockets of resistance and secure the island. On Guadalcanal, General Vandegrift's forces advanced to the nearly completed airfield and established a perimeter around it.[22]

Mikawa sent down even more aircraft to strike the Americans and the coast watchers provided early warning again.[23] However, one significant change did occur. During the morning, a U.S. reconnaissance plane reported that a large Japanese task force was sailing down from the north towards Guadalcanal. Alarmed by this information, Admiral Fletcher became uneasy. By day's end, Fletcher had lost twenty-one of his ninety-nine fighters and claimed he was short on fuel.[24] Fletcher sent a message to Admiral Ghormley requesting permission to withdraw. That night General Vandegrift was summoned aboard Admiral Turner's flagship. Once there he learned the grim news that Fletcher was withdrawing the carriers and their critical air cover. This was 12 hours earlier than the time given by Fletcher during the rehearsals.[25] Vandegrift also learned that Fletcher had advised Turner to leave and that Turner planned to depart with his ships at 0600 the next morning.

At approximately 0130 on 9 August the Japanese task force slipped through and caught Turner's ships with their guard down. Turner's force suffered a devastating defeat losing four of its five cruisers in what was called the Battle of Savo Island. This loss left Turner's transports unprotected. Fortunately, the Japanese withdrew when their flagship was damaged in the battle. Mikawa was unaware that Fletcher had withdrawn earlier and feared carrier-based air attack in the daylight. Turner's task force departed on the afternoon of 9

August. The transports left with the fourteen hundred men from the reserve regiment, the heavy equipment, radar sets, and coastal guns still aboard.[26] Vandegrift was left behind with less than one-half of the planned food supplies and only four days of ammunition.[27]

Fortunately for the Marines stranded on Guadalcanal, the Japanese failed to realize the significance of the U.S. attack and the dire situation now faced by the Marines on the island. When the U.S. invaded Guadalcanal, the Japanese Army was preoccupied with the battle for New Guinea. Prior to the U.S. invasion, the Japanese Army High Command was even unaware that the Navy was constructing an airfield on Guadalcanal.[28] The Japanese Army's lack of concern was further encouraged by a gross underestimate of the strength of the attacking forces. An intelligence report from a Japanese military attaché in Moscow revealed that the Japanese thought that the U.S. force numbered less than two thousand.[29] They also believed that the purpose of the assault was to destroy the airfield and then withdraw. Furthermore, Mikawa's victory at Savo Island indicated that the situation was well in hand. Because New Guinea was the priority, General Hyakutake did not seriously consider sending a large force of troops and transports to expel the Americans. The Army considered Guadalcanal a small problem that was primarily the Navy's concern.[30]

The Japanese decision not to strike at once with a large force was extremely fortunate for General Vandegrift's forces on Guadalcanal. It gave the Marines time to establish a defensive perimeter around the airfield and start work on completing the runway. The nearly complete strip was 3,600 feet long and equipped with blast pens, machine shops, and hangars.[31] Progress was slow due to the lack of heavy earth movers, but some captured Japanese equipment did fill some shortfalls.

Ground fighting continued on the island, and Japanese forces occupying the island soon realized that they could not hold out much

longer. A message was sent to Rabaul stating that the Guadalcanal forces were threatened with total defeat. Admiral Yamamoto was still unconvinced that a large force had invaded the island. He formed the Guadalcanal Reinforcement Force consisting of transports and destroyers. The task of defeating the Marines was given to the Ichiki Detachment which numbered less than two thousand. Since it was assumed that only two thousand Marines were on the island, in the Japanese Army's view the Ichiki Detachment would be more than enough to do the job. The first echelon of nine hundred to one thousand men from the Ichiki Detachment were embarked and sailed for Guadalcanal between 12 and 17 August.[32]

On 12 August, the Imperial Navy began sending small flights over the Japanese-held areas of the island. These aircraft dropped supplies and leaflets that said help was on the way. On this same day, a U.S. Navy PBY became the first aircraft to use the still unfinished airstrip on Guadalcanal.[33] On 15 August a group of four destroyer transports slipped past the Japanese ships that controlled the waters around Guadalcanal. The U.S. ships delivered drums of aviation fuel, bombs, tools, and spare parts. The Navy Construction Base Unit One (CUB-1) was also put ashore and set to work on the airstrip.[34] On 17 August the strip was finally finished. It was named Henderson Field in honor of Major Lofton Henderson, a Marine pilot who had bravely sacrificed his life at the Battle of Midway.[35]

While the Marines were developing a defensive perimeter and completing the airfield, the Japanese had been conducting small-scale air, land, and sea attacks against the U.S. forces. A pattern to the attacks by the Japanese quickly developed. At night, Japanese ships would bombard the island while ground forces harassed and probed the American perimeter. During the day, bombers would come down from Rabaul, often without fighter escort, leisurely drop their ordnance, and depart. The air attacks were not large by later standards, but they did

demonstrate an unsettling point to the Marines.[36] The Marines had no way to stop the air attacks.

The Marines had been on the island for nearly two weeks. They were on half rations and short of nearly everything. U.S. Navy ships were reluctant even to venture into the waters near Guadalcanal, and air support was not available. General Vandegrift realized that air support was critical to his defense of the island. It did not arrive soon, it might be too late.

CHAPTER 4

THE CACTUS AIR FORCE ARRIVES

> No better sign could have been given. Our doubts and fears dissolved. We were there to stay.[1]
>
> Lester W. Clark, An Unlikely Arena

Admiral Ghormley told General Vandegrift that aircraft would arrive at Guadalcanal on 18 or 19 August.[2] Yet, both days passed without the arrival of the aircraft or further word from Admiral Ghormley. The twentieth of August offered no change until one hour before sunset when the Marines heard a large flight of aircraft approaching. This flight was the twelve SBD-3 dive bombers of VMSB-232 and nineteen F4F-4 fighters of VMF-223.[3] Both squadrons were from Marine Aircraft Group 23 (MAG 23) and had launched from the deck of the Long Island two hundred miles south of Guadalcanal.[4] The first elements of what become known as the CACTUS Air Force had arrived.

General Vandegrift remarked in the division log that the arrival of the aircraft was a major turning point in the battle.[5] Their presence changed the face of the battle for the Marines by providing a new dimension in which to fight the Japanese. The Marines could now utilize air to attack Japanese ground troops and ships. Most importantly though, the Japanese would no longer be permitted to freely strike from the sky. The Marines' morale soared and a new sense of hope prevailed.

With an air force of his own, General Vandegrift's defensive situation improved. However, he knew that the presence of the aircraft would not be enough to stop the Japanese from attempting to retake the

airfield. The small size of Vandegrift's air force required that he use it wisely and avoid unnecessary risk to preserve it. A plan was required which employed these planes in an effective role against the Japanese.

During the period of 20 August to 2 September, General Vandegrift's primary objective was to retain control of the airfield. To maintain this defensive position, two critical goals had to be achieved. First, some method of consistent resupply had to be established. His forces were on half rations and the newly arrived air assets would require fuel, ordnance and parts.[6] The second objective was to prevent the Japanese from launching any major offensives against the island to retake the airfield.

Since he did not control the Navy ships, Vandegrift's only means of improving the supply effort was with his aircraft. U.S. resupply efforts were threatened by both Japanese aircraft and ships. During the day, Japanese planes preyed on U.S. ships which lacked air cover to defend them. At night, Japanese ships dominated the waters surrounding Guadalcanal and the avenues of approach leading to it.[7] Air resupply assets were too few in number to sustain the island force and they faced the same air threat as the ships.

Given the advantages of air and maritime superiority, the Japanese could easily bring down a major counterattack force. Vandegrift concluded that the defense of the island would ultimately depend on the ability of his air arm to gain local air superiority. However, due to the small size of his air force and lack of aviation logistics, Vandegrift realized that gaining air superiority at this time was unlikely. Air parity, where neither side controlled the airspace, was a more realistic objective for the CACTUS Air Force at this time. Therefore, the primary objective for CACTUS air power during this phase was to deny the Japanese control of the air and sea surrounding

Guadalcanal. This would reduce the risk to U.S. resupply operations and make it more difficult for the Japanese to deploy a large counterattack force.

Two other objectives during this period were further development of the airfield and increasing the size of the air force. In its present condition, the airfield was incapable of supporting a large number of aircraft. Dispersal areas were inadequate and the runway was not ready for medium or heavy bomber operations.[6] A lack of heavy equipment slowed development considerably and the daily Japanese air raids often damaged what had been completed thus far. Although the CACTUS Air Force could do little to increase its own size, it could help with the airfield development by minimizing the effectiveness of the Japanese bombing raids on the airfield.

During this period, the seizure of Port Moresby continued to be the primary objective for the Japanese forces in the region. However, on 13 August the Imperial General Headquarters ordered the 17th Army to retake Tulagi and Guadalcanal while continuing the Port Moresby operation.[5] Underestimating the size of U.S. forces on Guadalcanal and assuming that the fighting ability of the Americans was inferior, the Japanese leaders calculated that the island could be retaken with minimal effort.

The Japanese plan involved landing a small but extremely well trained force to seize the airfield. Daily bombing of the airfield by planes from Rabaul was to continue in order to soften up the American defenses. There did not appear to be a major threat to Japanese ships at this time. U.S. air assets had not yet arrived and U.S. Navy ships in the region did not present a formidable foe in the Japanese Navy's opinion.

The attack by the Japanese coincided with the arrival of the Marine squadrons on 20 August. While Japanese bombers flew down and

bombed the airfield, Japanese ships were transporting the first echelon of the Ichiki Detachment to the island. Led by Colonel Kiyono Ichiki, this group consisted of nearly one thousand combat experienced soldiers. Ichiki grossly overestimated the capability of his force in comparison to the Americans'. Without waiting for the remainder of his force to arrive, Colonel Ichiki elected to march across the island from the east and retake the airfield. On the night of 20 August, Ichiki led his detachment into battle against the Marines defending the airfield. In the darkness, nearly his entire detachment was slaughtered as it fearlessly charged the Marine positions.[10] As dawn broke unto what became known as the Battle of the Tenaru, the surviving Japanese were disorganized and withdrawing. The newly arrived aircraft quickly launched on their first mission. F4Fs from VMF-223 strafed the fleeing Japanese in the first ground support mission flown by Marines for Marines since Nicaragua.[11]

During 21 August, VMF-223 mounted a continuous fighter patrol and engaged enemy fighters for the first time.[12] A daily routine quickly formed for the squadrons. Each day, morning and evening search flights were sent out to patrol for Japanese ships. These flights searched as far north as New Georgia and Santa Isabel.[13] A combat air patrol (CAP) was on stand-by to intercept Japanese air raids.

Similarly, the Japanese established a daily routine that they would adhere to throughout the campaign. Large flights of bombers escorted by fighters launched early in the morning. The bombers were either single-engine planes called Vals or twin-engine ones called Bettys. These aircraft flew down from Rabaul and Kevieng, bombed the airfield, and then returned to their bases. The flight was over six hundred miles one way, so their time over Guadalcanal was limited by fuel. Additionally, the fuel limitations did not allow for large deviations in their route to the target area.[14] Fortunately for the

Marines on Guadalcanal, the Japanese flight path normally followed the chain of islands down from the north. This enabled the coast watchers scattered among the islands to warn the Marines of an approaching air raid (figure 7).[15]

The first reinforcement of the CACTUS Air Force arrived in the form of an Army Air Force unit. On 22 August the 67th Fighter Squadron arrived with five P-400 pursuit/interceptor planes.[16] Their arrival prompted General Vandegrift to remark, "I now commanded a joint air force."[17] Coinciding with the arrival of these planes, the CACTUS Air Force had its first chance to strike at a large Japanese task force. That morning, a Navy PBY had sighted a Japanese task force several hundred miles to the north steaming towards the island.

Four destroyer transports were carrying nearly seven hundred men of the second echelon of the Ichiki Detachment. The converted cruiser Kinryu Maru was carrying eight hundred men of the 5th Yokosuka Special Landing Force. Screening the transports were the light cruiser Jintsu and 3 destroyers. Air protection for the ships was provided by two carrier task forces that were operating to the east of them. Additional protection was provided by the seaplane carrier Chitose which was sailing near the transport ships.[18]

Fearing a major Japanese attack, Vandegrift decided to risk his small air force to stop the Japanese transports. This attack required the U.S. planes to fly to nearly their maximum range and was a calculated risk.[19] If the Marines met a large carrier-based air group, Vandegrift could conceivably lose a large portion of his air force.

The strike force encountered extremely poor weather conditions shortly after it launched and quickly returned to Henderson Field. The first major offensive air action by the CACTUS Air Force was a complete failure.[20] Critics of this failed attempt claimed that the Marine pilots should have pressed through the weather front. However, the

majority of the Marine pilots were right out of flight school with minimal time in model, some as little as ten hours. Given their inexperience and questionable instrument flying skills, attempting to fly through the poor weather could have had disastrous results. Furthermore, the Japanese task force had reversed course which meant that the Marines probably would not have located it anyway.

Also hoping to counter this apparent Japanese counterattack, the U.S. Navy dispatched two task forces. Each task force was built around an aircraft carrier (Enterprise and Saratoga). On the same day that the CACTUS strike failed, planes of the Navy task forces launched to locate the Japanese ships.[21] The missions from the aircraft carriers and from Henderson Field were flown independently without coordination between the two services. The Navy strikes also failed to locate the Japanese ships.[22] Low on fuel, the strike group from the Saratoga remained overnight at Henderson Field. Early morning searches on 24 August failed to find the Japanese ships. Subsequently, General Vandegrift released the Navy aircraft to return to their ship. These planes left twenty-seven 1000 pound bombs behind for the Marines. Up to this point, the largest bombs the Marines had were 500 pounds, so the Navy bombs were a welcome addition.[23]

On the afternoon of 24 August, the Japanese task force was finally located. Henderson and carrier-based aircraft attacked the Japanese ships and their supporting aircraft. In the end, the Japanese light carrier Ryujo was sunk, the seaplane carrier Chitose was badly damaged and the U.S. carrier Enterprise was damaged.[24]

Although the damage to the *Enterprise* was unfortunate, it caused an unexpected increase in assets for the CACTUS Air Force. Navy Flight 300 (eleven SBDs), low on fuel, jettisoned its ordnance and remained at Henderson Field overnight. With the Enterprise damaged, the carriers withdrew without recovering the Navy planes at Henderson Field. Flight

300 remained at Guadalcanal for the next month and became an integral part of the CACTUS Air Force.[25]

Because they met such strong U.S. resistance, the Japanese covering force for the assault ships turned back to the north. Yet, the unprotected transports continued southward.[25] The following day, CACTUS aircraft spotted the transports and repeatedly attacked them. By day's end, the light cruiser Jintsu was damaged and the converted cruiser Kinryu Maru set afire. B-17s from Espiritu Santo joined in and sank the destroyer Mutsaki. As a result, the Japanese canceled the landing by the counterattack force and with their surviving ships retreated.[25]

Air assets were quickly dwindling for both the Marines at Guadalcanal and the Japanese to the north. By 26 August, the CACTUS Air Force could muster only eleven F4Fs and nine SBDs. The Japanese were down to only nineteen Zeros and twenty-nine Bettys at Rabaul.[26] Japanese losses were primarily due to combat while operational (non-combat) mishaps accounted for a large number of the CACTUS losses. The poor condition of the airfield was to blame for a large number of the friendly operational losses. Unlike CACTUS planes, Japanese planes faced a six hundred mile flight home. This resulted in many crippled Japanese aircraft ditching or crashing while attempting to return to the safety of their base.

During the last week of August, the Japanese adopted a new strategy to seize Guadalcanal. Plan KA was a joint Army and Navy effort to recapture the island. They no longer intended to risk large groups of transports in one massive push. The Combined Fleet carrier aircraft were to clear the Solomon waters while the 11th Fleet's land-based planes attacked the Marine positions. Admiral Mikawa's ships would transport the troops down the Slot in small but steady numbers. The Slot was the natural sea route along the center of the long axis of the Solomon Islands (figure 2). When the ships were within two hundred

miles of Guadalcanal, they would seek cover in bays of nearby islands and wait for dark. After sunset, these ships would race down, discharge their loads, and be steaming northward by daybreak. These ships were normally small cruisers, but sometimes included destroyers carrying loads on their decks. After disembarking their cargo, the destroyers would bombard the field and retire to the north. The Japanese codeword for these operations was RAT.[29] The U.S. forces called these Japanese operations the "Guadalcanal Express" or the "CACTUS Express." This was later translated into "Tokyo Express" in U.S. newspapers.

On 27 August, the remainder of the Army's 67th Fighter Squadron arrived with nine additional P-400s. These aircraft were originally scheduled to arrive on 23 August, but were held up at Espiritu Santo due to the conditions of the Guadalcanal airfield.[30] Under the protective cover of CACTUS fighters, the U.S. supply ship Athena delivered aviation supplies and personnel on 30 August.[31] Also arriving on this date was the remainder of MAG 23 consisting of VMF-224 (nineteen F4Fs) and VMSB-231 (twelve SBDs). Of the nineteen fighters that had arrived on 20 August, only four were still operable. Meanwhile, the Tokyo Express was landing over six thousand men of the Kawaguchi Force on Guadalcanal.

By the beginning of September, after three weeks of battle, both the Japanese and the U.S. were suffering for air assets. The Japanese 25th Air Flotilla had a total of 36 Bettys, 46 Zeros, 6 Vals and 10 flying boats.[31] This was much below its normal strength of 68 Bettys, 68 Zeros, 8 Vals and 14 long range flying boats. The CACTUS Air Force had peaked at sixty-four aircraft with the arrival of the remainder of MAG 23. Nevertheless, by 2 September, the CACTUS force was down to 54 aircraft consisting of 19 F4Fs, 32 SBDs and 3 P-400s.[32]

Throughout this time, the command and control structure of the CACTUS Air Force was less than optimal. Lieutenant Colonel Charles L. Fike, the Executive Officer of MAG 23, had arrived with the first two

squadrons. Fike acted as the initial commander of the air element and personally interacted with the division operations officer, division air officer, and General Vandegrift.[33] Due to the limited number of aircraft and scarcity of aviation logistics, it was nearly all Fike could do to keep his planes in the air. Attempts to establish a formal command element were nearly impossible. Every available asset was required to respond to the daily air raids, launch patrols, and fly ground support missions. This one 100 percent utilization rate of flyable planes offered Fike little opportunity to expand the scope of missions flown.

When the remainder of MAG 23 arrived, Lieutenant Colonel Wallace assumed command and the organization took on a little more formality.[34] Since Wallace had his entire air group present, a pre-existing group staff was already in place. The only adjustments required were the incorporation of the Army and Navy air assets into the chain of command. The Army aircraft were assigned to support the Marines at Guadalcanal; therefore, their inclusion into the command was automatic. The Navy planes were not assigned to Guadalcanal. However, since they were operating out of Henderson Field and General Vandegrift was responsible for everything on the island, the Navy planes were also placed under the Marine command structure.

Thus far, the CACTUS Air Force had been unable to seize any initiative in the air war. This appears to be a result of every flyable asset being required just to maintain a credible defense. In the Marine commander's minds, a transition to an offensive air war was impossible without a significant increase in assets.

The arrival of the first F4Fs and SBDs at Henderson Field on 20 August meant that the Marines could now fight back in the air. Yet, the newly arrived force was significantly outnumbered by the Japanese in the north. Planners for WATCHTOWER had not intended for the two Marine

squadrons to be the sole air defenders of the island and now adjustments had to be made. The 67th Fighter Squadron represented the first intentional addition to the small air force on Guadalcanal. Prior to its arrival, the 67th had been planning and training for weeks for the flight to Guadalcanal, because the need for more air-to-air platforms was obvious.[35] Of the total number of aircraft flown into Guadalcanal, only thirty-three out of the forty-five were air-to-air platforms.

One of General Vandegrift's objectives during this period was to prevent a major Japanese attack force from reaching the island. He also wanted to slow reinforcements and resupplies to the Japanese on the island. Attacking Japanese ships was the key to achieving these objectives. However, the only offensive capability the CACTUS Air Force had against ships was the SBD, which did not carry torpedoes. It is also important to note that the first dive bomber (SBD) squadron deployed with 12 aircraft and 18 pilots compared to a normal squadron manning of 18 aircraft and 40 pilots and aircrewmen. One reason for this deficiency was that the squadron had just received new SBD-3s the month prior and was still not up to normal strength. Regardless, it is clear from the record that planners overlooked the critical need for an anti-shipping aircraft on Guadalcanal during this period.[36]

The second planned additions were VMF-224 and VMSB-231 which were the remaining uncommitted elements of MAG 23.[37] The other additions to the CACTUS Air Force during this period were unanticipated. The "stranding" of Navy Flight 300 added eleven unexpected SBDs to the force. The circumstances surrounding how the Navy aircraft became part of the CACTUS Air Force were unique. Nonetheless, their incorporation into the island-based force established a precedent that was repeated several times during the campaign. Even with these additions, the CACTUS Air Force barely managed to get by. Combat and operational

losses were claiming aircraft and pilots faster than they could be replaced.

Two other factors affected the availability of assets and ultimately the type of missions flown during this period: fuel and tempo of operations. The number of aircraft available was often limited by fuel availability. At times, patrol missions were cut short in order to conserve fuel. Admiral McCain's staff had calculated how much fuel would be required for two weeks and then doubled the amount. Surprisingly, the CACTUS Air Force ran out in only ten days.[35] The tempo of operations was much higher than expected and Henderson Field's aircraft were using fuel faster than the Navy could supply it.

Tempo also affected the type of missions flown. To patrol effectively and intercept the daily air raids required every available asset. A flyable plane was launched, recovered, refueled, and launched again. This process was repeated until the plane was damaged or it became too dark to fly. This frantic pace allowed for little variance in the variety of missions flown. Mounting a major strike required a large number of aircraft and these were not always available. If they wanted to launch a large strike, then decision makers were faced with the dilemma of stripping assets away from other missions or launching the strike with less than the required number of aircraft. The latter course of action was usually chosen over removing aircraft from protective missions such as CAP and search flights.

Only one deep offensive mission was flown between 20 August and 2 September. This was the aborted anti-shipping strike to stop a major Japanese attack force on 23 August. Nine SBDs and twelve F4Fs were launched on this mission. Exactly how many aircraft were available is unclear since records do not indicate a force strength on that particular day. Nonetheless, not every available aircraft was launched

because the P-400s were not included and records indicate that P-400s were flying on that date.[39]

Long range reconnaissance and security missions were flown routinely. Each day an early morning and an evening search flight were flown. The morning flight was launched at 0545 and recovered at 0830.[40] Its purpose was twofold. First, it was sent out to locate arriving or departing Japanese ships. Their locations were radioed back to Henderson Field where an attack flight was formed. The other purpose of this flight was to gather intelligence for the division. It provided General Vandegrift with an additional source of information concerning Japanese ship movements near the island. This information was particularly helpful since intelligence reports from rear sources and Navy ships in the area did not always reach the Marine command.

The evening patrol launched around 1400 and returned at 1830.[41] Similar in purpose to the morning patrol, the evening patrol was sent out to locate inbound Japanese ships. This provided the division staff with information which often indicated what the Japanese were planning for the night. The second purpose of the evening search was to provide information for early morning strikes, although in a few cases their reports did result in the launching of night strikes against Japanese ships. The search planes often attacked the enemy ships they sighted. However, since the search flights were usually only a single aircraft or a section (two) at the most, their chances of inflicting any serious damage were small.

Reconnaissance and observation flights over the island were launched during the day to observe enemy troop movement and positions. Observation missions were usually requested by the division in order to confirm ground intelligence reports.[42] The effectiveness of these flights was questionable due to the terrain and vegetation. The intense jungle canopy concealed virtually everything beneath it and made aerial

observation difficult.[43] A ground commander later stated that the time to have observation flights was during an attack. At any other time, the Japanese would remain concealed while U.S. aircraft flew over.[44]

For the first few days of air operations, fighters flew security missions to counter Japanese air attacks. The purpose was to engage Japanese bombers away from the field in order to prevent an attack or minimize its effects. This barrier patrol stayed airborne the entire first day. However a constant airborne security patrol could not be maintained due to limited fuel and dwindling numbers of aircraft. Fortunately, the air raids usually occurred within a predictable window. This enabled the fighters to wait until the coast watchers provided a warning, then launch to intercept the inbound attack group.

The assignment of assets for the reconnaissance and security missions was logical given the assets available. These missions were normally flown by the SBDs and P-400s, since the F4Fs were needed to counter the huge air raids. Although the P-400 was designed as an interceptor, it could not climb to sufficient altitude to engage the Japanese fighters and bombers.[45] This shortfall made it a likely candidate for patrolling. When the Japanese aircraft attacked, every flyable aircraft was launched from Henderson Field. This was done to prevent Japanese bombs from damaging parked aircraft. Thus, the P-400s and SBDs were often airborne during an air raid without a pre-planned mission. Sent to the other end of the island to wait out the attack, they would either scour the beach for Japanese troops to strafe or conduct patrols to sight enemy ships.[46] These missions were not usually assigned but the result of individual pilot initiative.

A shortcoming of the search flights at Guadalcanal was the pilots. The Marine and Army pilots had little experience in search procedures, ship identification and recognition. Several incidents occurred in which pilots incorrectly identified ships

(destroyer/cruiser) or mistakenly identified friendly vessels as Japanese ships. Furthermore, the pilot's open water navigational skills were poor. This resulted in incorrect reports about the location of sighted enemy ships. This faulty intelligence sometimes caused critically short assets to be sent to the wrong place.

The preponderance of missions flown during this period were close area operations. This included intercepting the daily air raids as discussed earlier. Other missions were anti-shipping and close air support for the troops on the ground. Field artillery observation flights were flown when requested by the division. Asset allocation for close missions was usually straightforward. Fighters flew the intercept missions and provided necessary air cover for friendly shipping in the area. Anti-shipping missions were flown by all types of aircraft. SBDs conducted dive bombing attacks against enemy ships while the fighters covered them or conducted strafing attacks of their own. The majority of the CAS missions during this period were flown by the SBDs.

Several night anti-shipping missions were flown. These flights were normally attempted when the weather permitted and the moon was nearly full to provide light. Only experienced pilots were allowed to fly these difficult and dangerous missions. The risk of flying into the darkened water, getting lost, or crashing while attempting to land at the dimly lit airfield was far greater than being shot down by the Japanese ship's anti-aircraft fire. Furthermore, locating the ships in the dark water was not an easy task. The Japanese quickly learned to conceal their locations by not firing at the American planes.[47] No hits on Japanese ships were recorded by either the U.S. or the Japanese during this period.

Flying missions late at night could also leave the air force short of assets in the early morning hours.[48] At the time, the Marines considered the night missions failures. However, unknown to the U.S.,

these missions were successful to a certain degree. On at least one occasion, the presence of the American planes caused a Japanese commander to reverse his course and abort his mission to reinforce the island.[49] Apparently, having American aircraft aloft at night did hinder the Japanese reinforcement and resupply effort.

No rear area missions were flown from Henderson Field during the 2 August to 2 September period. This was because the aircraft required for this type of mission were not present on the island at this time.

As a result of initial combat experiences and because of the dire situation of the CACTUS Air Force, several changes to air combat tactics and aircraft missions occurred between 20 August and 2 September. First, the U.S. fighter pilots quickly learned not to attempt to fight the Zero in a one on one battle. The Zero could outclimb, outspeed and outmaneuver the Wildcat with ease.[50] In fact, one U.S. fighter pilot commented, "The slightly obsolescent Grumman F4F was a miracle fighter not because of any inherent superiority, but because it was not worse."[51]

Wildcat pilots learned to stay focused on their primary targets which were the bombers. Their mission was not to fight the Zeros, but to disrupt the bombers and survive to disrupt them the next day.[52] If U.S. fighters allowed the Zeros to distract them, then the Japanese bombers were left unopposed to attack the airfield. However, the F4Fs could not always avoid engagements with the Zeros. Some type of advantage for the Wildcat had to be found. The solution, which was just forming during this period, was to use section tactics. As a section of aircraft, the CACTUS flyers found out they could capitalize on the superior firepower and armament of the Wildcat and exploit the weaknesses of the Zero. After the war, one U.S. pilot said, "The Zero could not take more than a few seconds of fire from the Grumman, but the Grumman could take up to 15 minutes of fire from the Zero."[53] Section

tactics enabled the flyers to cover each other. When a Zero appeared on a Wildcat's tail, the F4F would dive for the deck. While the Zero followed firing from behind, the Wildcat's wingman would maneuver in behind the Zero and engage it.

Another change during this period was the role of the P-400. The P-400 was initially a disappointment to the CACTUS Air Force and the Army pilots that flew it. The P-400 was equipped with a high pressure oxygen system that required a special resupply system that was not available on Guadalcanal. This limited the aircraft to an altitude of twelve thousand feet and below. Unfortunately, nearly all of the air-to-air engagements occurred above twenty thousand feet. Yet, even if a resupply system had been available, the P-400 would still not have been suited for high altitude combat because it lacked a second stage air blower. Without this blower, the engine would be starved for air at high altitudes.[54]

On the few occasions when the P-400 did become involved in air-to-air engagements, it did not fare well. In fact, by 1 September only three of the original fourteen aircraft were left.[55] In a message to Admiral Ghormley, Vandegrift said, "P-400 unsuited for CACTUS operations. Will not be employed further except in extreme emergencies."[56] On 2 September, Vandegrift restricted the P-400s to close air support and patrol missions.[57] Although this was a painful blow to the Army Air Force pilots, Vandegrift could not justify wasting these aircraft in an intercept role. Fortunately, the P-400 was an excellent air-to-ground aircraft. Its role as a CAS platform was later the subject of great praise from the ground units on the island.

At the end of this period, the Japanese were no closer to retaking the island than they had been at the beginning. So far, their attempts had failed miserably. But, although the Marines still held the island, they had not achieved all of their goals either. Since neither

the Japanese nor U.S. continually controlled the skies above Guadalcanal, a state of air parity was achieved. However, although the CACTUS Air Force had been reinforced several times, daily losses continued to jeopardize its ability to maintain this state of parity. The airfield was still not suitable for larger aircraft. Although CACTUS Air had managed to reduce some of the risk to the resupply effort, supplies were still not arriving in sufficient quantity.

The CACTUS Air Force was successful in preventing any major counterattacks during this period. Unfortunately, the Japanese had changed their tactics. Utilizing the Tokyo Express, the Japanese ships were slowly building up forces for a major attack. General Vandegrift summed this up best, "Despite our air victories the enemy had landed and was continuing to land substantial ground reinforcements to our east and west."[58] The Japanese were still on the offensive and retaining the initiative. The CACTUS Air Force had to do something to change this situation if Guadalcanal was going to be held.

CHAPTER 5

A NEW DIRECTION

> We must not overrate the importance of our successes in the Solomons though we may be proud of the skill with which those local operations have been conducted.[1]
>
> President Franklin D. Roosevelt, Challenge for the Pacific

Shortly after dark on 3 September, the first land-based transport plane to land at Guadalcanal touched down on Henderson Field. Just moments before, an urgent message was received which indicated that the aircraft was inbound. The airstrip was hastily lit by the headlights of seven jeeps. The R4D-1 transport plane was the first of many flights to Guadalcanal by MAG 25 aircraft. Brigadier General Roy S. Geiger, Commanding General of the 1st Marine Air Wing (1st MAW), stepped off into the darkness ready to assume his new assignment as Commander, Aircraft CACTUS (ComAirCACTUS).[2]

On 21 August, Geiger had been ordered by the Commander of Marine Air Wings Pacific (MAWPac) to report to ComSoPac and ComAirSoPac. His orders stated: "[You are] to have general command of all Marine Corps aircraft or other such organizations as may be placed at [your] disposal by higher authority."[3] After reporting, Geiger was further directed to proceed to Guadalcanal and assume command of all Marine aviation units on the island. Prior to arriving, Geiger had only sketchy information concerning the desperate situation of the Marines on Guadalcanal.[4] Geiger's new command consisted of only forty-two operational aircraft. This was less than the normal strength of a Marine Air Group. Meanwhile, the Japanese were launching as many as 150 planes a day to

attack Guadalcanal and the Tokyo Express was landing as many as 900 hundred men a night.[5]

Geiger and Vandegrift were old friends. Geiger's arrival was a welcome relief to Vandegrift because he now had someone he knew and trusted to direct the air operations. At this point in the campaign, Vandegrift's goals were unchanged. Defense of the airfield remained his primary objective. His second objective was to improve the defensive situation of his force. To do this, he intended to improve the defensive positions of his perimeter and prevent the Japanese from bringing down more troops and supplies.

Although not an operational goal, a growing concern for Vandegrift was obtaining a relief for his division. The Marines were not intended to be an occupational force. Their amphibious doctrine entailed securing an initial lodgment for further operations. Once this lodgment was established, they were supposed to be relieved by a force that was designed to fight a sustained land battle. Vandegrift realized that his chances of being relieved were not likely. If the division was not to be relieved, then he determined that it must be reinforced in order to defend against the Japanese attacks.

After arriving, Geiger quickly went to work to acquaint himself with the situation. He determined that his first task was to establish some type of order to his new command.[6] The men of the CACTUS Air Force were doing their best, but they were nearing their limit. They were doing everything they could to fight off the Japanese air attacks, but combat fatigue was starting to take its toll. Loss of aircraft to operational mishaps was often higher than combat losses. The command was in a constant state of chaos and each day was a crisis in order to fend off the Japanese air attacks.

Geiger decided that the CACTUS Air Force should assume a more aggressive role. By itself, air defense of the island was not enough to

defeat the Japanese. The CACTUS Air Force needed to start acting offensively in order to take the initiative away from the Japanese. Additionally, in order to support offensive operations, the size of the CACTUS Air Force needed to be increased. Therefore, Geiger had three primary tasks. First, he needed to bring some type of order to the command to reduce the chaotic atmosphere. Second, the direction of the U.S. air campaign had to be changed. The CACTUS Air Force had to start hurting the Japanese and the way to do this was by acting offensively. Finally, he needed to use every means available to preserve his assets and seek reinforcements.

The Japanese had significantly changed their approach by the end of August. Their failures during the month had caused Japanese leaders to realize that retaking Guadalcanal was going to require more effort than previously thought. Since it was felt that the Americans could not be allowed to control the island, Imperial Headquarters issued a new directive changing the priority of Japanese objectives in the region. Offensive operations to take Port Moresby were put on hold, and forces on New Guinea were ordered to defend until Guadalcanal was retaken. Guadalcanal was the new priority. The Army and Navy were to focus their efforts on defeating the Americans at Guadalcanal. A historian of Naval Operations in the Japanese Southern Pacific command said, "We decided to gain control of the air at any cost."[8]

Admiral Yamamoto issued an order detailing new objectives for the Combined Fleet. The first priority was transport of army troops and heavy artillery to Guadalcanal. The second priority was destruction of American air power at Guadalcanal. The distance from Rabaul to Guadalcanal adversely affected the ability of the Japanese to accomplish either of these tasks. To alleviate this problem, an airstrip was established on Buka near the end of August.[9] This succeeded in shortening the distance by nearly 175 miles one way. Unfortunately,

Buka could not handle a large number of aircraft. Because of Buka's limited capacity, only twenty-nine Zeros were moved there. Now, Yamamoto wanted an airfield at Buin. This would cut the distance in half and put his planes in position to provide air cover for transports and attack the American airfield more effectively.

The changes on the Japanese side would increase the challenges faced by Geiger upon his arrival on 3 September. But through force of will he steadily met these challenges. A major problem that was obvious to Geiger was that CACTUS pilots were tired and morale was sinking due to lack of support and dismal living conditions. Although their kill rates were high, constantly reacting to the initiative of the Japanese air attacks caused the pilots to be less confident about their ability to achieve victory. Furthermore, some pilots were avoiding flying. Major Robert Galer, the commanding officer of VMF-224, said that most of the squadrons were nearly worthless with the exception of a few men.[10] Although CACTUS pilots were not aware of it, Colonel Thomas, the division G-3, had complained to General Vandegrift about their performance. He had perceived a possible lack of aggressiveness by the Marine fliers.[11]

Geiger was not the type of leader to sit back and let things happen or accept excuses for why things could not be done. He recognized that some of the CACTUS pilots were suffering from extreme cases of combat fatigue. Many of the pilots had been flying eight to ten hours per day for three weeks straight.[12] Yet, he also knew that they were the primary means of preventing the Japanese from retaking the airfield. Combat fatigue or not, they had to fight. Geiger and his chief of staff, Colonel Louis Woods, used an "Iron Fisted" style of leadership to solve this dilemma.[13] They cared about the welfare of their men, but they could not allow compassion to stand in the way of winning the air war. Geiger refused to accept combat fatigue as an

excuse and continually reminded his pilots of their responsibilities and critical role in the campaign. Lieutenant Colonel Merrill Twining summed up Geiger's role as a leader best, "Throughout this critical period Geiger, by sheer force of personality and example, maintained effective control of a confused and rapidly changing situation."[14]

While dealing with morale issues, Geiger also brought organization to his new command, using the MAG 23 staff as his headquarters with some augmentation from wing personnel.[15] He did this for two reasons. First, the MAG 23 staff was present and functioning, albeit not precisely in the way he desired. However, he saw no need for a separate and possibly redundant higher headquarters. His second reason was that not all of the wing staff personnel were present. Part of the 1st MAW staff was left back at Espiritu Santo to act the wing headquarters. Their job was to assist in administrative matters and facilitate the flow of logistics to the wing forward. Geiger sent his Chief of Staff, Colonel Woods, back to the wing headquarters in early October. Woods was sent there to expedite the flow of supplies and replacement aircraft to the CACTUS base.

Geiger also moved to change the direction of the air campaign by assuming some type of offense. Geiger was determined to make the Cactus Air Force offensive minded by focusing on bombing and attack missions.[16] He believed that breaking out of a reactive situation would improve morale and would diminish Japanese effectiveness by reducing their freedom of action. Geiger realized that if the CACTUS Air Force did not act offensively, then the Japanese would continue to execute their plans without interference or change. He believed this would ultimately bring about the defeat of U.S. forces at Guadalcanal.

Acting quickly, on 4 September, the day after he arrived, Geiger launched his first offensive against the Japanese. The target was thirty-four Japanese landing barges hidden off Santa Isabel Island and

several strikes were flown throughout the day (figure 2).[17] Although they did inflict some damage, at least fifteen barges survived with their cargo of approximately seven hundred infantry troops.

On the morning of 5 September, search planes spotted the barges less than twenty-five miles from Guadalcanal and another offensive strike was launched against them. Only one barge was destroyed, but the attack annihilated the embarked troops. Unprotected on the decks of the barges, over one-half of the seven hundred troops were killed by the repeated strafing attacks.[18] Later in the day, Geiger launched another strike. This time, the target area was Gizo Bay (figure 2). Nearly two hundred miles north, Gizo Bay was the daylight hiding place of the Tokyo Express.[19] SBDs were sent up to locate and attack ships hiding there.

The following day, 6 September, planes were sent up to Gizo Bay again. However, their targets were not limited to ships. The Japanese had a seaplane base located there and this was targeted also. Unfortunately, no ships or planes were sighted, but pilots were able to bomb a group of buildings and reported the destruction of a Japanese radio station.[20] Geiger's offensive spirit was contagious.[21] In only a few days CACTUS pilots had begun to feel more in control of the situation and were anxious for more offensive attacks.

Joining the CACTUS Air Force on 6 September were six SBDs from Navy Scouting Squadron Three (VS-3). Unfortunately, all the news on this day was not good. Martin Clemens, one of the more famous coast watchers, relayed some discouraging information to Vandegrift. The Japanese were building up a significant number of troops and equipment to the east of the airfield at Tasimboko village near Taivu Point (figure 1).[22] Previously, Japanese landings and buildups were always on the western end of the island. However, the Japanese were now landing on both sides of the Marines. If the Japanese launched a major attack from both directions, Vandegrift's force would be trapped in the

middle. Vandegrift's defensive plan included a withdrawal to the east if the airfield was lost. The huge ridgeline running down the center of the island prohibited any southern movement. If the buildup was allowed to continue, the Marines would soon be caught in a defensive position with no avenue of escape.

SBDs repeated the Gizo Bay strike with little effect on 7 September. Both Japanese and CACTUS air operations were kept to a minimum by rain. Four F4Fs arrived as replacement aircraft and the evening search flight discovered Japanese landing barges off San Jorge Island.[23] San Jorge was a small island at the northern tip of Santa Isabel Island. Division and wing planners spent the day developing a plan to strike at the Japanese buildup near Tasimboko. Colonel Merritt Edson was designated to lead the ground attack supported by CAS and NGF. That night, Edson's force boarded landing craft and sailed east towards Tasimboko in order to be in position for the morning raid.[24]

At 0630 on the morning of 8 September, CACTUS aircraft flew pre-planned strikes against suspected strongpoints while the destroyers Manley and Mckean provided bombardment fires. Shortly afterwards, Edson's force landed and reported enemy contact. Edson radioed for CAS and P-400s were dispatched to support the landing force.[25] The attack eventually became bogged down and progress was slow. Vandegrift ordered Geiger to keep ten aircraft in continuous support and place another squadron on call.[26] Several CACTUS planes spent the day conducting strikes in support of Edson. By late afternoon, Edson's force was meeting heavy resistance and was ordered to withdraw under the cover of P-400s.

It rained until noon that day, which caused the airfield to become a boggy mess. Eight aircraft crashed while trying to take off and only two of the eight were repairable. The normal midday air raid by the Japanese failed to show because of the weather. However, sea

planes from Rekata Bay did attempt a strike late in the afternoon, but they were unable to locate the island. Without facing a single Japanese plane, the CACTUS Air Force had severely damaged two of its own planes and destroyed six of them. Discouraged, one of the pilots remarked, "At this rate we can whip ourselves without any help from the Japs."

Henderson Field was extremely congested with both fighters and bombers operating from it. Scrambling aircraft prior to an air raid was a complicated and dangerous task. To ease the congestion, a new strip was built approximately 1 mile east of Henderson Field. On 9 September, the new strip was complete and the fighters moved to it. The new runway was designated the Fighter Strip, but was called the Cow Pasture because of its location in a grassy field.[28] By 10 September, only eleven fighters were operational out of the thirty-eight flown in up to that point. The CACTUS Air Force faced a critical shortage of supplies, parts and fuel. Both Geiger and Vandegrift were nearly begging Admiral Ghormley for additional fighters.[29]

The only idle U.S. fighters in the area were those from the damaged Saratoga. When the carrier was damaged, its planes were flown ashore to New Caledonia while the carrier underwent repairs. Unfortunately, these aircraft did not fall under Ghormley's control. They belonged to Vice Admiral Fletcher who reported to Nimitz not Ghormley. Fletcher was extremely concerned about keeping the air group intact so that it would be ready when the carrier was repaired. As a result he persuaded Ghormley to promise him that he would not attempt to commit the planes to Guadalcanal.

Reports of the desperate situation at Guadalcanal caused Admiral Nimitz to intervene. He transferred the control of all carrier aircraft that could be spared to Ghormley.[30] Ghormley sympathized with Fletcher's desire to keep the carrier's air group intact. However, the need to hold Guadalcanal was more important, and at this point the

CACTUS Air Force had only thirty-six flyable aircraft. On 11 September, Ghormley ordered twenty-four F4Fs from Navy Fighting Squadron Five (VF-5) to fly to Henderson Field. From 11 to 13 September, the CACTUS Air Force was to gain sixty planes from the Saratoga air group.[31] However, during the same period, the Japanese brought in 140 aircraft when the 26th Air Flotilla was moved to Rabaul.

On the afternoon of 11 September, Admiral Turner visited General Vandegrift. The issuing directive for WATCHTOWER had tasked Turner to be in direct tactical command of the operation. However, planners had not anticipated that the operation would turn into a sustained campaign ashore. Because of this oversight in the directive, Vandegrift remained subordinate to Turner for the duration of the campaign ashore. This arrangement caused Vandegrift a great deal of trouble at times because Turner often involved himself in decisions that were better left to a general than an admiral.

The purpose of this visit by Turner was to survey the situation and deliver some disheartening information to Vandegrift. He told Vandegrift that Ghormley thought the Japanese naval presence in the area was too strong. Therefore, U.S. naval forces would no longer be able to support the Marines on the island nor could any additional ground reinforcements be brought in. Turner disagreed with this last point and indicated that he thought he might be able to bring in another Marine regiment.[32] Yet, this was not the worst news. Intelligence reports indicated that the Japanese were preparing to launch a massive attack against the island.

On 12 September, the Japanese launched a forty-two plane strike against the Marines. The new Navy pilots joined the Marines to intercept the attackers and sixteen Japanese planes were shot down at a loss of only one U.S. plane.[33] The Navy intelligence reports were correct. The Japanese were planning a major attack. Lieutenant General

Hyakutake, the commander of the 17th Army, had ordered in the Kawaguchi Detachment, the Aoba Detachment, and the few surviving elements of the Ichiki Detachment. These six thousand troops, led by Major General Kiyotake Kawaguchi, became the Kawaguchi Force. General Hyakutake offered to land an entire division on the island to capture the airfield. However, Kawaguchi assured him that his detachment was more than enough to do the job.[34]

The bulk of Kawaguchi's force had been on Guadalcanal since 4 September.[35] His plan involved landing on both the east and west of the contested airfield. Kawaguchi planned for his units to attack from the west, south and southeast. The main attack was to approach from the east and attack the ridgeline at the rear of the U.S. position (figure 8). To support the ground attack, the 11th Air Flotilla was to launch every aircraft it had and the Combined Fleet was to destroy all enemy ships in the waters surrounding Guadalcanal.[36]

At 2100 on 12 September, the Kawaguchi Force was struggling to get into position as a Japanese plane dropped a flare over the airstrip. Kawaguchi had spent the day hurrying through the jungle to be in position for the attack. Higher headquarters had moved his attack up by one day. This change occurred when a Japanese naval task force was sighted by the Americans. Japanese leaders feared a loss of surprise and ordered the change. Kawaguchi's units were not all ready to attack when the bombardment started and his simultaneous three prong attack never materialized.

When the flare was dropped, the Japanese ships started bombarding the Marine positions. The bombardment lasted for nearly thirty minutes and was followed by the first massive assault of the Kawaguchi Force. The Japanese attack nearly cut through the Marine perimeter but after a fierce battle was repulsed. A forty-five minute bombardment at 0000 was followed by another ground assault. During the

night, five Japanese battalions hurled against the Marines. Pilots were awakened at 0400 for a brief with division planners, then three P-400s were sent out at dawn to strike at targets in front of the Marine perimeter.[37]

At dawn, the Marine perimeter was still intact. The 17th Army headquarters was confident that the Kawaguchi Force would succeed. Transport aircraft loaded with troops were idling on the runways at Rabaul waiting for the signal to fly down and occupy the airfield. Radio Tokyo even announced that Guadalcanal had been retaken.[38]

Japanese air raids came early on 13 September. The first small raid occurred at 0500. The 11th Air Fleet sent down four raids during the day. Each time, CACTUS fliers met the Japanese planes and managed to shoot down a total of eleven with a loss of five U.S. planes. Meanwhile, eighteen F4Fs from the Wasp and the Hornet were ferried in as replacement aircraft in response to Geiger's request for planes. Additionally, twelve more SBDs from VS-3 arrived to support the Marines. Finally, the first torpedo planes were added to the arsenal of the CACTUS Air Force when six TBFs from Torpedo Eight (VT-8) reported aboard.[39]

That night, Kawaguchi tried to penetrate the Marine perimeter again. Throughout the night, another fierce battle was fought. At dawn, the CACTUS Air Force launched P-400s to bomb and strafe the Japanese force.[40] Army Airacobras roared over the ridge at twenty feet spraying their cannons into the Japanese troops. The effect of the P-400s is clear in the writings of a Japanese officer in his diary: "Intensive bombing and strafing followed our unsuccessful attack at dawn and our efforts to take the field are doomed to failure."[41]

On 15 September, Rear Admiral Aubrey W. Fitch relieved McCain as ComAirSoPac. McCain had been a staunch supporter of the Marines and a firm believer in the importance of holding Guadalcanal. At Guadalcanal,

the weather changed for the worse on this day. For nearly two weeks, poor flying conditions prevented any major air strikes by the Japanese. Unfortunately, the CACTUS Air Force continued to lose pilots and aircraft to daily operational mishaps.[42] On 17 September, the CACTUS Air Force could muster only sixty-three planes.[43] The week prior, it had received sixty planes from the Navy.

On the positive side, a mid-September tabulation by the CACTUS Air headquarters indicated that 131 Japanese planes had been shot down since 20 August. Marine F4Fs claimed 109 of them while the Navy Wildcats accounted for 17. The remaining kills were credited to the P-400s, a single SBD and the anti-aircraft battery.

By this time, news of Major General Kawaguchi's defeat had reached Rabaul. Yamamoto and Hyakutake conducted several meetings to map out a new strategy to retake the island. Both agreed that more troops were needed. Responding to this request, IGHQ assigned the 38th Division to the 17th Army. The Army High Command also changed some of its operational and tactical principles at this point. Attacks were not to be attempted until all of the planned forces had arrived, moved into position, and were prepared to execute the plan. The mistakes of the Ichiki and Kawaguchi defeats were not to be repeated.[44]

Turner was true to his word and found a way to transport in reinforcements. The 7th Marines landed on Guadalcanal on 18 September along with an emergency shipment of aviation fuel.[45] The next day, Vandegrift issued Division Operation Order No. 11-42 that stated: "The defense of Guadalcanal will be primarily by air."[46] On 20 September, dive bombers and torpedo planes attacked Rekata Bay on Santa Isabel Island. The next day, they attacked the destroyer Kagero while it was unloading troops at Kamimbo Bay near the northwest corner of Guadalcanal.

On 22 September, Geiger reorganized the CACTUS Air Force by establishing two separate commands subordinate to his headquarters. Strike (Bomber) Command was stood up under Lieutenant Colonel Albert Cooley, the commanding officer of MAG 14. Fighter Command was placed under the direction of Colonel Wallace, commander of MAG 23.[47] The result of the new organizational structure was centralized command and control at CACTUS Air Headquarters and decentralized execution at the two commands. This enabled each commander to pool his assets and assign them to the missions his command was tasked to support.

Strike command included all dive bombers and its mission was search and attack. Fighter command's missions included the following: escort for SBDs and TBFs, intercept, CAP over the air defense perimeter, pursuit, low level strafing and ground support.[48] Squadrons no longer belonged to MAG 14 or MAG 23, instead, they now belonged to either Strike or Fighter Command.

The carriers Hornet and Wasp escorted Turner's transports which were carrying the 7th Marines to Guadalcanal. During this sortie, the Wasp was fatally struck by torpedoes from a Japanese submarine. This left the Hornet as the only operational U.S. carrier in the Pacific. Although the loss of the *Wasp* was devastating, it provided some badly needed planes for the CACTUS Air Force. Six Navy TBFs arrived on 18 September. Six more SBDs and four TBFs arrived on 28 September.

On 22 September, the first planes of VMSB-141 flew in. The remaining members of the squadron continued to arrive in piecemeal fashion. VMJ-253 ferried in pilots from the rear who did not have planes to fly in. On 24 September, Strike Command bombed and strafed the Japanese ships Kawakaze and Umikaze in Kamimbo Bay. The next day, Rabaul received over one hundred reinforcement aircraft.[49]

On 27 September, the five surviving pilots of Navy Flight 300 left Guadalcanal.[50] The weather finally broke and the Japanese launched

their first major air attack in almost two weeks. Coast watchers reported eighteen bombers and thirty-eight Zeros headed towards Guadalcanal and CACTUS fighters launched to intercept them. Ten of the Japanese aircraft were shot down. However, the attack did achieve some success. The Japanese bombs were able to damage or destroy ten parked aircraft. This left Strike Command with eighteen SBDs and only two flyable TBFs at the end of the day.[51]

The following day, the Marines suffered a defeat along the Matanikau river. Operation Plan 2-42 outlined an attack against Japanese forces in the area west of the Matanikau river. The purpose of the attack was to destroy the enemy forces and disrupt them in order to prevent a coordinated attack on the U.S. perimeter.[52] The operation to cross the Matanikau was supposed to be supported by both air and artillery. Unfortunately, thirty-one bombers struck the airfield and knocked out communications between division headquarters and the Matanikau force. The Marines along the Matanikau called for air support but division headquarters never received the request. The next day, the Japanese launched an attack with over sixty aircraft which was their largest raid yet. CACTUS pilots intercepted the attackers and claimed an amazing twenty-three kills. Vandegrift's enthusiasm was evident in his radio report to Noumea, "Our losses: no pilots, no planes, no damage. How's that for a record?"[53] However, Japanese records indicate that only seven aircraft were lost on that date.[54]

On 29 September, the Japanese continued their intensive air campaign but started employing a new tactic. Coast watchers reported nine bombers and twenty-seven Zeros headed south over New Georgia. However, they were puzzled when the bombers turned around and headed back to the north. The bombers were used as bait to lure the American fighters up. With the bombers gone, a pure fighter versus fighter battle could be fought. This tactic was called a Fighter Sweep and was

not a new development in air tactics. However, the Japanese had never employed it before. Therefore, CACTUS pilots did not recognize it. Thirty U.S. fighters went aloft to meet the Japanese force, and the engagement ended in a draw with equal losses to both sides. Fortunately, rain returned and curtailed the Japanese air raids for the next several days.[55]

Admiral Nimitz made an unexpected visit to Guadalcanal on 30 September. Fearing for Nimitz's safety, Vandegrift was extremely uneasy during the overnight stay. Nevertheless, Nimitz's visit would pay off later in his resolve to support the Guadalcanal operation. On 1 October, after almost one month on the island, Geiger's asset situation was not much better than when he arrived. He could count only fifty-eight operational planes and the Japanese had over three times that number.[56]

The weather broke on the 1 October and the Japanese air raids resumed. The Japanese repeated their Fighter Sweep by sending down thirty-six Zeros and nine Bettys. However, both the coast watchers and the new radar missed their approach. Six CACTUS planes were lost at a cost of only four Zeros to the Japanese. Henderson Field had two radar sets operational by the end of September. One was a captured Japanese set and the other was a U.S. built set. The Japanese radar was used as the primary set and the U.S. radar was kept as a back up.[57] The radar had a maximum range of approximately eighty-five miles.[58] Unfortunately, this short range did not give the fighters enough warning to take off and climb to altitude prior to an inbound raid.

At this point, Geiger had only twenty-six fighters. In forty-two days of combat, VMF-223 had lost ten pilots (40 percent). The CACTUS Air Force was critically short of pilots, airframes, parts, fuel and ordnance. Geiger asked for eighteen hundred bombs to be delivered to the island. He supported his request by pointing out that 120 bombs

had been used in a single day. CACTUS assets continued to dwindle and Geiger had only forty-nine planes on 3 October.

Pilots were rotating in from VMF-211 and VMO-251 to fill in for two to three week tours. The temporary pilots would fill in where ever they were needed during their stay. One VMO pilot said, "We never knew what squadron we were in."[59]

The Japanese repeated the Fighter Sweep with twenty-seven Zeros on 3 October. However, this time the Marine radar observed the bombers reversing course, and the CACTUS fliers knew what to expect. Six fighters were kept over the field to handle any enemy aircraft that got through. The remaining F4Fs scrambled to intercept the Japanese planes and downed nine of them while losing only one Wildcat.[60]

On 3 October Vandegrift informed Ghormley that the airfield was finally ready for all types of aircraft. Six SBDs of Navy Scouting Squadron Seventy One (VS-71) and three more TBFs from VT-8 arrived. For the first time, B-17s temporarily operated out of the field when five B-17s were sent up from Espiritu Santo. Six more pilots were sent up for the 67th Fighting Squadron. Seeing the value of the P-400 in the CAS role, Vandegrift wanted the 67th kept at full strength.[61]

On 5 October CACTUS planes participated in Admiral Ghormley's coordinated plan to strike at Japanese positions in the north. CACTUS planes were designated to attack Rekata Bay while the Hornet was tasked to launch her air group against ports in the Shortlands. B-17s from the 11th Bombardment Group were assigned to attack Buka. Unfortunately, poor weather caused the effort to disintegrate into a series of small scattered attacks that reduced their effectiveness.

Afternoon searches located six destroyers 170 miles west of Guadalcanal. Two strike groups launched and damaged the destroyers Minegumo and Murasame. That night, a mixed flight of flare equipped SBDs launched with TBFs to strike at a Japanese supply dump and ships of

the Tokyo Express unloading nearby.[62] Meanwhile, U.S. Navy commanders were trying to do their part to stop the Tokyo Express. On 7 October a small cruiser task force departed Espiritu Santo with instructions to search and destroy enemy ships and landing craft.[63] Reinforcing the CACTUS Air Force, the first Army Air Force P-39s arrived on Guadalcanal.[64]

On 9 October P-400s conducted CAS missions near the Matanikau river. Because the pilots were unable to see the targeted enemy troops, directive panels were placed on the ground by the Marines below. With the aid of the panels and air-ground radio communications, the pilots were able to deliver their ordnance. However, since they were not able to see the target, the pilots were unsure of their effectiveness. Subsequent division reports claimed that the planes had a tremendous effect.[65]

On approximately 10 October Lieutenant General Hyakutake left Rabaul to personally direct the attack planned for mid-October. The main ground force for Hyakutake's attack was the 2nd Division or Sendai Division and two battalions of the 38th Division. He also had 1 regiment and 3 batteries of heavy artillery, 1 battalion and 1 battery of mountain artillery, 1 mortar battalion, 1 tank company and 3 rapid-fire gun battalions.

As part of the operation, the Kawaguchi Detachment was to secure positions in the area east and west of the Matanikau river and disrupt U.S. air operations. In order to do this, artillery was to be used to quickly open fire on the airfield and completely neutralize it. A regiment of heavy artillery was landed on Guadalcanal to support the attack.

Once all the forces were secretly massed on the island, they were to capture the U.S. airfield and artillery positions in one single blow. The main effort was to be a surprise attack on the U.S. rear

flank southeast of the airfield. The 2nd Division was to secretly move across the island from the west to execute this attack. The Sumiyoshi Detachment was to cover the movement of the 2nd Division and then attack to divert the Marine's attention towards the highway along the northern shoreline. Additionally, if required, a single battalion was to conduct an amphibious landing on the north shore behind the U.S. perimeter.[68]

To support the attack, the Imperial Navy had 5 carriers, 5 battleships, 14 cruisers, 44 destroyers and 220 land based aircraft.[69] Under the command of Vice Admiral Nobutake Kondo, the largest Japanese naval force since Midway left Truk on 11 October to support Hyakutake.[70] To defend against this huge attack force, General Vandegrift had only the 1st Marine Division reinforced and the CACTUS Air Force. The recent arrival of VMF-121 brought the CACTUS Air Force up to eighty aircraft.[71]

Meanwhile, Geiger's planes continued to bomb and strafe the sea plane base at Rekata Bay.[72] The pilots of VMF-223 flew their final mission on 10 October. The squadron had sustained a 43 percent casualty rate and was credited with 110 air victories.[73]

At 1500 on 11 October, several Japanese destroyers were spotted well north of Guadalcanal. However, Geiger did not launch a strike group because he did not want a large flight attempting to land at the field after dark. He did assign SBDs to track the task force until 2200 that night.

At 1810 on that same day, B-17s spotted a Japanese bombardment group less than one hundred miles from Savo Island. The battle group was made up of three cruisers and two destroyers. It was sailing in advance of a reinforcement group of two seaplane carriers and six destroyers loaded with troops and equipment.[74] Prior to Hyakutake's attack, the 11th Air Fleet and heavy cruisers were going conduct an intensive bombardment of the U.S. held airfield.

Meanwhile, the escort group of Turner's transports was diverted to intercept the approaching Japanese task force. At around midnight, in what became know as the Battle of Cape Esperence, Rear Admiral Scott located the Japanese 6th Cruiser Division and maneuvered into perfect position to attack. Crossing the Japanese 'T', U.S. warships sank the heavy cruiser Furutaka, the destroyer Fubuki and damaged the Aoba. The Japanese halted their bombardment of the airfield, but the transports continued to off-load less than fifteen miles west of the Henderson Field at Tassafaronga.[73]

At 0515 on the morning of the 12 October, CACTUS Air Force planes launched to find the Japanese ships withdrawing to the north. Only four SBDs were left flyable after the previous night's bombardment when the battleships Haruna and Kongo pounded the airfield for one hour and twenty minutes. Because of the shortage in SBDs, F4Fs were used to strafe the transports. As aircraft became available, anti-shipping attacks were launched throughout the day. The destroyer Murakumo had started to retire but turned around to rescue survivors. CACTUS fliers sank her and the Natsugumo.[74]

During the day, coast watchers were fleeing from Japanese patrols and unable to report incoming raids. The first raid included approximately twenty-four bombers with escorts. Although the CACTUS interceptors were able to launch, they failed to reach sufficient altitude to prevent the attack that destroyed five thousand precious gallons of aviation fuel. The scrambled planes were barely back on deck refueling before a second wave of fifteen bombers appeared. The Japanese were testing a new tactic of sending down back to back air raids. Interception of the first wave would not leave enough fuel for the fighters to intercept the following wave. The second wave was timed to arrive before the fighters could refuel and climb back up.[75]

With their heavy artillery present, the Japanese started a new method of attacking the airfield and disrupting flight operations. Hidden in hills south of Marine perimeter, 150mm howitzers intermittently fired at the airfield. The Marines erroneously thought the fire came from only one tube and named it "Pistol Pete".[76] The twelve thousand yard range of the howitzers enabled them to remain concealed in the hills nearby and still reach the airfield.[77] The Japanese were extremely concerned about concealing the location of their artillery. Normally, only one piece would fire one or two shells at a time. However, this was enough to interfere with operations at the airfield and inflict serious damage.

During the air raids on 12 October, the 164th Infantry Regiment of the Americal Division arrived to reinforce the Marines.[78] The addition of the 164th raised the island defensive strength to approximately 23,000 men.[79] Turner's transports also brought in 210 ground personnel of the 1st MAW. VMF-223 and VMSB-232, the first two squadrons to arrive on Guadalcanal, were officially relieved on this date.

Just after midnight on 14 October, the battleships Kongo and Haruna bombarded the field. The effects of the bombardment were devastating, the next morning Geiger had only five SBDs and sixteen F4Fs left. Besides these, he had only twenty-one other aircraft including the AAF Airacobras, the four B-17s, and his own PBY. Vandegrift sent out an immediate request for twenty dive bombers. The B-17s were sent back to the rear because they required far too much fuel to operate out of Guadalcanal at this time.[80] In the days prior, Geiger's force had reached a peak of ninety aircraft, but now he had only forty-two planes.

Geiger's headquarters was reduced to a pile of rubble after the shelling and he ordered it bulldozed over. This was no great loss since his headquarters, known as the "pagoda", was a single building located

in the center of the airfield several hundred yards from the airstrip. Japanese pilots were using it as an aiming point for their attacks on the field.[81]

During the day of 14 October, four dive bombers with seven F4F escorts attacked the Japanese transports and destroyers. The strike succeeded in slightly damaging one destroyer. Coast watchers reported an air raid at 0930, but this turned out to be a false alarm. However, a second raid of twenty-six Bettys appeared without warning at midday. A third group of eighteen bombers was finally intercepted by CACTUS fliers who claimed four bombers and three Zeros downed at a loss of only one friendly aircraft. A few strikes were launched against the enemy transport convoy. Several pilots from a late afternoon strike crashed while recovering after dark. With only a handful of aircraft left, Geiger did not allow any further flights.[82]

Also on 14 October, Rear Admiral Fitch responded to Vandegrift's plea for more aircraft. Eight SBDs of VB-6 had already been sent up to the island that morning. Nine other aircraft were available at Espiritu Santo. However, there were no pilots to fly them. Fitch ordered pilots of VMF-212 to ferry the planes up. Afterwards, they were to return and fly up their own twenty-four F4Fs to join the CACTUS Air Force. That night the cruisers Chokai and Kinugasa pounded Henderson Field with heavy bombardment fires for three and one-half hours. Brigadier General P. A. Del Valle, commander of Division Artillery at Guadalcanal, said afterwards, "[They] literally took out our airfield, destroying thirty-two planes."[83]

On the morning of 15 October, the CACTUS Air Force was worse off than before with only three SBDs left. In the past few nights, the Japanese bombardments had destroyed fifty-seven aircraft.[84] The three flyable SBDs attempted to launch on an attack mission. The first aircraft fell into a shell hole while taxing to take off, and the second

was damaged while trying to take off. The surviving SBD managed to get airborne. Realizing the futility of single plane strikes, Geiger suspended attack flights until enough aircraft could be repaired to launch a credible strike force.[85]

At this point, another crisis was developing because the CACTUS Air Force was nearly out of fuel. After the intense bombardment, the limited fuel stores were nearly gone. Both Geiger and Vandegrift sent out pleas for more fuel. Every means imaginable, including sea plane tenders, transport planes, and even a submarine were used to bring in drums of fuel. The CACTUS Air Force was so weak that Japanese transports unloaded troops in broad daylight off Tassafaronga. Later in the day, enough SBDs were finally repaired to launch strikes against the transports. Three transports were beached and three others were damaged in the attacks. That night, the cruisers Myoko and Maya fired over 1,500 eight inch shells into the Marine positions.

Meanwhile, Hyakutake had finally massed his forces on the island. He had approximately 26,000 men including 3,000 special naval attack troops. The Japanese air raids and bombardments were having the effects Hyakutake had hoped for. He did not want to rush into an attack before he was prepared and repeat the mistakes made earlier. His planners estimated that six days would be needed to position the forces for the attack. Therefore, Y-day was set for 21 October.

In analyzing the CACTUS Air Force during the period of 3 September to 15 October, it becomes clear that many of their problems and limitations were due to insufficient assets. Geiger had started off with forty-two aircraft. Yet, a month a half later the size of the CACTUS Air Force was nearly the same as before. A large number of reinforcement and replacement aircraft were sent to Guadalcanal during this period. Unfortunately, accurate numbers for the additions and losses are impossible to obtain due to the incompleteness of records.

With all of the confusion, accurate record keeping was not a high priority. In some cases, newly arrived planes were destroyed before they could be assigned to a unit. What the records do indicate is that over one hundred aircraft made their way to Henderson Field from 3 September to 15 October and that roughly this same number of aircraft were lost during this period.

The asset problem manifested itself not only in the number and types of aircraft available but also in the number of pilots and the aviation logistical support. Geiger's offensive strikes had expanded the scope of the missions the CACTUS Air Force was flying. Yet, the strikes were still limited in size and frequency by the lack of assets. Also, at times, too few pilots were present to fly even the scant number of airframes available.

Operational losses accounted for an unusually large number of CACTUS losses. This high percentage of losses continued to occur even during the two week lull of Japanese air raids near the end of September. Many of the losses can be attributed to the inexperience of the pilots. Lack of experience was a particular problem in poor weather flying and night operations. Pilot inexperience coupled with the poor condition of the airfield was a disastrous combination.[86] Extreme efforts were made to keep the airfield and surrounding taxi ways serviceable, but the continuous raids had made this an impossible task. After an air raid, airborne aircraft would often need to land before the field was completely repaired. Landing on a damaged runway caused a large number of aircraft losses. The asset problem was further aggravated by the bombardment of the airfield. These fires hindered aircraft repair and frequently damaged or destroyed aircraft.

Reinforcement and replacement aircraft came from several different sources during this period, including Navy and Marine units. The arrival of TBFs expanded the capability of the CACTUS Air Force by

giving it an effective anti-shipping platform. However, the number of TBFs was too small to cause a significant increase in the anti-shipping campaign.

With a shift to offensive operations, the CACTUS Air Force was able to conduct a number of deep missions from 4 September through 15 October. The first deep mission, only the second of the campaign, was directed against Japanese landing barges off Santa Isabel Island on 4 September. This was approximately 160 miles one way which was well within the two hundred mile combat radius of the SBDs.[87] Assets for this strike were three P-400s escorted by a single F4F. Subsequent attacks during the day consisted of whatever aircraft were available. The next day, a deep strike was sent to Gizo Bay which was at the maximum range of the dive bombers.

Striking deep denied the Japanese their previously unchallenged freedom of action in the north and disrupted their reinforcement operations. Geiger's two primary targets during the period of 3 September to 15 October were the installation at Gizo Bay and the float plane base at Rekata Bay. Geiger's intent was to expand the depth of the battlefield and simultaneously take the fight away from Guadalcanal. His efforts to expand the depth of the battle might have been a little premature because the largest battle for Guadalcanal was yet to come.

The deep strikes were not as successful as Geiger had hoped they would be. The amount of damage they inflicted was minimal. This could be a result of the normally small number of aircraft assigned to execute the strikes. Aircraft availability limited the number of attack planes that could be used in this role. Furthermore, although Geiger considered these missions critical, he still kept aircraft back for close support and reconnaissance missions.

The deep missions were not always against Japanese bases. Several missions were flown against ships. These strikes often included

every attack aircraft available. Attacking Japanese ships was considered a priority because sinking a ship would directly affect Japanese sea power in the region. On the other hand, attacking an installation might only result in temporary damage or attrition of sea plane assets that were not a major threat to forces at Guadalcanal. Generally, assets for deep operations were normally SBDs and P-400s. F4Fs were often used as escorts to protect the attack aircraft, however deep strikes were also conducted without escorts.

Reconnaissance and security missions changed little during this period. Morning and evening reconnaissance flights were still launched on a daily basis. However, when the VS-3 detachment was sent up to support the operation, one change did occur. The Navy pilots were tasked to relieve the CACTUS attack aircraft of routine patrol missions.[88] Previously, the search flights were flown by Marine and Army pilots in SBDs and P-400s. This left fewer aircraft available for attack roles. By using the VS-3 planes for search flights, more assets would be available for attack missions. Furthermore, the VS-3 pilots specialized in search procedures and it was hoped that their patrols would produce better results.

Upon their arrival, the VS-3 pilots flew as many of the reconnaissance flights as they could. Marine and Army pilots continued to fly the remainder of the patrols. Unfortunately, the loss of aircraft made it nearly impossible to reserve the Navy SBDs strictly for search flights. The desperate need to launch strikes and conduct CAS required every plane available. Geiger's plan to keep the Navy planes in the search role was soon overcome by the shortage of assets. Shortly after their arrival, the VS-3 pilots were flying as many attack missions as everyone else.

One other unique reconnaissance flight was started in early October. When the 150mm howitzers arrived, the Japanese were able to

lob shells onto Henderson Field at will. On 13 and 14 October, Pistol Pete's fires were so effective that pilots were only able to take off at random when they were able to reach their aircraft. Several missions were flown to locate the guns. These flights were soon stopped because fuel was in short supply and was needed to support intercepts. At times, when sufficient fuel and aircraft were available, a single plane was kept aloft over the field in hope that it could locate the sporadically firing artillery.

Another problem with reconnaissance flights was communications. Radio reception range severely affected reconnaissance flights. Aircraft could normally receive the Henderson Field ground radios at a range of twenty miles. The aircraft radios were stronger and could transmit back from one hundred miles, although at this range they could not hear the ground radio. Unless they were able to relay through a plane near the field, scout aircraft were often unsure whether their reports were received. Additionally, if the planes were out further than one hundred miles, they had to fly back within transmission range. This was both time consuming and frustrating to pilots. Critical information concerning the results of reconnaissance flights was sometimes not known until after they landed. If this happened to be late in the day, then attack flights often were not launched because of approaching darkness.

Security missions of combat air patrol were intermittent during this period. One of the missions assigned to Fighter Command was CAP over the air defense perimeter. When assets and fuel allowed, F4Fs and later P-39s, conducted security patrols.

Close area operations included a wide range of missions during this period. During the raid on Tasimboko, the CACTUS Air Force conducted one of its first pre-planned CAS missions. Other examples of pre-planned CAS included the P-400s attacking the Kawaguchi Force after

the Battle of the Ridge. The value of the P-400's support is revealed in a statement by General Vandegrift to one the pilots several days after the mission, "You'll never read it in the papers, but that three P-400 mission of yours that day saved Guadalcanal."[89]

Close area anti-shipping missions were also conducted. The CACTUS aircraft attempted night anti-shipping missions again. Revising their tactics, an SBD would drop a flare over the vicinity of Japanese ships shelling the airfield. TBFs carrying torpedoes would then try to hit the ship. SBDs attempted bomb drops but used a new technique. Instead of a steep dive into the ship below, they now tried a shallow glide bombing approach. Yet, the darkness continued to claim aircraft and two were lost in one night on 5 October.[90]

CAS missions improved during this period as the Marines refined their methods of marking targets and communicating. CAS was often used to supplement artillery fire when ammunition was short. The division G-3 coordinated the artillery fire with the air bombardment. An aircraft, usually an SBD, was kept on standby twenty-four hours a day in order to fly observation missions for the division artillery.[91]

Assets for close missions varied and sometimes came from unlikely sources. At one point, practically no attack aircraft were available. Geiger's PBY had just returned from the rear ferrying in a torpedo under each wing. At the same time, Japanese ships up the coast were off-loading troops in broad daylight. The PBY's torpedoes were the only ones available on the island and at the time Geiger had no way of using them because none of the TBFs were flyable. Heroically, Major Jack Cram, the pilot of the PBY, rigged a mechanical release mechanism for the torpedoes. With Geiger's permission, he took off in the PBY and released the torpedoes against a Japanese ship that burst into flames as a result of the attack.[92]

When the more capable P-39s arrived, Geiger intended to keep them in the intercept and pursuit role for which they were designed. However, he soon found out that the P-39 was not able to climb to the altitudes needed to engage the Japanese bombers and aircraft. Therefore, the P-39s were soon flying either CAS missions or low level escort for SBDs, TBFs and P-400s.

Rear area air operations were still quite limited. MAG 25 transports continually flew in supplies and transported out casualties. Flying from Espiritu Santo and Efate, the twin engine R4Ds could carry in three thousand pounds of cargo and transport out sixteen patients on litters.[93] The only Henderson Field based aircraft capable of transport flights during this period was Geiger's PBY. It was kept busy bringing in critical items during the day and conducting searches at night. Additionally, since the PBY could land in the water, it was occasionally used to deliver messages or transport personnel between Guadalcanal and the surrounding islands.

During the period of 3 September to 15 October, General Vandegrift achieved his primary goal of maintaining control of the airfield at Guadalcanal. Also, through the addition of the 7th Marines and 164th Infantry Regiment, the Guadalcanal ground force strength was increased. Yet his overall defensive situation did not improve as he had hoped. In fact, it was worse because the Japanese were now building up on both sides of the airfield and their flow of troops and supplies to the island was stronger than ever.

Relatively speaking, Geiger was a little more successful than Vandegrift. He managed to bring some semblance of order to the chaotic command, although each day continued to be a virtual crisis. Offensive operations were being conducted, even if not on the scale he desired. These offensive efforts were having the beneficial effect of raising the

morale of his force. Unfortunately, the CACTUS Air Force was no larger than it was when he arrived.

Although their first major attempt to retake the airfield with the Kawaguchi Force was a failure, the Japanese were relatively successful during this period. Large numbers of troops, equipment and supplies were safely arriving on the island. CACTUS air power was not destroyed, but as mentioned before, it had not grown in strength. The devastating air raids and bombardments were taking their toll on the U.S. force.

On 15 October the future of the Marines on Guadalcanal did not appear promising. The Japanese had approximately 26,000 troops on the island and were positioning them for a major assault. Japanese artillery and naval bombardments were pounding the Marine defensive positions and the airfield. The Marines were receiving supplies on an irregular basis and their air force appeared to be on its last leg. Worse yet, it appeared that their senior leaders in Washington had little confidence in their ability to hold out.

At a press conference on 16 October, Secretary of the Navy, Frank Knox made the following statement in response to a question as to whether Guadalcanal could be held, "I certainly hope so. I expect so. I don't want to make any predictions, but every man out there, ashore or afloat, will give a good account of himself."[94]

September had started with the President playing down the initial successes at Guadalcanal to the American public in fear that the island might soon be lost. Now, after fighting for nearly a month and a half, the Secretary of the Navy was refusing to speculate on the outcome of the campaign. The men at Guadalcanal were facing their biggest challenge yet, and their most senior leaders were preparing for defeat.

CHAPTER 6

THE END OF DOUBT

> It now appears that we are unable to control the sea in the Guadalcanal area. Thus our supply of the positions will only be done at great expense to us. The situation is not hopeless, but is certainly critical.[1]
>
> Admiral Chester Nimitz, The Amphibians Came to Conquer

By 16 October, the future of the CACTUS Air Force and the Marines on Guadalcanal seemed in doubt. During the preceding three days, Japanese aerial and sea bombardments had destroyed forty-one aircraft and damaged sixteen others. The CACTUS Air Force was reduced to thirty-four operational aircraft and only nine of these were fighters. Although CACTUS strikes had successfully destroyed several transports on the day prior, the Japanese had still managed to land three to four thousand troops on the island.[2] The Japanese were almost ready to execute their largest counteroffensive to recapture the airfield.

Vandegrift was aware that the Japanese were in the process of preparing to launch a major attack. However, he did not know when or where this attack would occur. Long range patrol flights were reporting major ship movements in the vicinity of Rabaul. Coast watchers confirmed this information with their sightings of large convoys and task forces headed southward. At Guadalcanal, Japanese transports were seen landing large numbers of troops and equipment. Ground patrols reported signs of a heavy enemy buildup west of the airfield. Yet,

neither the ground patrols nor air reconnaissance were able to sight large formations of enemy troops on the island.

Several maps were recovered from Japanese prisoners of war and dead enemy soldiers. One of these maps depicted a three prong attack on the U.S. perimeter from the west, south, and the east. However, the Marines considered the eastern attack unlikely, because all of their intelligence sources indicated that the Japanese were massing on the western end of the island. The final indicator that an attack was imminent was the frequency and magnitude of the air raids and bombardments. Previously, the Japanese had never repeated such heavy concentrated fires on the airfield and its defensive perimeter.

Vandegrift's immediate objective was to defend against the impending Japanese offensive. To do this, he needed to prepare his ground forces, which meant repositioning several units and improving supporting artillery fires. He also realized that he needed to stop the Japanese convoys from bringing in more troops. However, he could not do this without the CACTUS Air Force, which was in poor shape after the bombardments. Furthermore, Vandegrift realized that without air support, he could not maintain a prolonged defense against a major attack. Therefore, Vandegrift needed to acquire assets and supplies in order to get the CACTUS Air Force back in full operation.

Although not an operational or tactical objective, Vandegrift's final goal was to have his force relieved and removed from the island. His ground forces were continuing to maintain the defensive perimeter, but their performance was starting to decline. No individual battle up to this point had claimed a large number of Marine casualties. Yet, the total number of casualties since landing in August was beginning to affect the overall strength of the force. Furthermore, two months of combat in an unhealthy environment was causing large numbers of non-combat related casualties.[3] The malaria rate was extremely high

with six hundred cases reported in one week alone. On top of this, nearly everyone suffered from dysentery. One sailor on Guadalcanal said, "You either had it or you had it bad."[4] After only two months in these conditions, it became clear to Vandegrift that his Marines could not hold the island indefinitely.

Retaking Guadalcanal continued to be the primary objective for the Japanese. The operation to recapture the island was gaining publicity in Japan and was rapidly becoming a matter of national honor. This meant that the Japanese Army and Navy could not easily back away from recapturing the island even though many in the Japanese military felt that Guadalcanal was unimportant and not necessary in order to achieve their operational objectives in the region. Regardless, Japanese leaders at Rabaul were still extremely confident that they would succeed. So confident were they that their plan to retake the island left a large part of their force behind at Rabaul to start the Port Moresby campaign once Guadalcanal was secure. Lieutenant General Hyakutake had even planned when and where he would accept Vandegrift's surrender.

After their forces were finally massed on the island, the Japanese ground commanders began to move their units into position and complete preparations for the attack. Japanese intelligence sources indicated that the main strength of the U.S. perimeter extended from the east bank of the Matanikau river to the area south of Lunga airfield (Henderson Field). The 2nd Division was issued the following orders on 15 October: "The army with its main strength will conduct a surprise attack on enemy rear flank from the south of Lunga airfield and destroy enemy on Guadalcanal in one blow." The 2nd Division planned to strike just after sundown on X-day, 21 October.[5] At 0700 on 16 October, Lieutenant General Maruyama, in command of the 2nd Division, set out from Kokumbona through the rugged terrain and jungles of Guadalcanal.

He had five days to maneuver his force into position to envelop the Marine perimeter at its weak point in the southeast.

On the same day that Maruyama began his movement, the CACTUS Air Force received some badly needed supplies and reinforcements when the McFarland managed to deliver some 40,000 gallons of fuel.[5] Lieutenant Colonel Harold Bauer led in VMF-212 with nineteen F4Fs to strengthen the Fighter Command. While the fighters were landing, a flight of Japanese planes suddenly appeared. Nearly out of fuel, Bauer bravely turned away from landing and downed four of the enemy planes by himself.

After his arrival, Bauer was designated head of Fighter Command. By personal example he affected how CACTUS pilots conducted air-to-air engagements with Zeros. Considered one of the best fighter pilots in the Marine Corps at the time, Bauer was a man who was willing to take risks. He said, "There's no way to make war safe. The thing to do is make it very unsafe for the enemy."[7] In contrast to previous tactics, Bauer espoused fighting Zeros under any condition. He believed that U.S. pilots could defeat the Japanese pilots in one-on-one engagements and should not avoid them.

By 16 October, VMSB-231 and VMF-224 had lost so many personnel that they were no longer capable of conducting flight operations and finally left Guadalcanal. The 67th Fighting Squadron was the only unit left on Guadalcanal that had joined the CACTUS Air Force in August. With the departure of VMSB-231 and VMF-224, the last organic elements of MAG 23 were gone. Therefore, MAG 14 officially replaced MAG 23 as the administrative and maintenance agency for Henderson Field.[8] MAG 23 had previously assumed these responsibilities in order to allow Strike and Fighter Commands to focus solely on their combat roles.

Although his assets were critically short, Geiger wanted to inflict as much damage as he could on the Japanese forces that had just landed. To accomplish this, army planes flew seven separate attacks in

one day. Meanwhile, the recent arrival of the 7th Marines and the 164th Infantry Regiment enabled Vandegrift to strengthen his defenses. The perimeter now stretched 22,000 yards with its strongest area west of the airfield.

At 0325 on 17 October, Geiger received an urgent message from ComSoPac. Intercepted message traffic revealed that the Japanese planned to launch two air raids against Henderson Field later that day. At 0720, eighteen Vals and eighteen Zeros were intercepted by F4Fs from VMF-121. Ten Japanese planes were downed while only one U.S. fighter was lost.[9] Later in the day, SBDs conducted a NGF spotting mission for U.S. destroyers firing on Japanese supply and ammunition dumps. Afterwards, P-39s and P-400s were sent in to complete the attack.

On 18 October the Japanese continued their string of air raids on the Marine airfield and perimeter. A one hour warning by a coast watcher sent 16 F4Fs up to meet 15 Bettys and 9 Zeros. The Japanese lost seven aircraft in the engagement that cost the CACTUS Air Force three fighters. Pistol Pete was continuing to disrupt air operations at Henderson Field during the day. Also, a significant change occurred in the U.S. command structure on this day when Admiral Ghormley was officially relieved as ComSoPac by Admiral W. "Bull" Halsey.[10] Nimitz had determined that a more aggressive commander was needed in the SoPac command. Halsey's appointment was enthusiastically received by the Marines on Guadalcanal.

On 20 October the Japanese finished their fighter strip at Buin on Bougainville and flew in thirty Zeros.[11] Yamamoto was making progress in his efforts to decrease the distance his planes had to fly to reach the Americans. Yet, at Guadalcanal, Japanese efforts were not progressing as well as expected. Maruyama's movement across the island was well behind schedule. Without the aid of motorized vehicles or even horses, Maruyama's men were forced to pull artillery pieces through the

jungle by hand. The artillery was eventually left by the wayside so the force could hasten its advance.[12] Maruyama's movement was further complicated by lack of adequate maps which made navigation extremely difficult. As a result, the Japanese commanders decided to postpone the attack by one day.[13]

On the night of 20 October, the first ground action occurred when a Japanese patrol clashed with Marine units along the Matanikau river. This reinforced the Marines' opinion that the impending attack would come from the west. On 22 October Pistol Pete continued to shut down normal operations at the airfield and Vandegrift's patrols had still not seen any signs of large Japanese troop movements. Meanwhile, just south of Henderson Field, Maruyama had still not reached his intended line of departure for the attack that night. Another postponement was made that slid X-day back to 24 October.

On 23 October Major General Vandegrift responded to a summons by Admiral Halsey and flew to Noumea Harbor for a council of war, leaving Geiger in temporary command of all CACTUS forces. At Noumea Harbor, Halsey, Vandegrift, Turner, and several other key commanders discussed the future of the U.S. at Guadalcanal. Should the U.S. continue to try to hold the island or cut its losses and withdraw? Vandegrift briefed Halsey on the problems he faced defending the airfield. These problems included almost daily surface and air bombardment along with crippling shortages of air assets and parts. He emphasized that the Japanese were continuing to successfully transport supplies and reinforcements to the island. If Guadalcanal was to be held, it needed more aircraft and ground reinforcements at once. When asked whether he could hold, Vandegrift replied, "Yes, I can hold. But I have to have more active support than I have been getting."[14] Halsey reassured him that he would receive all the available support that could be found.

On the very day of this meeting, CACTUS forces inflicted two defeats on the Japanese. First, a large air attack made by a force of sixteen bombers and twenty-five fighters was defeated. Lieutenant Colonel Bauer, now in charge of Fighter Command, sent up every flyable plane he had to intercept the raid and his 23 F4Fs and 4 P-39s downed 20 Zeros and 2 bombers. Then that night, a Japanese ground attack was fought to a standstill and turned back.

The twenty Zeros shot down on 23 October did much to support Bauer's aggressive air combat theory. However, one must note that the air battle had been going on for two months by this time. Between Midway and the two months of combat at Guadalcanal, the Japanese had lost hundreds of their best pilots. Although still challenged for control of the air, CACTUS pilots were no longer facing the elite of the Japanese pilots. Attrition had seen to this. Regardless, Bauer's aggressive style of dogfighting caused an increase in Japanese fighter losses at a critical point in the campaign.

The Japanese ground attack plan tasked Major General Tadashi Sumiyoshi, commander of the 17th Army artillery, to attack the western perimeter while Maruyama simultaneously attacked from the southeast with the 2nd Division. Whether by miscommunication or blunder, Sumiyoshi launched his attack twenty-four hours early on the night of 23 October (figure 9). At 1800, preparatory artillery fires rained down on the Marine perimeter along the Matanikau river. After the bombardment stopped, a company of Japanese tanks appeared. Accompanied in the attack by an infantry regiment, the tanks were supposed to cross a sand bar in the river and thrust through the American perimeter.

During the attack, the Marines fired pre-planned artillery barrages and augmented these with direct fires of 37mm guns. The Japanese were pushed back and lost a large number of tanks. Around midnight, Sumiyoshi tried another attack farther upstream and was easily

defeated.[15] By attacking alone, Sumiyoshi enabled the Americans to focus the preponderance of their defensive efforts against his force. This ill-timed and uncoordinated attack cost the Japanese twelve tanks and between six hundred and two thousand men.[16] The Japanese effort was further weakened when the light carrier Hiyo developed engine problems and was forced to withdraw.[17]

It rained continuously during the night of Sumiyoshi's attack and turned the airstrips into muddy quagmires. The lack of matting on the Fighter Strip made it nearly unusable and on 24 October the morning patrol flight was delayed by over one hour due to the condition of Henderson Field. This meant that morning air support would be at a minimum. To make matters worse, Vandegrift's artillery units were running low on ammunition. To alleviate this shortage, Geiger sent his PBY back to Espiritu Santo to ferry in artillery rounds. On the return trip, the PBY and several R4Ds were turned around and ordered back to Espiritu Santo because Henderson Field was still unusable for large transports.

Although the tactical situation on Guadalcanal was still very difficult for CACTUS forces, on 24 October President Roosevelt issued a secret memorandum to the Joint Chiefs that changed the strategic setting and put the Americans on the road to eventual victory. Roosevelt said, "My anxiety about the Southwest Pacific is too make sure that every possible weapon gets into the area to hold Guadalcanal, and that having held in this crisis, munitions, planes and crews are on the way to take advantage of our success."[18] The Commander in Chief had finally determined that Guadalcanal must be held and had given this battle the highest priority.

Also on 24 October, a large formation of Japanese troops was sighted near Mount Austen. Artillery fire and attack aircraft were immediately tasked to engage it, but the Japanese quickly disappeared

into the terrain. Southeast of the perimeter, LGen Maruyama had finally reached his line of departure and was in position to attack.

At 0030 on 25 October, a Japanese regiment attacked the eastern center of the U.S. defensive position (figure 10). The Japanese employed their usual tactic of massing forces across a narrow front. Trying to cross a field of well-interlocked fires and artillery, the attacking regiment was soon beaten back.[19] Another regiment had become lost and mistakenly fell into trail of the attacking regiment. This left the trailing unit unable to attack across its planned front. This blundered effort was the only major attack of the night and failed to gain any ground.

The failed assault caused the Japanese commanders to delay the attack until the following night. When news of the newest postponement reached Vice Admiral Nagumo, the commander of the supporting naval forces sent a startling message to the ground commanders. The fleet would soon be forced to withdraw because of fuel. If the attack were delayed much longer, the ships would be unable to support it.

Although the attack was defeated, some smaller units were able to temporarily penetrate the American perimeter. This limited success prompted the Japanese commander to send a message to the naval force claiming that the field had been taken at 2300 on 24 October.[20] This information was obviously false, because the major assault did not start until 0030 on 25 October. Vice Admiral Nagumo must have been acting on the basis of this message when he ordered the carriers to launch several Zeros and bombers to occupy Henderson Field. The Japanese planes launched at dawn and were instructed to circle overhead until a landing signal was received from the captured airfield. A few CACTUS fighters managed to take off and down many of the orbiting Japanese planes.

On the morning of 25 October, Pistol Pete started in at 0800 and fired in ten minute intervals for over three hours.[21] This closed down

Henderson Field to all but single plane takeoffs. To make matters worse, the Fighter Strip was still unusable because of its poor drainage. Only a few fighters managed to lift off from the boggy runway. During the morning, an SBD patrol discovered the light cruiser Yura and 5 destroyers approximately 110 miles north of the island. By midday, the artillery fire had nearly stopped and the fields were dry enough to launch larger flights. A strike group consisting of CACTUS' five flyable SBDs located the Japanese ships approximately sixty miles away. An hour and a one-half after the SBDs struck, three P-39s attacked the ships. This attack was followed by three more SBDs at 1500 and another attack at 1600. Finally, B-17s from rear area bases attacked and finished off the damaged Yura.[22]

Inside the U.S. perimeter, 25 October seemed like one long continuous air raid and bombardment. The Marines later referred to it as "Dugout Sunday." Records of the 3d Defense Battalion show that seven separate Japanese air raids occurred that day. However, the division and aviation logs indicate that approximately three major air attacks occurred.[23] Small groups of Japanese planes loitered overhead throughout the day. With the carriers nearby, the enemy planes were able to remain on station longer. This was something the Marines on the island were not accustomed to. In the past, the air raids had little time to stay around because they had to conserve fuel to return back north.

By 1430, enough CACTUS fighters were able to take off to counter the air raids. However, a few Japanese bombers filtered past the interceptors and attacked Henderson Field at 1500. Fortunately, their bombs fell harmlessly in Geiger's junkyard of destroyed aircraft. Ingeniously, these hulks were arranged into neat formations that resembled parked aircraft. To the Japanese fliers above, the decoys appeared to be ideal targets. That night, the CACTUS Air Force was on

its knees again with only twelve of its thirty-five fighters flyable. Besides the fighters, it had 11 SBDs, 6 Army planes and 1 lone photographic aircraft.[24]

The perimeter had remained free of ground action during the day, but that night Maruyama launched another attack. He changed his plan slightly at the last minute when reports falsely indicated U.S. forces on his flank. He tasked one of his subordinate commanders, Colonel Shoji, to cover the flank with his unit. This reduced the overall attacking strength of Maruyama's force. Maruyama struck with two regiments along the defensive frontage of two U.S. battalions.[25] Simultaneously, Colonel Oka's group attacked along the Matanikau on the opposite side of the perimeter (figure 10). It was Oka's force that had been spotted near Mount Austen the day prior.

U.S. and Japanese troops battled throughout the night. The Japanese successfully seized part of a contested ridge in the west but were later pushed off. At daybreak, the Japanese had not made any significant gains and the U.S. perimeter was intact. Determinedly, the Japanese continued to launch small attacks for the next few days. However, on 29 October they began a general withdrawal to the west. This ended the largest ground attack by the Japanese on the U.S. position.

On 26 October, U.S. ships met the large Japanese naval task force in the Battle of Santa Cruz. Prior to the battle, two separate task forces built around the carriers Enterprise and Hornet were directed by Admiral Halsey to intercept the Japanese ships moving southeast towards Guadalcanal. The resulting engagement was a carrier versus carrier battle. Several U.S. ships were severely damaged, over seventy aircraft were lost and the Hornet was sunk.

The damage inflicted on the Japanese ships was less severe, but it had a much larger and lasting operational effect. The carriers

Shokaku and Zuibo were damaged and the Japanese lost over one hundred planes.[26] These losses virtually eliminated their carrier-based air capability in the region. The loss of the carriers was critical because the 11th Air Fleet at Rabaul was nearly decimated by combat losses from two months of fighting. Until the 11th Air Fleet could be reinforced, the only way the Japanese could hope to control the air around Guadalcanal was with their carrier-based planes. When the carriers were damaged, this hope was eliminated. This was the last time Japanese carriers were used in close support of a counterattack to recapture Guadalcanal.

The U.S. Navy had acted decisively and their actions directly contributed to saving Guadalcanal at a critical point in the campaign. Admiral Halsey's offensive spirit and direction were largely responsible for this success. However, the battle was not yet over.

The CACTUS Air Force was in pitiful condition. Fortunately, the Japanese air attacks subsided for the next few days. This lull in air activity enabled CACTUS maintenance men to repair damaged aircraft. New reinforcements arrived on the last day of October when the first elements of VMSB-132 and VMF-112 flew in.[27]

After the Japanese ground attack, Vandegrift hoped to capitalize on the Japanese defeat by launching his own offensive. Vandegrift planned to attack the Japanese forces between the Matanikau river and the village of Kokumbona. If the Marines were successful, a forward base could be established near Kokumbona. This would also force the Japanese artillery back to where it would be unable to reach the airfields.

While Vandegrift was making plans for an attack to the west, Hyakutake was planning another offensive to recapture the airfield. Hyakutake intended to use the 38th Division at Rabaul under Lieutenant General Tadayoshi as his main attack force. He planned for the 38th

Division and its equipment to be transported to Guadalcanal on transports instead of the Tokyo Express. This would enable the force to arrive in mass rather than bits and pieces. Supported by warships, high speed transports would move the troops and supplies. The movement was to be complete by sunrise on 15 November.[28]

Hyakutake wanted to land the 38th at Koli Point, so it could attack from the east while the remainder of the 17th Army attacked from the west. However, IGHQ overrode Hyakutake and directed that the 38th land near the Matanikau river to attack from the west in order to mass the Japanese forces. A much smaller force was to be sent to Koli Point with a different mission in mind. These troops were tasked to deliver supplies to isolated units in the east and start construction on a new airstrip.

To support the operation, the Imperial Navy created four separate task forces. The first two were bombardment groups that were tasked to shell Henderson Field prior to the offensive. The third group was to provide transport for the 38th Division and its reinforcements from Rabaul, while the fourth group was tasked with general support. Additionally, the 11th Air Fleet's land-based planes were tasked to attack the airfield in conjunction with the ship bombardments. The preparatory fires were to start on the night of 12 November.[29]

On 1 November, supported by air and NGF, two Marine regiments were sent westward towards the Matanikau river.[30] That day, Halsey sent information to Vandegrift that indicated that the Japanese were launching another troop carrying task force. Intelligence sources confirmed that the Japanese reinforcements were headed east of towards Koli Point which was approximately 15 miles east of Henderson Field. A Japanese landing in this area posed a threat to the eastern perimeter. Furthermore, Vandegrift was in the midst of planning for an airfield to be built east of Koli Point. If the Japanese successfully landed at

Koli Point, then the planned lines of communication to the friendly forces that were to be landed to construct an airfield in the east would be cut off.[31]

Vandegrift's staff hastily put together a plan to defend against a Japanese landing in the vicinity of Koli Point. The 2nd Battalion, 7th Marines, under Lieutenant Colonel Herman H. Hanneken, was sent there later that day. By nightfall on 2 November, Hanneken's unit had established a two thousand yard long defensive position that stretched eastward along the beach from the Metapona River. At 2230, in pouring rain, Japanese ships started off-loading 1,500 troops approximately one thousand yards east of Hanneken's position. The Marines were in no position to stop the Japanese landing.[32] The CACTUS Air Force sent out three SBDs to attack the ships and lost all three in the rainy darkness.

Hanneken's unit made contact with the Japanese troops at dawn on 3 November. After fighting all day, he finally withdrew to a position west of the Metapona river. After hearing of Hanneken's situation, Vandegrift ordered in two battalions to reinforce Hanneken. Vandegrift was extremely busy that day trying to manage three separate operations. His forces were attacking in the west, conducting a defense in the east, and preparing for a landing at Aola Bay to start a new airfield. Vandegrift sent a message to Hanneken telling him that he had instructed CACTUS planes to "hit everything east of Koli Point."[33]

If those were the instructions Vandegrift gave the pilots, then he unknowingly set the stage for fratricide. At 1740, Hanneken's battalion requested that the CACTUS planes stop bombing because they were hitting the Marine's position. A more frantic message arrived at division headquarters twenty minutes later with the same request. Finally at 1900, a third message relayed that the friendly planes had been strafing their own troops.[34]

On 4 November, the 8th Marines were brought in to reinforce Vandegrift's position. Additionally, against Vandegrift's recommendation, an Army battalion and a Marine Raider battalion were put ashore at Aola Bay. Their mission was to provide a defensive perimeter for a Navy Seabee unit tasked to build an airstrip there. Navy commanders wanted an airfield east of Henderson Field so that fighters could still take off if Henderson were attacked. Vandegrift agreed with this concept, but considered Koli Point a more suitable site for building an airstrip. Vandegrift sent out an engineer reconnaissance patrol to Aola Bay and it returned with information that confirmed that the area unsuitable for an airfield.[35] Ignoring this information, Turner still wanted the airfield built at Aola Bay and directed the forces there.[36] The Seabees went to work at once, but their progress was excruciatingly slow. Just as the engineer patrol had reported, the swampy area was totally unsuitable for an airfield.

On 7 November, twelve P-39s arrived to join the CACTUS Air Force. Search flights sighted eleven destroyers approximately 125 miles away. The CACTUS Air Force sent 7 SBDs and 3 TBFs along with 12 P-39s to intercept the ships. Following in trail of this attack group were twenty-two F4Fs. Two Japanese ships were damaged in the engagement.

Also on 7 November, the CACTUS Air Force changed commanders. Although both Vandegrift and Geiger opposed the change, Admiral Halsey directed BGen Louis Woods, Geiger's Chief of Staff, to assume command of the CACTUS Air Force. Geiger was still in command of the 1st Marine Aircraft Wing and Halsey claimed he wanted Geiger back in the rear to work larger issues with ComAirSoPac.[37] Geiger left the next day for Espiritu Santo.

By early November, the strains of the environment and the continual stress of holding a struggling air force together were definitely starting to show on Geiger. Although there are no records to

confirm it, several authors claim that Geiger was replaced because of fatigue and failing health. Regardless, Geiger's performance as commander of the CACTUS Air Force was exemplary until the day he left.

The Japanese resumed their air raids on 10 November when fifteen Zeros showed up. Astonishingly, the CACTUS Air Force was able to launch thirty-one fighters to intercept the Zeros. More reinforcements arrived the following day when VMSB-131 flew in. The Japanese launched air raids again, this time catching U.S. transports unloading supplies near Lunga Point. CACTUS fighters attempted to provide air cover for the transports, but three transports were damaged in the attack.[38] Two CACTUS planes were shot down by anti-aircraft fire from U.S. ships during the engagement.[39]

On the morning of 12 November, search flights discovered two large Japanese task forces to the north. One group was made up of transports and the other consisted of two battleships, a light cruiser and fifteen destroyers.[40] No attacks were launched against the ships but U.S. cruisers left Lunga Channel late in the day to intercept the approaching Japanese ships. Earlier, eight twin tailed P-38 Lightnings of the 339th Pursuit Squadron arrived to join the CACTUS Air Force.[41]

Both Vandegrift and Woods were aware that an attack force was enroute. Therefore, CACTUS pilots planned an on-call strike which was to launch the next day as soon as the Japanese ships were located. At 0134 on 13 November, the U.S. cruisers made radar contact with the Japanese warships. Shortly afterwards, enemy flares illuminated the U.S. vessels while Japanese ships fired torpedoes. The battle only lasted for thirty-four minutes. U.S. losses were heavy but could have been heavier. The Japanese ships were carrying high explosive bombardment rounds instead of armor piercing shells. Three U.S. cruisers and four destroyers were lost and several others were damaged. During the brief battle, the American ships concentrated their fires on

the battleship Hiei which took eighty-five hits. Two Japanese destroyers were sunk and the out of control battleship was left behind when the task force withdrew to the north.[42]

Unsure of what happened in the sea battle during the previous night, a CACTUS plane was sent out investigate. At dawn the Hiei was spotted steaming in circles near Savo Island. Numerous flights of CACTUS planes were sent out to attack the enemy battleship. Finally, the *Hiei* was scuttled by her own crew that night. Further north, long range search flights had found the withdrawing destroyers and attacked them without causing any serious damage. During the day of 13 November, erroneous intelligence reports caused two separate strike groups to launch in order to attack fictitious Japanese carriers.[43]

That evening, the CACTUS Air Force had over one hundred operable aircraft for the very first time. However, this would change within a matter of hours.[44] Japanese ships blasted the airfields with 989 rounds that night. Two F4Fs were destroyed and fifteen others were severely damaged by the bombardment.[45] While the Japanese were bombarding Guadalcanal, the Enterprise was speeding towards the island from the south. At daybreak on 14 November, the carrier launched a search flight which found the Japanese ships that had shelled the airfields during the night. Henderson aircraft attacked the ships shortly afterwards and were followed by a strike group from the U.S. carrier. One heavy cruiser was sunk and another heavy cruiser and two light cruisers were damaged by the attacks.

Afterwards, the strike group from the Enterprise recovered at the Guadalcanal airfields.[46] That morning, long range search planes found the Japanese transport group north of New Georgia. With a large force of Japanese ships approaching, the Enterprise sent the remainder of her air group ashore while she moved out of range to the south to avoid attack. Numerous attack groups and strikes were launched against

the approaching enemy transports. CACTUS planes were in a frenzy cycling back and forth to attack the approaching ships.

Japanese records claim that the transport force was engaged by five prolonged attacks between 0555 and 1530. They estimated the number of attacking planes to be 108. Six or seven of the transports were destroyed by the attacks, but the majority of the personnel were transferred to escorting destroyers.[47] The four surviving transports continued south towards Guadalcanal.

CACTUS planes took off at dawn on the morning of 15 November. They had to fly only fifteen miles to find the four unprotected Japanese transports. Three transports were beached and unloading the troops while the fourth was nearing the shoreline. CACTUS planes cycled back and forth all day long attacking the beached ships. The air attacks killed thousands of the troops exposed on the decks of the ships and less than 4,000 of the 13,000 men sent down made it ashore. The landing was a complete failure and was the last time the Japanese Army and Navy tried a coordinated large scale operation to seize the island.[48] After this failure, IGHQ realized the Japanese situation was desperate. It ordered to 17th Army to hold its present position on Guadalcanal while a new plan could be formed.[49]

Vice Admiral Fitch, ComAirSoPac, designated Henderson Field and Fighter One an official Marine Corps Air Base on 15 November.[50] Later that night, the Japanese heavy bombardment group that withdrew on 13 November, returned to provide support for the transports. U.S. battleships engaged the Japanese group just after midnight. Once again, U.S. ship losses were high compared to the Japanese losses. Three U.S. cruisers were sunk while the battleship South Dakota and another destroyer were damaged. The Japanese lost one battleship and a destroyer. This naval battle ended the final major counterattack

against the island.[51] However, the Japanese commanders had not yet reached this conclusion.

IGHQ made several changes on 16 November. The first change was that Vice Admiral Nagumo was replaced by Vice Admiral Jisaburo Ozawa as commander of the Japanese supporting naval forces. Additionally, the 8th Area Army was created at Rabaul under the command of Lieutenant General Hitoshi Imamura. Imamura's force included the 17th and 18th Armies. The 18th, commanded by Lieutenant General Hatazo Adachi, was directed to restart the Port Moresby operation.[52] Lieutenant General Hyakutake retained command of the 17th and was instructed to continue his efforts to retake Guadalcanal.

At Guadalcanal, CACTUS aircraft flew "buzzard patrols" and randomly attacked the beached transports when no other targets could be found.[53] This major defeat of the Japanese assault gave Vandegrift the opportunity to expand his operations even more and attempt to eliminate the Japanese stronghold in the west. The CACTUS Air Force was larger than it had ever been. By 20 November, Brigadier General Woods had over one hundred planes and the supply situation had improved to the point that B-17s were routinely operating through Henderson Field.[54] The ability to refuel the medium bombers at Guadalcanal was a significant advantage because it extended the attack range deep into the Japanese territory to the north.

By mid-November, the CACTUS force had grown so large that a second fighter strip was needed. Fighter One's drainage problems had increased the need for a second strip. The new airstrip was constructed in just three days and named Fighter Two.[55] With reinforcements pouring in, Vandegrift was actually a corps commander by the end of November. His ground forces included the 1st Marine Division, 2 regiments of the 2nd Marine Division reinforced, 2 Army regiments, the 2nd Raider

Battalion, units from 2 Marine Defense Battalions and an Army artillery unit.[56] The CACTUS Air Force numbered over 1,750 men.[57]

On 22 November, Vandegrift recommended to Turner that the airfield construction at Aola Bay be stopped. Realizing that Vandegrift was right, Turner agreed and forwarded the recommendation to Halsey. Halsey ordered the forces to a new site near Koli Point, Vandegrift's original proposal.

The next day, six OS2Us arrived to conduct anti-submarine patrols in the area. During the next few days, the CACTUS Air Force received Lockheed Hudsons from the 3d Reconnaissance Squadron of the Royal New Zealand Air Force and other reinforcements included PBYs from Navy Patrol Squadron 12, the 12th, 68th and 70th Fighter Squadrons, and the 69th Bombardment Squadron.[58] Early CACTUS fliers would hardly have recognized the air force they had struggled to hold together.

By this time, many of the Japanese troops on Guadalcanal were starving. It was nearly impossible for their ships to off-load supplies without being attacked from American planes and ships. Japanese commanders decided to try a new tactic to resupply the stranded troops. On 29 November, ComSoPac alerted U.S. ships in the vicinity of Guadalcanal that a Japanese task force of destroyers and fast transports was heading towards Guadalcanal. That night, Japanese ships approached the island and dropped metal drums filled with supplies into the water. They intended for the drums to drift ashore so that the troops could receive supplies.[59] The following night, the forewarned U.S. ships met eight Japanese destroyers off the northwestern coast conducting resupply operations. The Battle of Tassafaronga ended with three U.S. cruisers damaged and one sunk. The Japanese lost only one destroyer.[60]

The daily crisis for survival was over for the CACTUS Air Force. The noon air raids still showed up on occasion, but the number of attacking planes was usually much less than before. Vandegrift had

nearly 40,000 men under his command at this point. Any chances the Japanese had of retaking the airfield were gone.

On 3 December, a report of ten destroyers headed south towards Guadalcanal was received. CACTUS planes attacked the destroyers but succeeded in damaging only one of them.[61] Later that night, the destroyers dropped over fifteen hundred drums of supplies into the water off Tassafaronga, but only about three hundred of the drums actually made it ashore.[62] After the Japanese ships started the drum resupply operation, CACTUS pilots found a new target. They would strafe the floating barrels for target practice and at the same time deny the enemy troops even this meager amount of supplies.

On 5 December, photo-reconnaissance planes returned with pictures which showed Japanese construction of an airfield on Munda. The next day, P-39s were tasked to attack the airfield.[63] On 7 December, the Japanese sent ten more destroyers down for a third attempt at resupplying their forces. CACTUS planes met the ships in the Slot at sunset and the Japanese commander aborted his mission.[64]

On 9 December, Brigadier General Woods had nearly two hundred planes under his command.[65] At last, the long awaited ground relief force was in place and ready to conduct operations to finish securing the island. After walking the perimeter and reviewing the defenses, Major General Alexander M. Patch, U.S. Army, commanding general of the Americal Division, assumed command of the CACTUS-RINGBOLT area (RINGBOLT was the codename for Tulagi).[66] Patch's battle for Guadalcanal would drag on until February when the Japanese would successfully withdraw their surviving troops from the island. The air battle continued too, but the critical phase was over for the CACTUS Air Force. Never again did it struggle to maintain its existence.

During the period of 16 October to 9 December, the CACTUS Air Force was led by two different commanders. However, its purpose,

direction, and method of operation did not change. Geiger maintained an aggressive attitude until the day he left. When Woods took over, he made very few changes. Up to this point, the campaign was primarily conducted through personal contact between commanders. Paper work and written orders were the exception instead of the rule. Therefore, for CACTUS Air to support the ground forces, daily conferences and face to face briefings were the normal method of passing requests and relaying orders.[67] This procedure worked well for liaison with the division when Geiger was in command and Woods saw no need to change it.

Woods arrived from the wing rear headquarters full of energy and aggressive spirit. He is often quoted as saying, "I used to be a kindly old colonel but I sure am a bloodthirsty general now."[68] He worked closely with Vandegrift and sought his direction concerning the use the CACTUS planes and mission priorities. An example of Woods seeking guidance is the CACTUS Air attacks on the Japanese transport convoy in mid-November. After receiving reports confirming the presence of both transports and escort destroyers, Woods asked Vandegrift which ships should the targeted. Vandegrift wisely selected the transports as the primary target.[69]

A change in administrative command and control occurred when MAG 14 relieved MAG 23. The organization with the preponderance of the Marine assets on the island acted as the central coordinator for maintenance and administrative matters pertaining to aviation. This eliminated the redundancy of two closely working MAGs performing the same coordination tasks. These tasks were subordinate functions that a MAW staff did not normally execute. Since MAG 23 was the first higher level organization on the island, it initially undertook this role through necessity. Strike and Fighter Commands were ad hoc organizations that worked well in combat. However, they were not recognized outside of Guadalcanal which complicated matters when dealing

with rear area organizations. By continuing to use Strike and Fighter commands for tactical control, the hand over of administrative authority did not affect the day-to-day functioning of the CACTUS Air Force.

Maintaining organizational control of units became even more complicated during this period of 16 October to 9 December. This was especially true during high tempo operations. When the carrier-based aircraft moved ashore, the Navy pilots were flying in formations with Marine and Army pilots. Strike groups were formed by whatever pilots and planes were available at the time. The need to launch an immediate strike was far more important than maintaining unit integrity.

The command direction concerning targeting significantly affected the Japanese Navy's ability to reach Guadalcanal with reinforcements. The decision to attack the transports instead of the escorting destroyers in November was a crippling blow for the Japanese. In an interrogation report after the war, a Japanese officer said, "It was a very regrettable thing for our sea forces when the enemy air forces concentrated their attacks on our transports, our vulnerable point, thus bringing to naught the main objective of our operation."[70]

The number of assets in the CACTUS Air Force increased dramatically during the period of 16 October to 9 December. In mid-October, only one SBD could be launched with a few escort fighters, yet CACTUS planes were conducting forty plane air strikes a month later. In October the CACTUS Air Force was nearly on its knees, but by December it was boasting nearly two hundred planes. An overwhelming number of replacements and reinforcements, coupled with a consistent supply system completely changed the situation for the CACTUS Air Force. CACTUS Air commanders no longer struggled to gather assets for strikes or conduct routine missions. When Vandegrift relinquished command of CACTUS forces on 9 December, he handed over to Major General Patch a Combined Air

Force, that included planes from each of the U.S. services and a squadron from the Royal New Zealand Air Force.

The increase in number and types of planes belonging to the CACTUS Air Force widened the scope of missions it was able to fly. The arrival of two F4F-7s in mid-October gave the CACTUS Air Force its first dedicated photo reconnaissance assets. The addition of OS2Us for anti-submarine patrols and the night flying PBY patrol planes significantly improved the ability of CACTUS Air to control the waters surrounding Guadalcanal and the avenues of approach leading to it.

Asset assignment for missions ranged from the frenzied fly whatever was available to launching planned strikes of nearly fifty planes at once. In October when assets were short, every aircraft available was flown repeatedly until it could fly no more.

Joe Foss, a noted Guadalcanal air ace, claimed that by late November the method of assigning pilots to missions was changing. Foss said that rank was starting to affect who got to fly the missions more likely to encounter Japanese planes. Junior pilots were sent out on the patrol flights in the morning and evening while the more senior pilots flew the midday intercepts.[2] It seems logical that the more experienced pilots should be assigned to missions where air-to-air combat was more likely. If the senior pilots were more experienced than the junior pilots, then this method of assignment seems appropriate. Foss did not address the experience levels of the two when making that statement. However, his statement seems to indicate that RHIP (rank has its privileges) and the desire of senior pilots to become aces was influencing the assignment of missions.

Prior to 16 October, Geiger had focused CACTUS deep air strikes on Japanese installations and bases to the north. However, that focus changed in October. Whether by design or by necessity or caused by a shortage of assets, the deep missions now targeted Japanese ships

instead of installations. The obvious purpose of these strikes was to prevent the ships from reaching Guadalcanal and building up forces. In October, when assets were thin, SBDs, TBFs, P-39s, and P-400s formed small attack groups to target the ships. If available, fighters would either escort the attack aircraft or follow behind them as a second attack wave. At times, the Japanese convoys were covered by carrier-based planes or float plane versions of the Zero. However, their numbers were usually so small that a large friendly escort flight was not required.

Reconnaissance missions were primarily focused on locating Japanese ships. Locating ships early in the day was imperative in order to have sufficient time to launch attack flights against them. Therefore, large early morning patrols were sent out to search for targets. Geiger and Vandegrift both considered the reconnaissance patrols essential missions. This was clearly the case in the middle of October when fuel was low, and except for reconnaissance patrols, all air operations were stopped. These patrols provided Vandegrift with information concerning Japanese movements around the island. Besides the coast watchers, Vandegrift's only other source of information was Navy Intelligence reports which were not always timely or accurate.

In November, when most of the new reinforcements had arrived, reconnaissance missions were increased in number and range. With a multitude of assets to choose from, the CACTUS Air Force was able to start reaching out farther to observe Japanese movements. Additionally, the increase in the number of patrols allowed the CACTUS flyers to more effectively control the air and the sea.

The addition of the photo reconnaissance planes gave the CACTUS Air Force a badly needed asset. Adequate maps were still not available and this shortfall often hindered ground force planning. The F4F-7s were tasked to photograph the western end of the island to give the

division a more accurate and detailed view of the terrain.[72] In addition to mapping missions, photo flights were executed on-call for the artillery units.[73]

Close area missions ranged from anti-shipping to CAS during this time. The effectiveness of the CAS missions was definitely improving. Brigadier General Del Valle commented, "There was good teamwork between the air and ground towards the last, but we had to learn the hard way."[74] A change made by Vandegrift helped move this improvement along and provided a basis for how Marine CAS is conducted today.

When assigned a CAS mission, pilots would sometimes walk up to the front lines to brief with the ground commanders and survey the target area. This was done when the target was nearby and time permitted. Normally the pilots would brief on the ground then take off to drop their bombs or strafe a target at a pre-arranged time. Friendly lines were marked with either colored panels or smoke and planes often dropped bombs within one hundred yards of the U.S. troops. Dropping ordnance at a pre-arranged time enabled the ground commanders to mark their lines at the prescribed time and for the friendly troops to seek cover prior to the bombing.

Looking for ways to improve efficiency and increase lethality, the Marines determined that if the ground units could brief the pilot while he was flying, it would provide them both with a great deal more flexibility. A ground brief prior to the mission might not even be necessary. Vandegrift started attaching aviation personnel to the forward ground units to test this theory out. Vandegrift's Marines were developing the first Tactical Air Control Party (TACP).[75]

Rear area missions from Henderson Field were still executed primarily by the lone PBY during October. However, by late November a few transports had arrived and were flying evacuation and resupply missions.

During the period of 16 October to 9 December, the Japanese had failed to achieve any of their planned goals. Their ground attacks were uncoordinated and resulted in piecemealing of forces into combat. Their loss of freedom of action in the air and sea surrounding Guadalcanal wiped out any chances they had of recovering the island.

Major General Vandegrift's immediate goal of fending off the Japanese counteroffensive was achieved. His ground forces were victorious in defeating every attempt by the Japanese to penetrate the U.S. perimeter. Even more importantly, the Japanese convoys were struck a devastating blow. Without a reliable system of reaching the island with troops and supplies, the Japanese could not possibly recapture the island. Vandegrift's goal of increasing the size of the CACTUS Air Force was also realized when it grew to nearly two hundred aircraft. With the strangulation of the Japanese convoys and a vast air force to support him, Vandegrift was able to confidently expand ground operations towards the west to increase his control of the island.

On 9 December, Vandegrift's final goal was realized when the 1st Marine Division was relieved. The island was considered secure enough to change commanders and the main force tasked with protecting it. This indicated to Vandegrift that the battle was nearly won. Although the fight for Guadalcanal would not be over for two more months, the critical phase had passed. At no time afterwards was the U.S. hold on the island seriously challenged.

The CACTUS Air Force did not single handedly win the battle for Guadalcanal, nor did the land or sea forces. Rather, it was a coordinated effort by each of these forces that ultimately led to victory. However, the CACTUS Air Force repeatedly demonstrated its ability to act decisively and defeat the Japanese at a critical time or place. Moreover, it was the daily efforts of the CACTUS Air Force that truly made the difference.

CHAPTER 7

CONCLUSIONS

> Guadalcanal is no longer a name of an island in Japanese military history. It is the name of the graveyard of the Japanese Army.[1]
>
> Major General Kiyotake Kawaguchi, Challenge for the Pacific

The U.S.' victory at Guadalcanal signaled that the Japanese were incapable of winning the war. The U.S. demonstrated its ability to conduct an amphibious operation, establish a defensive lodgment, gain air superiority and expand offensive operations until planned objectives were achieved. The victory at Guadalcanal proved that the U.S. could successfully conduct an island hopping campaign to defeat the Japanese in the Pacific. Once established ashore, the U.S. might be delayed, but its eventual success could not be denied.

Guadalcanal was not only the graveyard of the Japanese Army, but it was also the graveyard of the Japanese Navy's air force. The battle at Guadalcanal cost Japan hundreds of its best pilots and aircraft. Japan could quickly produce more aircraft, but its pilots were irreplaceable. At the start of the war, most of the Japanese pilots had gone through two to three years of extensive training. Additionally, many pilots had invaluable combat experience gained in air battles against the Chinese.[2] During the final months at Guadalcanal and for the remainder of the war, Japan was forced to use novice pilots to conduct its air war. The Japanese suffered a loss in air power from which they would never recover.

Although the U.S. doctrine, operational strategy and tactics proved successful at Guadalcanal, the campaign was not flawlessly executed. A variety of lessons were learned from this first wartime test and this is especially true concerning U.S. air power. Because of U.S. experiences at Guadalcanal, many changes were made and procedures refined in order to conduct subsequent campaigns in the war. Some of these changes and procedures are still used today while others provided the framework for how Marine air power is currently employed.

If the U.S. is ever faced with two simultaneous Major Regional Conflicts (MRC's), it could find itself in a situation similar to World War II. At that time, the U.S. was giving the defeat of Germany top priority while still trying to take offensive action against the Japanese in the Pacific. This strategic decision meant that operations in the Pacific theater often did not have all the assets and equipment that commanders desired. The lessons learned from operations at Guadalcanal demonstrate the difficulties encountered when conducting a campaign that is not the first national priority.

The importance of Guadalcanal as the first wartime test of doctrine developed during peacetime is significant also. The experience there demonstrates that changes can be expected after the first combat test of doctrine. Combat validates the doctrine and provides lessons that can not be learned from peacetime simulations or tests. This is important today because warfighters must realize that their first battle may hold valuable lessons that will enable them to adapt their tactics for later operations.

For over two decades prior to Guadalcanal, the Marine Corps and Navy had been developing their amphibious doctrine. Their doctrine required that two conditions must exist in order to conduct a successful amphibious operation. The first condition was that the lines of communication from the objective area to rear bases must be secure.

This was deemed essential in order to build up follow on forces and sustain the operation. The second condition was that the objective area must be isolated. Air and sea superiority must be gained as soon as possible to isolate the objective area in order to facilitate further offensive operations. It was assumed that until air and sea superiority was gained, the enemy would have the ability to disrupt friendly lines of communication and that land forces would be restricted in their offensive operations. Yet, neither of these conditions existed prior to Operation WATCHTOWER. Although secure lines of communications and an isolated objective area may not be a necessity for a successful amphibious operation, the two services learned that without them a campaign can be extremely difficult.

Sustainment proved to be one of the greatest limitations on U.S. forces at Guadalcanal. Secure lines of communication with rear area bases were not established until several months into the campaign. From the onset, the land forces had to alter their plans because of logistics. Once ashore, General Vandegrift did not have the necessary supplies or ammunition to support an offensive campaign. He was forced to assume a defensive position and hold it until a responsive and supportive logistics system was established.

The shortage of logistics became even more critical after the arrival of the CACTUS Air Force. A poor logistics system is devastating to an air force because aircraft require an enormous amount of fuel, ordnance and parts. Without a responsive system for parts, maximum air assets will not be available. The tempo of air operations that an air force can support is directly related to its supply system. High tempo operations mean high consumption rates of supplies and fuel. At Guadalcanal, consumption of fuel usually exceeded the capability of the supply system.

The inability of the U.S. to quickly gain air and sea superiority was a significant limitation on the campaign. It made friendly logistic support risky and infrequent. Furthermore, it allowed the Japanese to continue to mass forces on the island, conduct counteroffensives, and prolong the battle for the island. Finally, it prevented early expansion of the U.S. ground offensive to eliminate the Japanese from the island. Because of the logistics shortages and lack of air support, Vandegrift felt that he was unable to undertake an offensive.

Planners also learned an invaluable lesson concerning air support for an amphibious operation. The ship to shore movement and subsequent operations ashore for Operation WATCHTOWER were supposed to be supported by carrier-based aircraft. However, because of their strategic value, the carriers did not remain nearby when threatened. Planners learned that land-based planes should be moved to the objective area as soon as possible if there is a potential threat to aircraft carriers. Although this lesson was known before Guadalcanal, just how critical air power can be to a campaign was not. When the carriers retired early, the Marines were caught totally unprepared. This single incident did much to shape how Marine's plan for and use air power. In the years since Guadalcanal, the Marine Corps has tailored nearly all of its operations to rely on its own air power.

The environment in which an operation is conducted can have adverse effects. The austere environment of Guadalcanal had an unexpected negative effect on air operations. The general health of the force was degraded and the longer it operated in that environment, the worse it became. The lesson learned was that forces will not be able to operate indefinitely at their normal skill levels in an unhealthy environment. This was particularly true for aviators. Flying combat missions every day quickly drained the pilot's skill levels and impaired

their judgment. This caused an increase in combat losses and unnecessary operational mishaps.

The Marines also discovered that operating from an expeditionary airfield was not the same as operating from an established airfield. Airfield conditions and supporting facilities caused many normal operating procedures to be amended or abandoned. Furthermore, the poor condition of the an airfield caused an increase in operational flight mishaps.

One of the most important lessons learned by the U.S. was that the mere presence of air power can have positive effects. The arrival of U.S. planes at Guadalcanal caused the Japanese to start altering their plans to avoid air attack. Without dropping a single bomb, CACTUS aircraft interfered with the Japanese' plan. The presence of U.S. planes also limited Japanese freedom of action in the area.

Another major lesson learned concerned the significance of air power on morale. The arrival of U.S. planes was a positive morale builder for the Marines on the island. It indicated to the Marines that the Japanese would no longer be unchallenged in the skies above Guadalcanal.

A sustained economy of force defensive operation can have an adverse effect on morale. Relegated to conducting a sustained defensive air campaign, some of the men of the CACTUS Air Force developed a sense of hopelessness or desperation. Many pilots believed that the situation did not permit them to conduct offensive operations.

The presence of U.S. planes restricted the Japanese tactical operations. However, this effect was not evident to the men of the CACTUS Air Force. To them, it appeared that the Japanese were continuing to enjoy total freedom of action. The Japanese were deciding when, where and if there was to be an attack. This situation caused the CACTUS Air pilots to assume a reactive attitude. Although air power can

be used as either an offensive or defensive force, pilots tend to be more offensive minded. So, a defensive attitude was not one that they were accustomed to. The lesson learned was that a sense of desperation or hopelessness can develop when the enemy force consistently maintains the initiative.

Another factor affecting the force was combat fatigue. At the time, air planners never envisioned that three to four weeks of combat flying in a place like Guadalcanal would have the negative effects that it did. Combat fatigue contributed to a number of aircraft and pilot losses. Many of those losses were operational mishaps that could have been avoided under normal circumstances. Combat fatigue induced errors in judgment and caused a loss of situational awareness. This contributed to an increase in operational mishaps and the needless loss of crews and aircraft. A high tempo of air operations in an unhealthy environment will cause an abnormally high rate of combat fatigue.

The ability of the CACTUS Air Force to function at its maximum capability was severely hindered by a sense of desperation and combat fatigue. However, a lesson learned at Guadalcanal was that leadership can solve these problems or reduce their effects. This was true whether dealing with a mental attitude such as desperation or a physical condition like combat fatigue. Through personal example and a relentless demand for performance, General Geiger provided the leadership necessary to overcome these problems.

After his arrival, Geiger accurately assessed the situation and determined that an offensive attitude was needed. By taking the battle away from Guadalcanal, he was able to disrupt Japanese efforts to the north and simultaneously enable his pilots to see that their efforts were having a positive effect. Geiger was able to do this through small deep attacks while maintaining a firm air defense around the island. Prior to Geiger's arrival, CACTUS flyers considered offensive strikes an

impossibility. However, Geiger was able to push the pilots beyond what they considered possible. Two important points can be learned from these events. Conducting even a small number limited offensive strikes while maintaining a sustained defensive will cause an increase in morale. The second point is that positive leadership can compel men to exceed their own physical and mental limitations.

The second leadership problem faced by Geiger was that of combat fatigue. Because replacements were not available, he had no choice other than to push his pilots beyond their normal physical limits. Maintaining a stern and unemotional command presence, Geiger required that pilots do their duty because the fate of many relied on their continued performance. Pilots forced themselves into their planes rather than face Geiger. Leadership can be effective in overcoming combat fatigue by appealing to an individual's sense of responsibility to his fellow men and to the organization. However, it must be recognized that the men of the CACTUS Air Force were in a survival situation. There were no replacements for them. If the situation had been any different, Geiger's method might not have worked.

The CACTUS Air Force was an ad hoc organization in its early stages. With only a small number of planes and a high tempo of defensive operations, it seemed impractical to establish a headquarters staff or worry about effective organization. However, as the force grew, the lack of a central headquarters prohibited the force from functioning at its maximum capability. Geiger changed this soon after he arrived. He realized that even in combat some semblance of normal routine must be maintained in order to conduct daily operations.

Geiger later created two separate tactical commands beneath the headquarters that enabled him to employ his air assets more effectively. The CACTUS headquarters used centralized command and control to provide

direction and coordination for the force. Decentralized execution was employed at the levels of Strike and Fighter Command.

Strike and Fighter Commands were tasked with tactical execution of the air campaign. However, their aircraft required maintenance and some administrative requirements still had to be executed even in combat. By tasking the MAG headquarters to fulfill this role, Geiger enabled the two tactical commands to focus on warfighting.

The lesson learned from these points concerning organization is that developing some type of organizational structure is essential in order to use assets and resources efficiently. When Geiger assumed command of the CACTUS Air Force its numbers were not much larger than in August. Yet, Geiger was able to expand the scope of missions the force was flying. The positive effects of organization can not be overlooked, especially in a combat situation.

The daily functions of relaying orders and instructions were typically done without paperwork. This was more by necessity than by choice. The tempo of operations and conditions did not provide time or facilities to write out orders and maintain administrative logs. This method of command and control worked for the U.S. forces at Guadalcanal because they were collocated with one another. Had they been geographically separated by even a few miles, this system would have been less effective. However, the importance of face to face communication, liaison and briefing can not be discounted.

What was accomplished with the small number of air assets at Guadalcanal demonstrated that a defensive force is offered certain positional advantages over an offensive force. The CACTUS Air Force was consistently outnumbered by the Japanese carrier planes and the 11th Air Fleet at Rabaul. However, because the battle was fought primarily over Guadalcanal, CACTUS planes were able to rearm, refuel and launch for additional sorties. Even though it was outnumbered, the CACTUS Air

Force was often able to outsortie the Japanese forces. Numerical superiority of aircraft is always desirable, but it is not always a necessity for success.

The positional advantage of the defense had other effects on assets also. Fighting near a friendly airfield enabled many severely damaged U.S. aircraft to safely recover at Henderson Field. Additionally, many downed pilots were recovered from the waters and islands surrounding Guadalcanal. Conversely, the Japanese were operating deep in enemy territory. This caused them to suffer a higher loss rate of pilots and aircraft. Because of the long flight back to the north, many moderately damaged aircraft were unable to return safety. Furthermore, downed Japanese pilots were seldom recovered. Daily long distance offensive operations over a sustained period of time contributed to the gradual degradation of Japanese air power.

Flexibility of air assets and pilots was a necessity. Because of the limited size of the force, pilots were often required to fly missions that they were not trained for such as search flights and night anti-shipping missions. This demonstrated the importance of flexibility of aircraft and pilots to conduct missions other than their primary roles. The most effective assets or pilots may not always be available to execute the range of missions required. The CACTUS Air Force used fighters at various times for air-to-ground missions because attack aircraft were not available. However, there can be limits to using aircraft for roles other than their primary purpose. At Guadalcanal, SBDs were never sent up on intercept missions because they were incapable of matching the Japanese fighters.

Combat may also prove that an aircraft is not capable of fulfilling the role it was designed for. The P-400 was designed and built to be an intercept aircraft. Yet, because almost all of the air-to-air engagements occurred at high altitude, the P-400 was unable

to perform this mission at Guadalcanal. After losing several P-400s, Vandegrift restricted the planes to patrol flights and air-to-ground attack missions. This proved to be an enormously successful decision because the P-400 performed fantastically in this role.

Another lesson learned was that aircraft safety standards may have to be ignored in order to accomplish the mission. Joe Foss said that at Guadalcanal nearly every fighter he flew in combat had something wrong with it. Out of the twenty aircraft in Foss' squadron, he said that only one would have met the flight safety standards for stateside training flights.[3]

Allocation and assignment of aircraft for missions ranged from an organized system to a chaotic fly-whatever-was-available. This difference was nearly always dictated by the tempo of operations and the number of assets that were available at the time. When time and assets permitted, an organized system was utilized. However, the situation often did not provide the time to do this. Maintaining an air presence against enemy forces was considered more critical than effective and efficient use of assets. Gaps in air presence must be avoided in order to deny the enemy a period of unchallenged control of the air.

Another lesson learned at Guadalcanal concerned deep air operations. Deep strikes did not have to inflict a great deal of physical or material damage in order to be effective. Although the deep strikes did cause some damage, the most important result of these strikes was the change in the mental attitudes of U.S. pilots and enemy reactions that they caused. Striking deep at Japanese targets had a positive effect on the offensive attitude of the CACTUS flyers. The strikes enabled pilots to take away some of the Japanese' freedom of action in the area and utilize offensive initiative. Simultaneously, the strikes caused the Japanese to be more cautious in their actions.

The presence of U.S. planes flying well to the north of Guadalcanal caused the Japanese to restrict their movements and alter their plans.

Reconnaissance and security flights were an absolute necessity at Guadalcanal. Without the patrol flights, U.S. forces would have been unable to locate and attack the Japanese ships attempting to reinforce the island. The importance of the patrols to Vandegrift and Geiger was evident in mid-October when fuel was at an absolute minimum. All air operations with the exception of patrol flights were canceled. Without the air reconnaissance flights, Vandegrift would have been unaware of many of the Japanese force buildups and preparations for attack.

Another reconnaissance lesson learned was that flights searching for ground units in a jungle environment are generally not effective. The dense canopy made observation difficult and the Japanese troops were able to easily conceal themselves from the aircraft. However, during ground combat engagements, air reconnaissance proved invaluable because enemy forces were unable to conceal themselves while fighting. These flights provided the ground commander with timely information that gave him a clear picture of the enemy position.

The U.S. Marine Corps learned a multitude of lessons concerning the value and use of CAS at Guadalcanal. Prior to the campaign, CAS was traditionally thought of only as a substitute for artillery when sufficient support was not available. However, CACTUS pilots soon proved that they could do more than fill in for artillery. CAS was much more flexible and often more responsive than artillery. It could also support ground attacks in conjunction with artillery to increase fire power.

An important lesson learned from the use of CAS at Guadalcanal was the need for an effective communication system. Because CAS aircraft were flexible in their use, an equally flexible method of controlling them and communicating with them was required. Preflight

briefs did not allow for changes in missions once the pilot was airborne. Communicating information over radios was the obvious answer because it gave ground units the ability to immediately correct fires or pass information. However, early trials indicated that aviation personnel were needed within the ground units to effectively direct the aircraft and communicate changes. These early TACPs developed a set of procedures that are still used today.

The lethality offered by CAS aircraft could also have adverse effects. The importance of knowing friendly positions and issuing clear and concise orders for CAS employment was learned the hard way. The unfortunate bombing and strafing of Marines near Koli Point in November of 1942, demonstrated that if used improperly, CAS could have disastrous effects. Procedures and techniques for identifying friendly positions and marking targets were developed. Prior to Guadalcanal, the primary method of identifying friendly positions was through the use of panel markers placed along the front of the friendly lines. However, the use of colored smoke proved to be a more identifiable method.

Close area air operations at night also provided some startling lessons learned. Night operations require extensive training and experience. Flying an attack mission at night was a dangerous and demanding task. Locating targets was extremely difficult even when illumination flares were used. The physiological effects of vertigo and poor visual references caused almost all of the nighttime losses of aircraft at Guadalcanal.

Rear area air operations were extremely limited because of the lack of logistical support. Large transport aircraft required an enormous amount of fuel that could not be supported at the expeditionary airfield. The transport planes were kept at rear area bases and cycled back and forth to the objective area. This enabled them to be maintained in a safe environment and have access to the vast amounts of

fuel they required. Unfortunately, this left Guadalcanal without any method of quickly evacuating serious casualties. Evacuation planes had to fly over 500 miles to Guadalcanal to pick up the evacuees. It was clear that expeditionary airfields must be developed as quickly as possible to support aerial resupply and evacuation flights.

The contributions of CACTUS Air power at Guadalcanal were many. However, its major contribution was its day to day presence on the island. By conducting daily flights, it denied the Japanese total control of the air and seas surrounding Guadalcanal. Air power prevented the Japanese from easily massing forces on the island and at the same time enabled the U.S. to reinforce the island. The value of air presence, no matter how small, can not be overlooked as an effective force multiplier. Nor should its effects on the enemy's scheme of maneuver be minimized.

The CACTUS Air Force was made up of a small group of determined men. Faced with shortages that would have normally caused an operation to be abandoned, these men were able to improvise and adapt to their situation. Their persistence ultimately played a key role in the defeat of the Japanese at Guadalcanal.

The critical role that the CACTUS Air Force played demonstrated the importance of air power in island warfare and served as a guide for the remainder of the island hopping campaign in the Pacific. The battle at Guadalcanal showed that air power was necessary for success above the land and also above the sea. Failing to have an effective air arm would most surely lead to defeat.

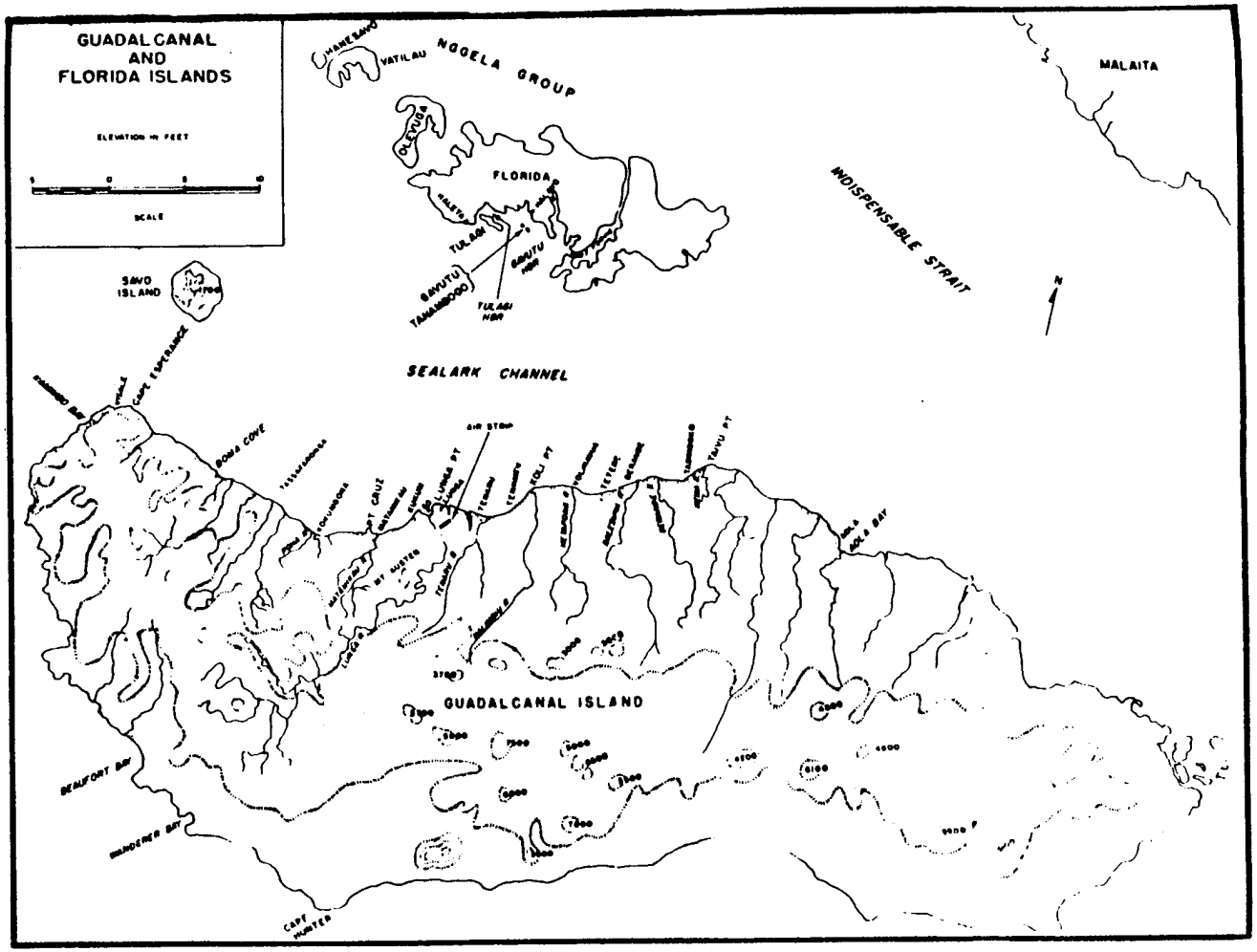

Figure 1. Guadalcanal and Florida Islands. Reprinted by permission, from Eric Hammel, Guadalcanal Starvation Island (New York: Crown Publishers, 1987), xi.

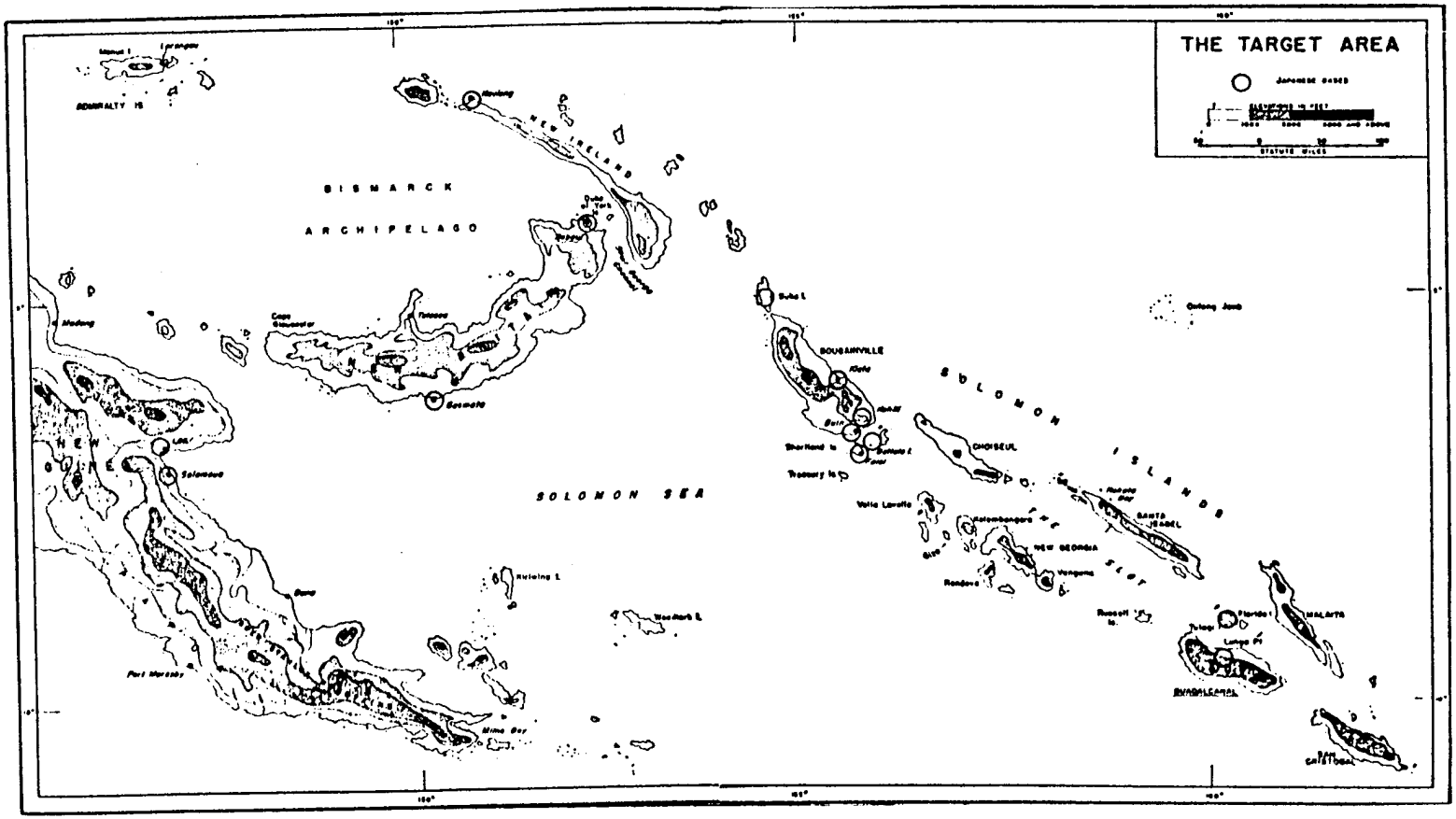

Figure 2. The Solomon Sea Area. Reprinted, by permission, from Alexander A. Vandegrift, Once a Marine (New York: W. W. Norton & Company, Inc., 1964), 112-113.

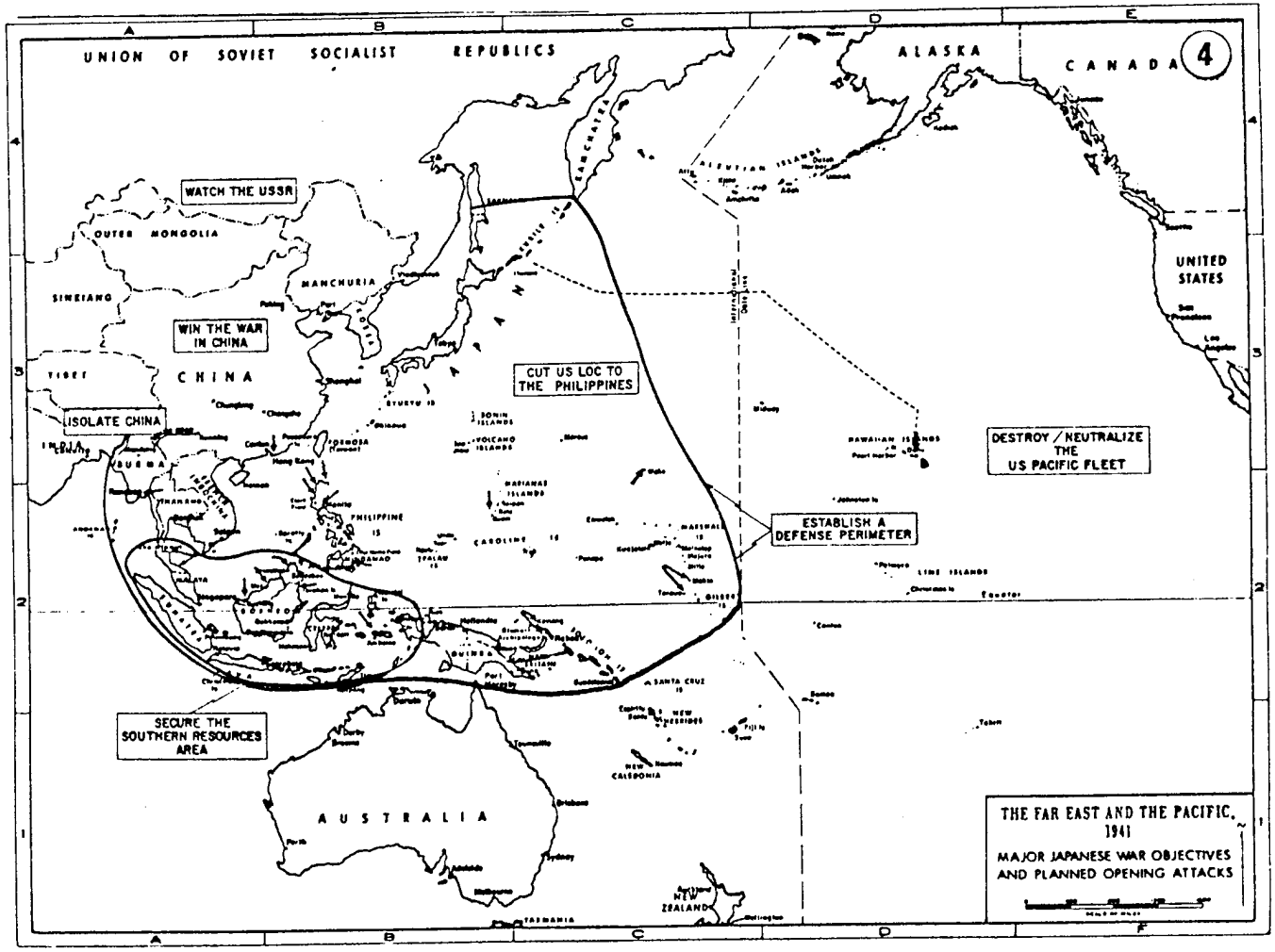

Figure 3. Japanese Planned Defensive Perimeter. Reprinted, by permission, from Thomas E. Griess, ed., Atlas for the Second World War: Asia and the Pacific, The West Point Military History Series (Wayne: Avery Publishing Group Inc., 1985), 4.

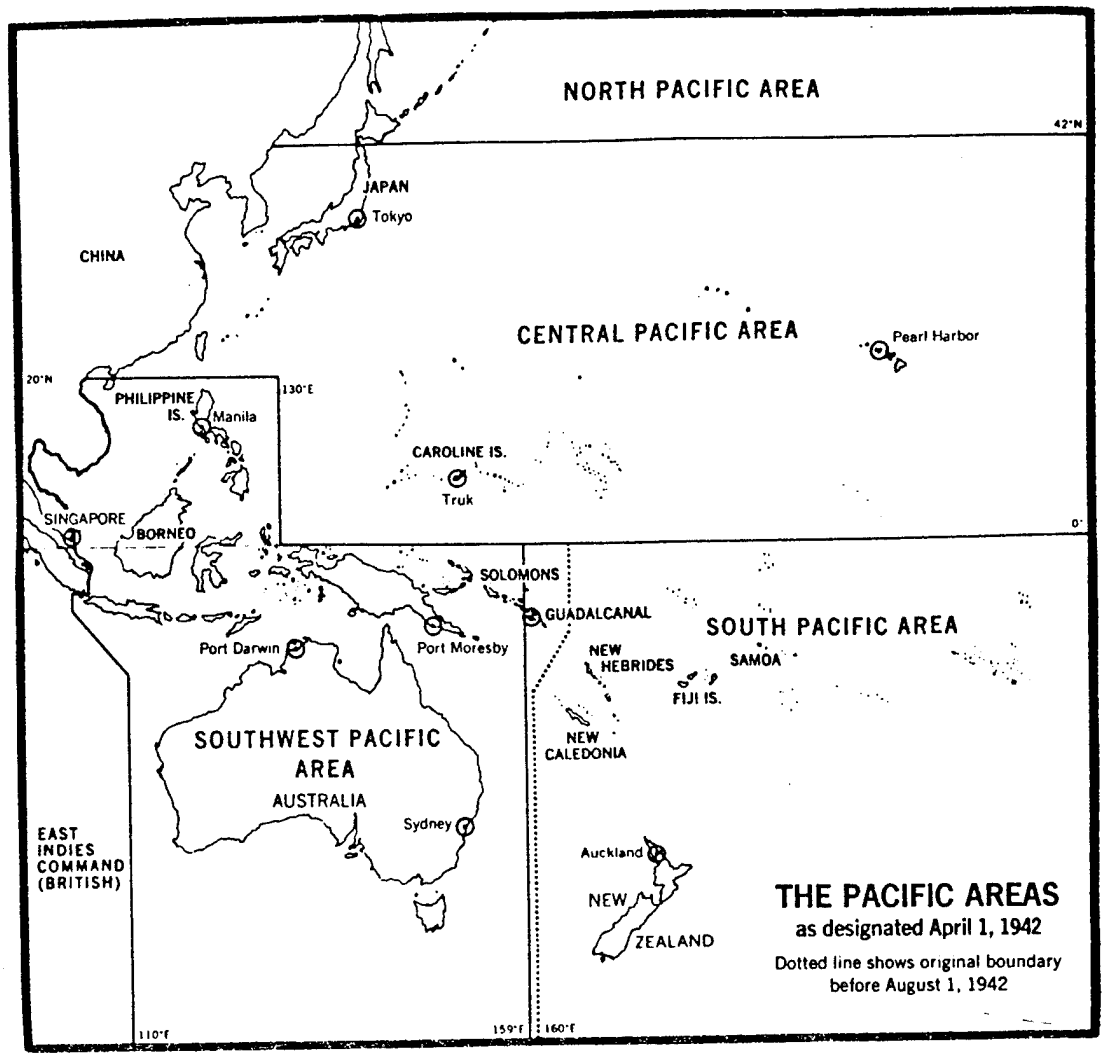

Figure 4. The Pacific Theater. Reprinted, by permission, from Jack Coggins, The Campaign for Guadalcanal (Garden City: Doubleday & Company, Inc., 1972), 22.

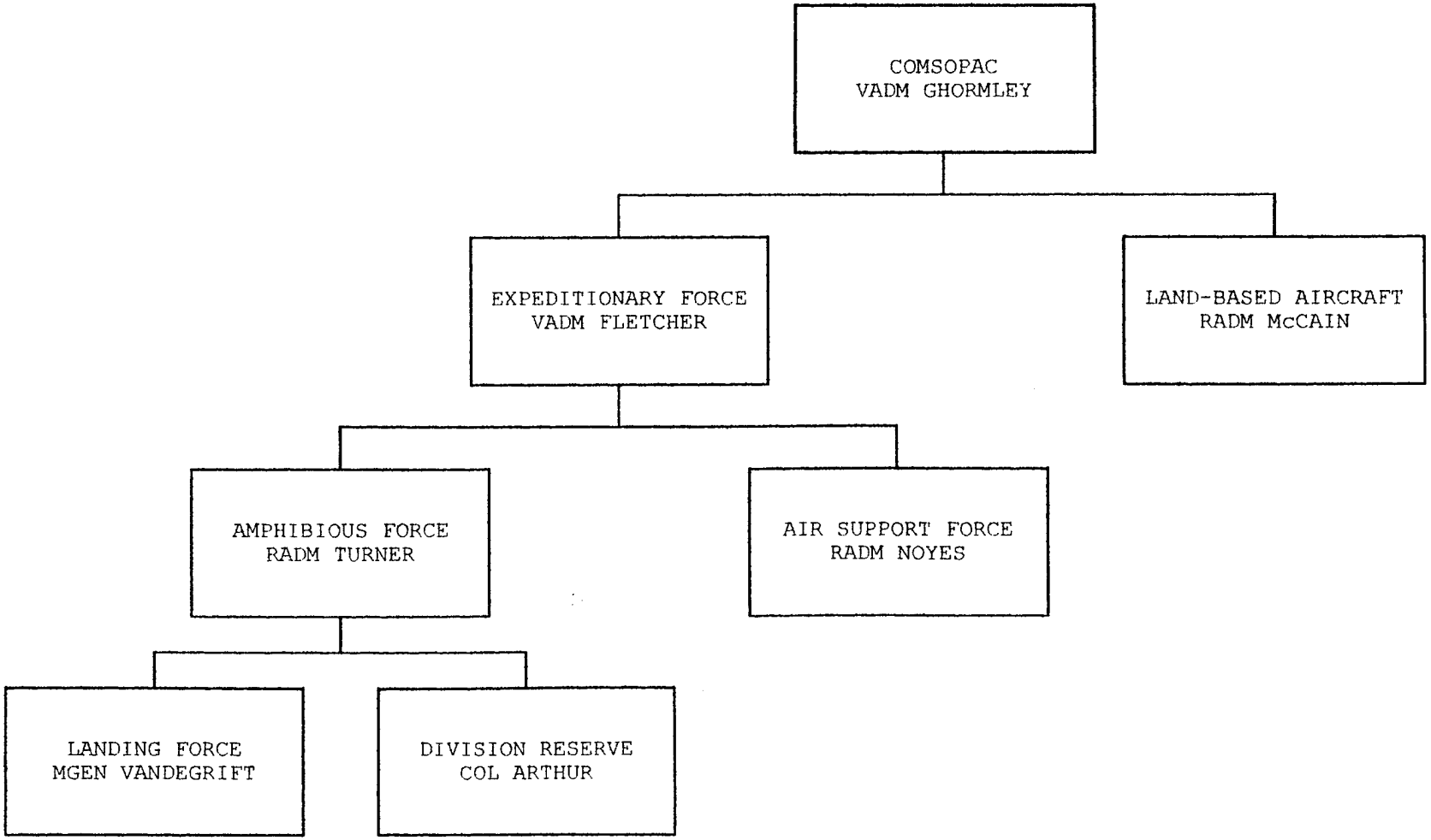

Figure 5. Organization of Forces Supporting WATCHTOWER.

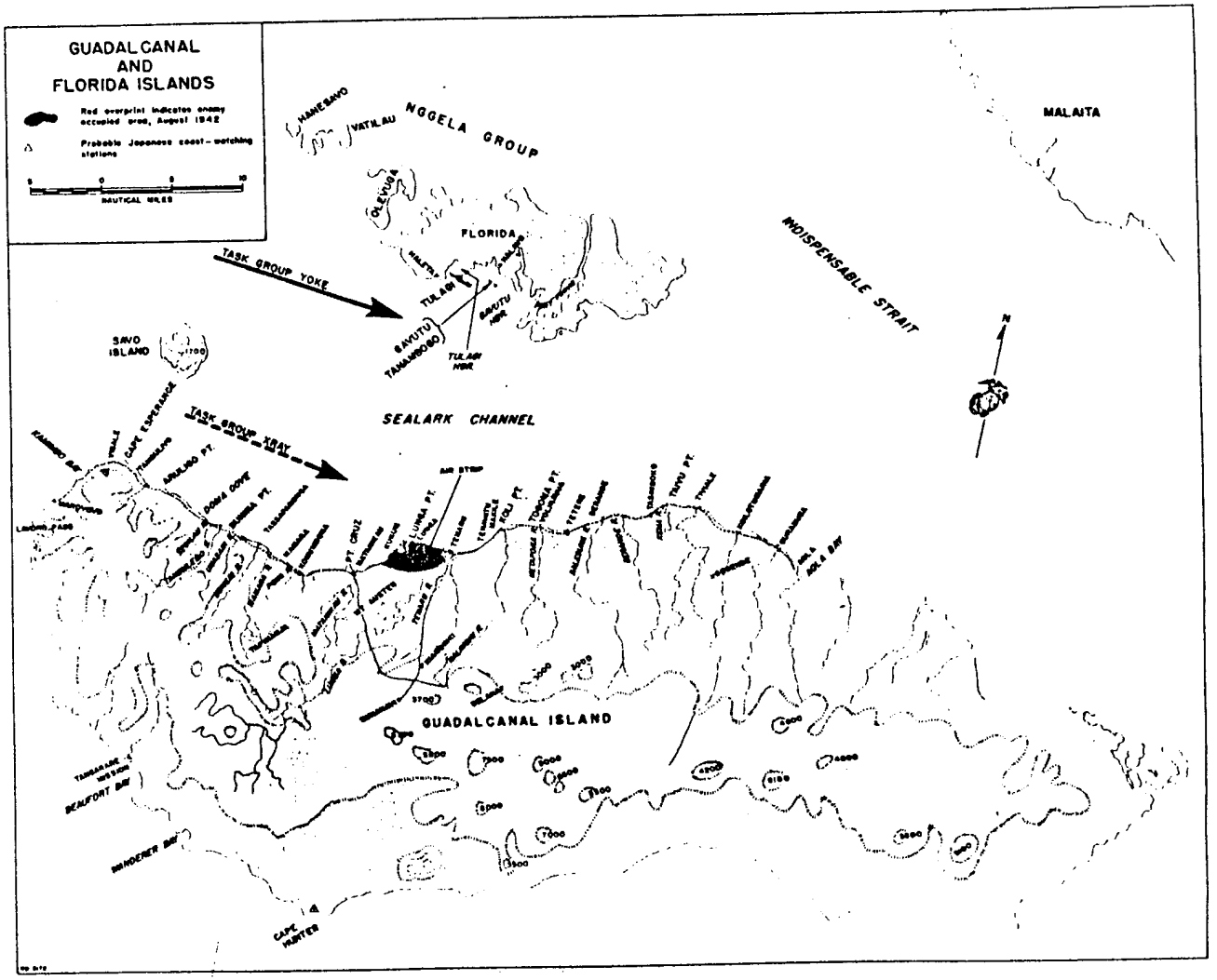

Figure 6. WATCHTOWER Amphibious Objective Area. Reprinted, by permission, from John L. Zimmerman, The Guadalcanal Campaign (Washington: Historical Division, Headquarters, U.S. Marine Corps, 1949), 16.

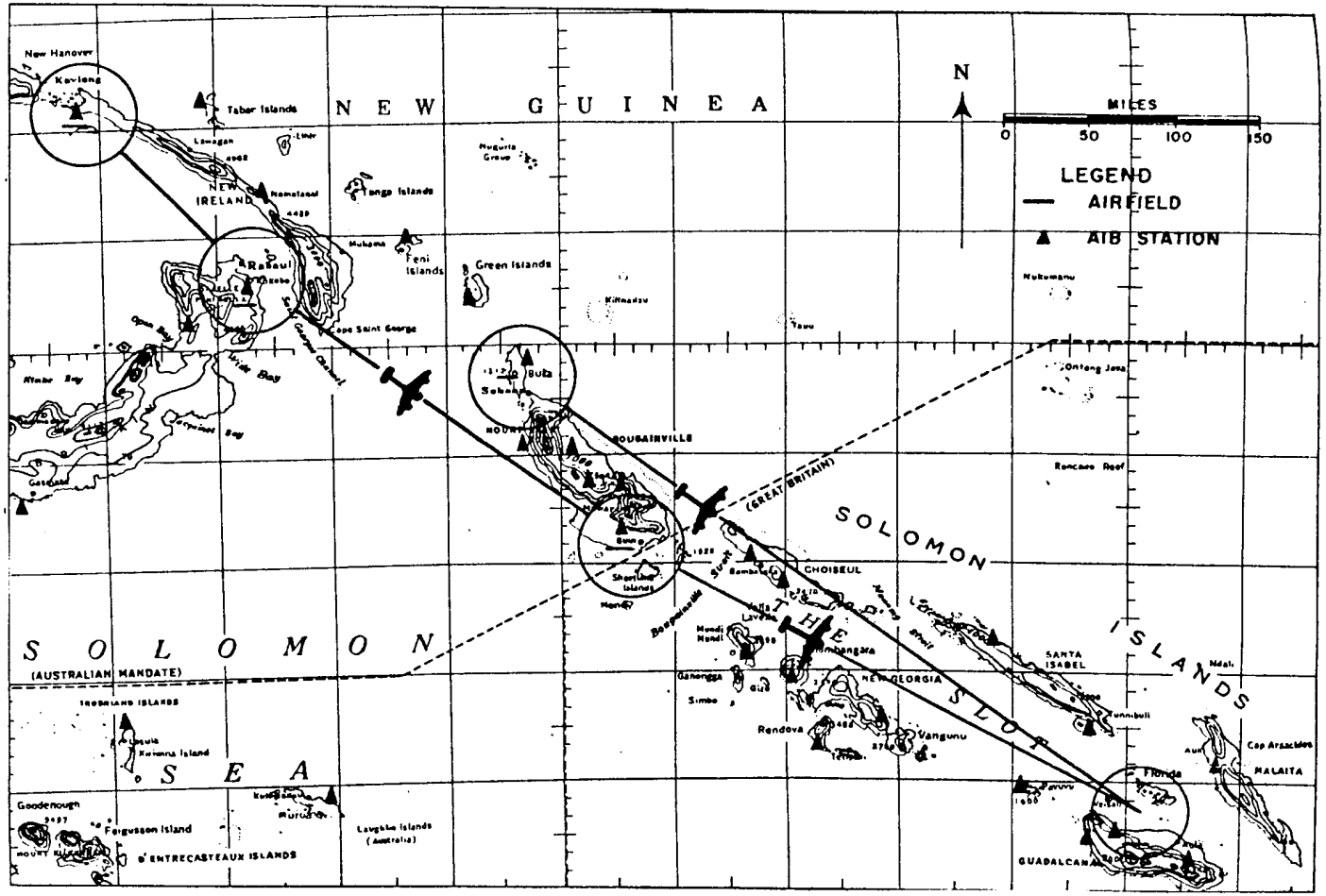

Figure 7. Coast Watcher Stations along Japanese Bomber Routes. From General Headquarters, FAREAST COMMAND, GENERAL STAFF, "Operations of the ALLIED INTELLIGENCE BUREAU GHQ, SWPA," Intelligence Series, 19 August 1948, plate 6.

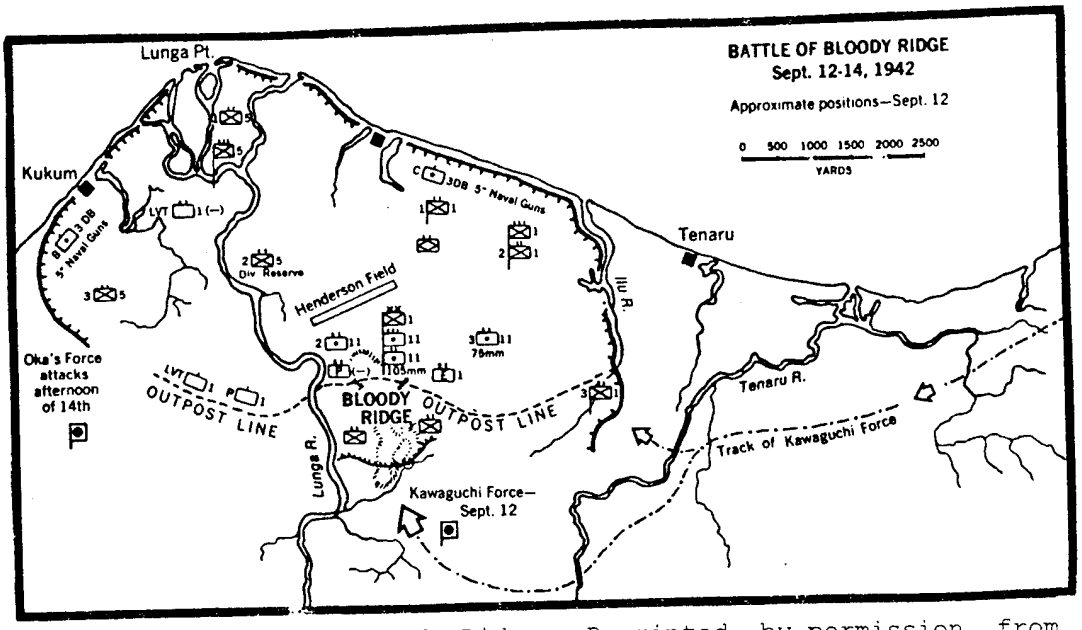

Figure 8. Battle of Bloody Ridge. Reprinted, by permission, from Jack Coggins, The Campaign for Guadalcanal (Garden City: Doubleday & Company, Inc., 1972), 77.

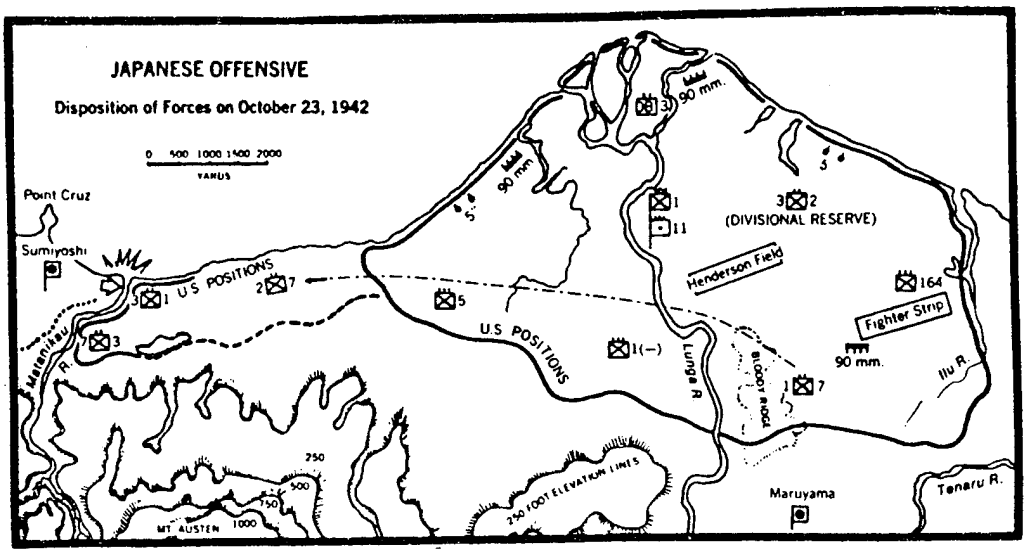

Figure 9. Japanese Offensive: Forces on 23 October 1942. Reprinted, by permission, from Jack Coggins, The Campaign for Guadalcanal (Garden City: Doubleday & Company, Inc., 1972), 77.

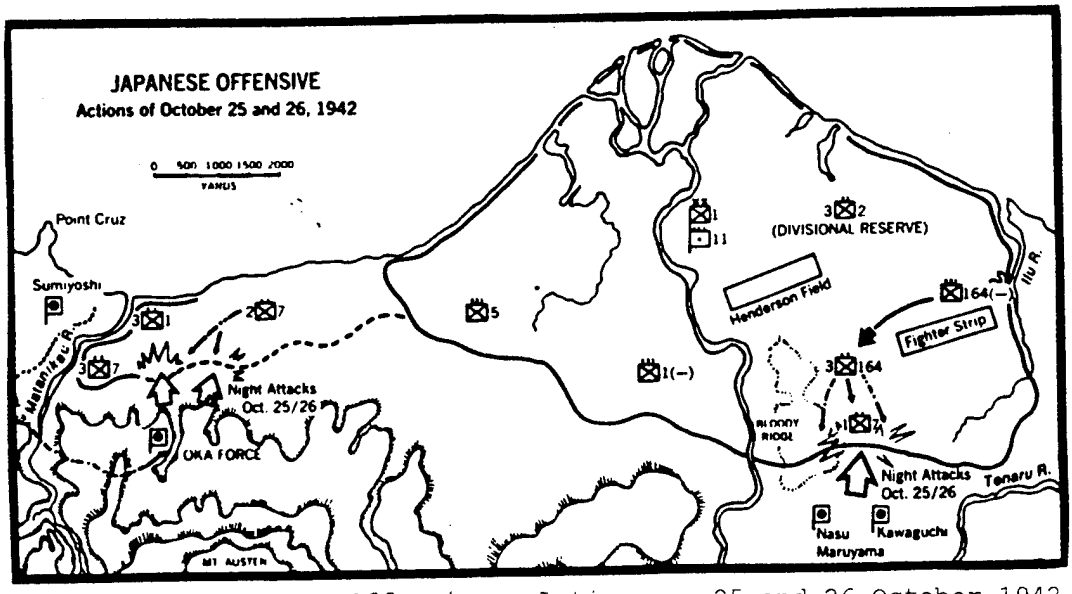

Figure 10. Japanese Offensive: Actions on 25 and 26 October 1942. Reprinted, by permission, from Jack Coggins, The Campaign for Guadalcanal (Garden City: Doubleday & Company, Inc., 1972), 77.

TABLE 1

U.S. NAVY AND MARINE CORPS AIRCRAFT

Aircraft	Name	Weapons	# Eng.	Mission
F4F-4	Wildcat	(6).50cal MG (2) 100 lb. bombs	1	Fighter
F4F-7	Wildcat	Varied	1	Long range photographic version of Wildcat
J2F-1	None	None	2	Photographic, scout and rescue amphibian
OS2U	Kingfisher	(2).30cal MG (2) 100 lb. bombs	1	Observation and scout float seaplane
PBO-1	Hudson	(3).50 cal MG 1,400 lb. bombs	2	Light bomber/transport (same as U.S. Army A-29 except Navy used as transport)
PBY-5	Catalina	(3).30cal MG (1).50cal MG (4) 1,000 lb. bombs or (2) Torpedoes	2	Long range maritime reconnaissance amphibian flying boat
R4D-1	Skytrain	None	2	Transport (U.S. Army C-47)
SBD-3	Dauntless	(2).30cal MG (2).50cal MG 1,000 lb. bombs max.	1	Dive bomber
TBF-1	Avenger	(3).50cal MG (1).30cal MG (1) 21" Torp.	1	Torpedo bomber

TABLE 2

U.S. ARMY AIR FORCE AIRCRAFT

Aircraft	Name	Weapons	# Eng.	Mission
A-29	Hudson	(3).50cal MG 1,400 lb. bombs	2	Light bomber, transport, reconnaissance
B-17E	Flying Fortress	(3) twin .50 cal turrets (3).50cal MG (2).30cal MG 4,000 lb. bombs	4	Long range heavy bomber
P-38F	Lightning	(1) 20mm cannon (4).50cal MG (2) 100 lb. bombs or (2) 21" Torp.	2	Long range fighter
P-39	Airacobra	(1) 37mm cannon (2).50cal MG (3).30cal MG (1) 21" Torp. or bombs	1	Pursuit/interceptor fighter bomber
P-400	Airacobra	(1) 37mm cannon (2).50cal MG (3).30cal MG (1) 21" Torp. or bombs	2	Pursuit/interceptor fighter bomber (export version of P-39)

TABLE 3

JAPANESE AIRCRAFT

Aircraft	Name	Weapons	# Eng.	Mission
A6M2	Zero	(2) 7.7mm MG (2) 20mm cannons	1	Carrier or land based fighter
A6M2-N	Rufe	(2) 7.7mm MG (2) 20mm cannons (2) 66lb. bombs or (2) 132 lb. Torpedoes	1	Fighter bomber float seaplane (float version of Zero)
B5N1	Kate	(3) 7.7mm MG (1) Torpedo	1	Torpedo bomber
D3A1	Val	(3) 7.7mm MG (1) 551 lb. bomb (2) 132 lb. bombs	1	Carrier-based bomber
G4M1	Betty	(1) 20mm cannon (4) 7.7mm MG 2,200 lb. bombs or (2) 1,760 lb. Torpedoes	2	Pursuit/interceptor fighter bomber (export version of P-39)

GLOSSARY

Airacobra. P-39, U.S. Army Air Force single-engine pursuit/interceptor plane. The P-400 was the export version of the P-39.

Avenger. TBF-1, U.S. Marine Corps and U.S. Navy single-engine torpedo bomber.

Betty. G4M1, Japanese twin-engine bomber.

CACTUS. Codename for Guadalcanal.

Catalina. PBY-5, U.S. Marine Corps and U.S. Navy twin-engine seaplane.

Close Area Operations. Offensive of defensive operations where forces are in immediate contact with the enemy.

Dauntless. SBD-3, U.S. Marine Corps and U.S. Navy single-engine dive bomber.

Deep Area Operations. Operations designed in depth to secure advantages in later engagements, protect the current close fight, and defeat the enemy more rapidly by denying freedom of action and disrupting or destroying the coherence and tempo of its operations.

Flying Fortress. B-17, U.S. Army Air Force four-engine heavy bomber.

Kate. B5N1, Japanese single-engine bomber.

Kingfisher. O2SU, U.S. Navy submarine patrol plane.

Lightning. P-38, U.S. twin tailed single engine fighter

Marauder. B-26, U.S. Army Air Force twin-engine bomber.

Rear Area Operations. Operations that assist in providing freedom of action and continuity of operations, logistics, and battle command. Their primary purposes are to sustain the current close and deep fights.

RINGBOLT. Codename for Tulagi island.

Rufe. A6M2-N, Japanese floatplane fighter.

Section. A flight of two aircraft operating together as wingmen.

Skytrain. U.S. Marine Corps R4D twin-engine transport plane. U.S. Army Air Force version was called C-47.

Val. D3A1, Japanese single-engine dive bomber.

WATCHTOWER. Codename for U.S. operation to take Guadalcanal and adjacent islands.

Wildcat. F4F-4, U.S. Marine Corps and U.S. Navy single-engine fighter.

Zeke. Another name for Japanese A6M2 Zero.

Zero. A6M2, Japanese Navy single-engine fighter (includes entire A6M series 2 through 8).

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[53]Ibid., 209.

[54]Hough, 1:362.

[55]Willock, 229.

[56]George McMillan, The Old Breed (Washington: Infantry Journal Press, 1949), 135.

[57]Hough, 1:343.

[58]OpHist, v.1, p363, quoted in Tyson, 2:36.

[59]Ibid.

[60]Coggins, 199.

[61]Ibid., 200.

[62]Hough, 1:364.

[63]Coggins, 200.

[64]Hough, 1:364.

[65]Griffith, 225.

[66]Ibid., 222.

[67]"Close up of Guadalcanal Oct-Nov 1942," Verbatim statements of participants, February 1943.

[68]Stanley Johnston, The Grim Reapers (Philadelphia: The Blakiston Company, 1943), 171.

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[70]"Report on the Naval Battle of Guadalcanal," np.

[71]Foss, 121.

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[73]H.F. Handy, "Military Observers's Report, SWPA 9/26/42 to 12/23/42," Enclosure, "Notes on an Interview, December 19, 1942, with BGen P.A. Del Valle, Commanding Division Artillery, 1st Marine Division, Guadalcanal," 5.

[74]Handy, 9.

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