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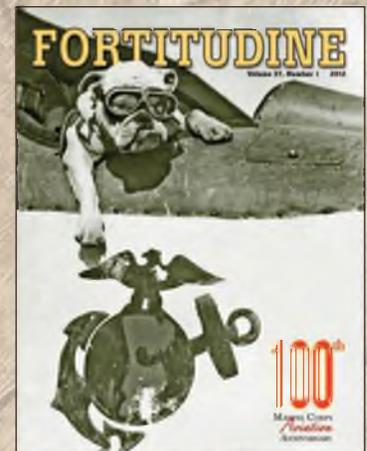
100th

MARINE CORPS
Aviation
ANNIVERSARY

FORTITUDINE

100th Anniversary of
Marine Corps Aviation

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About the Cover: First Sergeant Benjamin F. Belcher (on the back page) sits in a Vought VE-7 at Brown Field at Quantico, Virginia, 1924. Jiggs, the mascot, sits in the back seat of the biplane.

This issue celebrates the first 50 years of Marine Corps Aviation.

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Underscoring the “A” in MAGTF

by Dr. Charles P. Neimeyer
Director of Marine Corps History Division



For some time now, when preparing for combat operations, the Marine Corps usually configures itself as a Marine Air Ground Task Force (MAGTF). The MAGTF has become so ubiquitous that many assume the Marines have always deployed in this particular fashion. In fact, few outside the Corps understand the immediate impact an air/ground task force, logistically supported by its own organic assets for an extended period of time, can have on combat operations—especially those conducted “from the sea.” The recent public debate over the F-35B Joint Strike Fighter is a good indication that many in and out of Congress or even the Department of Defense still do not fully appreciate why the Marine Corps places such an emphasis on supporting its ground combat forces with rapid, on-call, tactical aviation. Yet one only needs to look at the past to discover why the Marine Corps holds its own aviation in such high regard.

The MAGTF concept developed over time. It also resulted from both positive and negative combat lessons. Nonetheless, it was not long after World War I that the advantages of aviation became apparent to Marine ground combat commanders. An early opportunity to experiment with organic aviation occurred during an extended Marine Corps counterinsurgency deployment to Nicaragua (1927–33). Deploying upward of 5,000 Marines in its largest overseas combat operation since World War I, the Marine Corps cobbled together a variety of supporting expeditionary aviation platforms they eventually named the 2d Aircraft Brigade. Commanded by Major Ross E. Rowell, the 2d Aircraft Brigade flew from airfields located in and around the capital city of Managua. For the most part, these

fields were the only ones available for Rowell’s aircraft to use on a consistent basis, and due to the limits of surface to air radio technology at that time, coordination between air and ground elements was rudimentary. But this did not stop the Marines on the ground. Led by battle hardened leaders such as Captain Lewis B. Puller and Captain Merritt A. Edson, Marine infantry platoons and companies, reinforced by Nicaraguan Guardia Nacional security forces, chased armed bands of guerrillas called “Sandinistas” (so named after their charismatic leader Augusto C. Sandino) throughout the rugged terrain of Nicaragua’s northern provinces.

The 2d Aircraft Brigade itself was a hodgepodge of large Ford “trimotor” supply transports, World War I vintage DeHavilland medium bombers, to other assorted pursuit and observation aircraft. Because the terrain was so difficult to navigate, the Marines began using these aircraft as scouting platforms and to resupply units operating in the field on long patrols. Moreover, when the Sandinistas did attack the Marines, aviation assets, more than once, proved effective in providing air support for ground troops or sometimes destroying enemy formations when they could be located. These air attacks worked so well that the Sandinistas

learned to scatter whenever Marine bombers or pursuit aircraft appeared over their heads.

For example, on 15 July 1927, Sandino’s guerillas attacked a 40-man patrol led by Captain Gilbert Hatfield in the town of Ocotol, Nicaragua. Outnumbered and fighting off three direct assaults, Hatfield called in air support. Using large colored panels to identify his own position for circling DH-4 bombers, Marine pilots devastated the attacking Sandinistas and forced them to flee back into the mountains.

Early the following year, another reinforced Marine patrol was besieged by Sandinistas in the town of Quilali. Leveling adobe walls that lined the town’s main street, the Marines quick-



Marine Corps photo

The F-35B Lightning 11 prepares to vertically land for the first time at sea on the flight deck of the amphibious assault ship USS Wasp.

ly created an improvised expeditionary airfield. First Lieutenant Christian F. Schilt, flying a Vought O2U-1 Corsair biplane, proved just how valuable an “expeditionary airfield” was to the Marines when he repeatedly landed his Corsair under fire to bring in much needed ammunition and supplies, and evacuate the critically wounded. What made Schilt’s story even more extraordinary was that his Corsair did not have any landing brakes. In order to prevent the aircraft from running into a steep ravine at the end of his improvised airstrip, Marines from nearby buildings would race out as the Corsair taxied down the dirt road and grab onto its wings to halt the aircraft’s forward progress. Thanks to Schilt’s human “Marine brakes” and the added weight of the men upon the aircraft’s wings, he always stopped well before reaching the ravine. Lieutenant Schilt received the Medal of Honor for his resolute courage at Quilali and later commanded Marine aviation as a general officer during the Korean War.

The Marine Corps refined and worked sporadically on the MAGTF concept throughout World War II, and although not totally complete, Marines on the ground and in the air found through trial and error that working closely together produced superior combat results. During the

Korean War, Marine aviators started to practice the modern day version of the MAGTF. Flying World War II vintage Chance Vought F4U Corsairs, the Marine Corps methodology for delivering close air support in Korea was so effective that U.S. Army Colonel Paul Freeman, commanding officer of the 23d Infantry Regiment during the 1950 battles along the Naktong River, wrote to General Matthew B. Ridgway that

we must have Tac[tical] Air in direct support of infantry regiments just as we have artillery; and communications must be direct and simplified. Infantry can’t do the job alone. Infantry and artillery is a good team, but only by adding adequate and efficient air support can we succeed without devastating losses. The Marines on our left were a sight to behold. Not only was their equipment superior or equal to ours, but they had squadrons of air in direct support. They used it like artillery. It was, ‘Hey, Joe, this is Smitty, knock the left of that ridge in from Item Company.’ They had it day and night . . . General, we just have to have air support like that or we might as well disband the Infantry and join the Marines.

And while Colonel Freeman obviously dramatized his case to General Ridgway in order to get air support for his own troops, there can be no doubt that the MAGTF concept was indeed a “game-changer.” Since the Nicaraguan counterinsurgency to this very day, no one in the country understands close air support better than Marines. To the Marines fighting on the ground, having organic aviation rapidly on call, night or day, in all weather and terrain, has made the difference on many a battlefield.

This year the Marine Corps celebrates its 100th anniversary of aviation. In commemoration of this six-month long event, History Division in collaboration with the Kratos/DTI Corporation produced an impressive publication now available for purchase on the Government Printing Office website: *100 Years of Marine Corps Aviation*. This visually appealing book shows the progress of Marine Corps aviation, starting with First Lieutenant Alfred A. Cunningham becoming naval aviator number five in 1912 through the 2011 appointment of General James T. Amos, the first Marine aviator to become Commandant of the Marine Corps. Besides the aforementioned illustrated history, the History Division has two additional books on Marine Corps aviation scheduled for publication.

Bibliographic Essay

by Dr. Tom M. Baughn

The centennial of Marine aviation observance provided an opportunity to produce several new publications on the subject. The newly created books and related materials more than doubles what was previously available with the only official overview previously produced by the Corps appeared in 1985. Major General John P. Condon penned that publication, and John M. Elliott edited the manuscript to the 41 pages that became the fifth volume of the commemorative collection for the 75th anniversary of naval aviation. Peter B. Mersky's *U.S. Marine Corps Aviation Since 1912* has now been published in four editions from 1983 to 2009. Although they did not cover all the history of Marine aviation, two other works are notable in their coverage of major portions thereof. One of those works originally written in the early 1950s is Robert Sherrod's widely respected book *History of Marine Corps Aviation in World War II*, which begins with two chapters on the prewar history of Marine aviation. Similarly, in 1977 Lieutenant Colonel Edward C. Johnson and Graham A. Cosmas as editor, produced the official publication *Marine Corps*

Aviation: The Early Years 1912-1940. The Naval Historical Center produced successive editions of an annotated chronology, entitled *United States Naval Aviation* that includes many important dates for Marine aviation. That publication uses short explanatory annotations to document key dates from the beginning of U.S. naval aviation history in 1910.

There are numerous books on aspects of Marine aviation,



Fly With The US Marines

Howard Christy

This very evocative illustration was commissioned by the United States Marine Corps to recruit pilots in the early 1920s. Howard Chandler Christy was an important illustrator and society portrait painter based in New York during this time period. Christy was also an artist correspondent during the Spanish American War in 1898, documenting the 2d Infantry, 1st Cavalry, (the famed "Rough Riders") in Cuba.

Osprey Flight Operations from USS Wasp

Sgt Kristopher J. Battles

VMM-263 (the "Thunder Chickens") made history as first Marine squadron to deploy the Bell/Boeing MV-22 Osprey tilt-rotor aircraft in a combat zone. The squadron conducted flight operations and performed routine maintenance aboard the USS Wasp (LHD-1) in preparation for combat operations in Iraq in 2007.

focused by period or topic, and every historian has their list of classics. Perhaps most familiar to the general reader, are memoirs like Gregory "Pappy" Boyington's *Baa Baa Black Sheep* published in 1958. A respected companion work to Sherrod's book, focused on Marine carrier air

warfare, 1944-1945. Published by the Naval Institute Press, *Corsairs and Flattops* by John P. Condon details how the inception of Marine carrier based aircraft impacted several amphibious landings in the final years of the war. Another important work was Charles W. Boggs' *Marine Aviation in the Philippines*, a 1951 official publication of the Marine Corps History Division. Two official publications on the Marines in the Korean War Commemorative Series cover the Korean conflict for Marine fixed wing and rotary winged aircraft. Appearing in 2002, *Corsairs to Panthers*, by Major General John P. Condon and retired Commander Peter B. Mersky, covers the overlap of propeller and jet aircraft in Korea. The accompanying publication in 2003, by Lieutenant Colonel Ronald J. Brown, entitled *Whirlybirds* demonstrated the advantages of vertically mobile aircraft in the same conflict. An irreplaceable book on the early application of Marine combat helicopters, *Cavalry of the Sky*, was written by Lynn Montross and published by Harper in 1954.

Vietnam was the first American major war that extensively utilized helicopters. Two books describe their uses. The first of the official Marine Corps History Division two-volume publications was written by Lieutenant Colonel Eugene W. Rawlins, entitled *Marines and Helicopters 1946-1962* and published in 1976. It details the development of helicopters after World War 2, its experimental utilization during the Korean conflict, and the technological maturation before utilization in Vietnam. Published in 1978, Lieutenant Colonel William R. Fails, the author, devoted the second volume, *Marines and Helicopters 1962-1973*, to the use of helicopters in Southeast Asia, describing the transitions in helicopter engines, types, and sizes.

Current conflicts are generating important works as well.



Lon Nordeen chronicles the practical development of a revolutionary aerial platform capable of vertical/short takeoff and landing. His book *Harrier II* published in 2006, tells the story of Marine aviation's role in bringing the ground-breaking aircraft to fruition. The follow-on monograph, *AV-8B Harrier II Units of Operation Desert Shield and Desert Storm* documents the versatility of the McDonnell Douglas AV-8 Harrier, which was one of the first aircraft to meet the Iraqi invasion of Kuwait in 1990. The AV-8 Harrier proved its nimbleness during close air support as Operation Desert Storm rolled the invaders backwards. Jay A. Stout also wrote a book on Marine aviation in the Iraq War. *Hammer from Above* puts the reader in the cockpit of rotary and fixed wing, attack and transport aircraft with a number of interviews gathered from Marine pilots who flew in that conflict. Stout also wrote an important work on Marine pilots of F/A-18s during the conflicts with Iraq during the 1990s in *Hornets Over Kuwait*, published in 1997. Probably the most revolutionary aircraft recently developed is the Bell-Boeing V-22 Osprey. In *The Dream Machine*, that appeared in 2010, Richard Whittle reveals the story of taking the aircraft through the tortured process of research and development.

Finally, as the centennial of Marine aviation continues in 2012, the Marine Corps History Division plans on publishing two commemorative histories. The first book, written by Dr. Tom M. Baughn, covers Marine aviation through the end of combat in Vietnam in 1973, and the second book written by Dr. Fred H. Allison, describes the important developments in Marine Corps aviation since 1974. Additionally, the Kratos Company, Roxanne Kaufman as author and Laurie Schmidt as art director, produced a commemorative illustrated history entitled *100 Years of Marine Corps Aviation*.

SETTING THE CORNERSTONE OF MARINE AVIATION

by Dr. Tom M. Baughn

The debate that helped define and defend Marine aviation began in the 1920s. In one article written at the beginning of the decade, Major Alfred A. Cunningham candidly reviewed the mixed results that Marine aviation accomplished during World War I, and admitted that it translated into “nothing permanent.” In contrast, Major Ross E. Rowell wrote an article at the end of the decade bragging about the change of fortune, making Marine aviators essential to the Corps. Interestingly, both authors answer the same question—Of what use is Marine aviation for the Corps? Although at the end of the decade the role of aviation was still limited, these were the first steps, halting at times, that would lead to the advent of the Marine Air Ground Task Force over half-a-century later.

Cunningham essentially founded Marine aviation in 1912, but his article in 1920 tentatively answered the question of what use

Maj Alfred A. Cunningham, the founding visionary of Marine Corps aviation.

Marine Corps photo



aviation was to the Marine Corps. While the answer to that question was clear for Cunningham, he knew that too few shared his vision and in reality the program “could very readily have been disbanded entirely” after World War I. He argued that a “rocky and uphill road” in the “first of the stages” in the development of Marine Corps aeronautics was typical for “every new weapon.” He continued by stating that a fuller demonstration of what aircraft could do for the Marines was not yet at hand. Cunningham wrote the article to convince military planners that they should give Marine aviation time to prove its worth before they made a decision as to its future.

Just nine years later, Rowell scarcely acknowledged the uncertainty that plagued Cunningham and wrote a technical manual on how to use Marine aviation. This demonstrated how much Marine aviation had evolved. The two aviators’ abridged articles that follow show how Marine aviation found its voice in the 1920s.

Excerpt from **Major Alfred A. Cunningham**

In common with every new weapon introduced to the military service, Marine Corps aviation has travelled a rocky and uphill road. Its small size has tended to make the jolts more frequent and severe. Nothing short of the firm conviction that it would ultimately become of great service to the Corps sustained the enthusiasm of the small number of officers who have worked to make it a success. The past year has seen the completion of the first of the stages through which our aviation must pass. Prior to this we had practi-



Marine Corps photo

Maj Ross E. Rowell became a driving force in Marine aviation.

cally no official status or recognition. While we sent 182 officers and 1,030 men to the front in France, and they made a splendid record under severe conditions, we had no aerodromes at home, no shops or other facilities; in fact, nothing permanent, and could very readily have been disbanded entirely. When it was realized that the Marine Corps’ permanent strength of 17,000 was entirely inadequate and that a larger permanent strength must be requested, the figure decided upon was approximately one-fifth the authorized strength of the Navy, or about 26,380. It was desired to utilize this number for ground duties; therefore, Congress was asked to authorize an additional 1,020 men for aviation duty, making the total 27,400. This gave us permanently our aviation personnel. The next task was to secure well-equipped home stations for our personnel, and it required the surmounting of many discouraging obstacles before the Navy Department, which handles the expenditure of

all aviation funds, approved the construction of flying fields at Quantico, Parris Island, and San Diego. With this much accomplished and our men and pilots well trained, we feel that the time has about arrived when we can demonstrate our usefulness to the Corps, which I am confident will be great.

Skeptics without and within

One of the greatest handicaps which Marine Corps Aviation must now overcome is a combination of doubt as to usefulness, lack of sympathy, and a feeling on the part of some line officers that aviators and aviation enlisted men are not real Marines. We look upon the first two criticisms complacently, knowing that we can abundantly prove our usefulness even to the most skeptical, and that when we have done so, we will receive the sympathy and hearty support of all Marine officers. The last criticism we resent vehemently as an injustice, so far as it applies to loyalty, supreme pride in the Corps, and a desire to do what is assigned to us as quickly and as well as it can be done. Conditions arising from the necessity of organizing and training in a short time an aviation section, with practically nothing to start with and the nature of the duty, which does not allow the older officers to keep their juniors continually under their observation and guidance as is allowed in ground work, may have prevented the instillation in the younger pilots of all the qualities necessary in a Marine officer to the same degree as is done in infantry work. We have realized this difficulty and have made an earnest effort to overcome it and believe, with some few exceptions, that we have been successful. Now since the rush of organizing for war service is over this difficulty will be easily and simply overcome and the task of aviation officers made much more simple by taking into aviation only those young officers who have had enough service with



Marine Corps photo (532386)

Dedicating the airfields and headquarters facilities of the Marine Corps First Aviation Force in northern France.

infantry troops to be thoroughly indoctrinated with Marine Corps discipline and spirit.

For fear that by mentioning in this article the skeptical feeling regarding aviation which is supposed to exist among some officers, I have given an erroneous impression. I would like to state that I believe the number of officers who hold this attitude constitutes a small minority of the officers of the Corps. The subject is only mentioned here because the whole article is an effort to show Marine Corps officers that, with encouragement and cooperation, we can be of real service to them, and to show commanding officers what parts of their problems they can use aviation to perform. Naturally, the ones we wish most to convert are those who at present do not fully believe in us.

Marine officers very properly "like to be shown," and nothing is more desired by Marine Corps aviation than a chance to work out

with our troops the problems suggested above, as they feel assured that such an opportunity can result only in mutual respect and confidence.

The contribution of Marine aviation in World War I

It is fully realized that the only excuse for aviation in any service is its usefulness in assisting the troops on the ground to successfully carry out their operations. Having in mind their experience with aviation activities in France, a great many Marine officers have expressed themselves as being unfriendly to aviation and as doubting its full value. I am confident that this must have been caused by some local condition, as the French, British, and Belgian troops in the sector over which the First Marine Aviation Force and the British squadrons operated were enthusiastically "full out" for aviation. In our own aviation section we intend, before asking a

vote of confidence from the remainder of the Corps, to demonstrate to their complete satisfaction that we can contribute in a surprising degree to the success of all their operations, save many hours of weary, fruitless "hiking" and materially shorten each campaign. Previous to now we have had no opportunity to do this. During the war we were unfortunately not allowed to serve with the Fourth Brigade, but were placed in a sector containing only British, French, and Belgian troops. Since the war all our effort has been required to secure flying fields and the construction of buildings and hangars on them. We would have been hopelessly handicapped without these facilities. Now since they are nearing completion we are looking forward

with enthusiasm to our real work of cooperating helpfully with the remainder of the Corps. All we ask is a spirit of cooperation and encouragement, and that judgment be reserved until the proper time.

Judging from the unfamiliarity of the average Marine officer with what has been accomplished by Marine aviation, we have failed woefully to advertise. A short resume of what has been accomplished will perhaps be of interest.

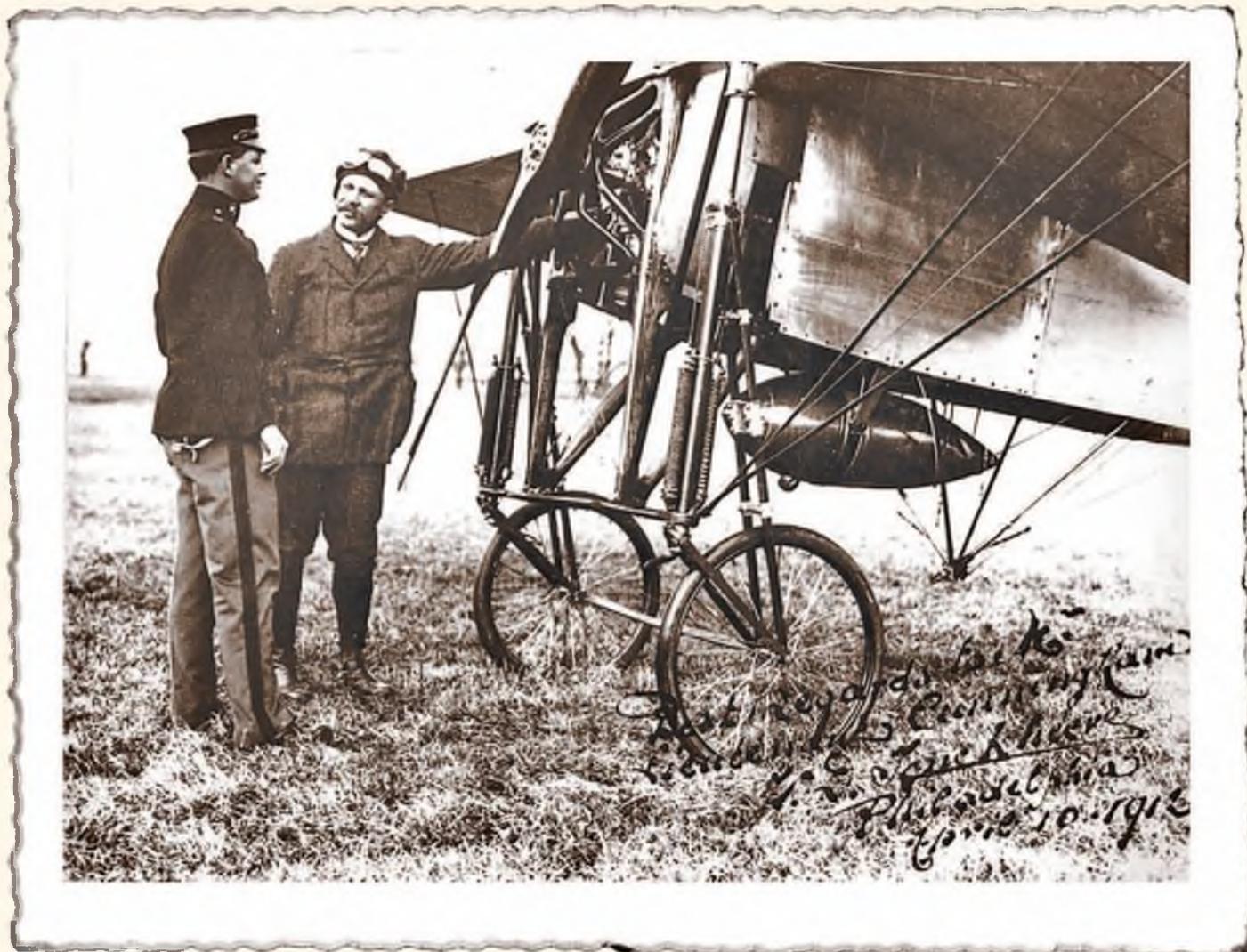
In May, 1912, when the writer was detailed for aviation, the Marine Corps took very little interest in the subject. In those days it was looked upon more as a crazy sport than as anything useful, and when I look back on the old original Wright 35-horsepower planes I flew, where one sat on a board

projecting out into atmosphere, I am inclined to agree with that view.

On April 6, 1917, Marine aviation amounted to four officers and thirty men, all part of the complement of the Naval Air Station, Pensacola, Fla . . . During the next few months we secured a flying field at Philadelphia, organized a full squadron of land planes, and began intensive training, so that we would be ready to go to France with the other Marine Corps forces. In order to have the latest aviation information the commanding officer of this squadron was sent to France to serve with the French aviation forces for three months. This officer made every possible effort, both with the War Department in Washington and the American Expeditionary Force

Cunningham and V. O. Yoncheere, Belgian aviator, and his Bleriot at the Navy Yard, Philadelphia, Pennsylvania, spring of 1912.

U.S. Navy photo





U.S. Navy photo

Lt Cunningham at the controls of an early Curtiss hydroaeroplane, 1912.

authorities in France, to secure authority for our Marine aviation squadron to serve with the Marine Brigade in France. No success whatever attended these efforts. Army aviation authorities stated candidly that if the squadron ever got to France it would be used to furnish personnel to run one of their training fields, but that this was as near the front as it would ever get. Confronted with this discouraging outlook the squadron commander set about to find some other way of getting his squadron into the fight. The only aviation operations abroad planned by the Navy at that time were antisubmarine patrols in flying boats. After visiting the Navy flying station at Dunkirk, France, and talking with officers of the British destroyer patrol, it was realized that Marine aviation's opportunity to get into the fight lay right here. The situation was as follows: Submarines were causing enormous losses to

shipping; their main operating bases and repair shops were at Ostend, Zeebrugge, and Bruges, all within easy reach by plane from Dunkirk; the water for ten to fifteen miles off these bases is so shallow that a submarine can not safely negotiate it submerged. If these waters could be patrolled continuously during daylight with planes carrying heavy bombs, sub-

marines attempting to enter these bases could be destroyed. Destroyers were prevented from patrolling these shallows efficiently in daylight by the heavy shore batteries, but could under the cover of darkness and with mines close the channels at night. This was evidently such an effective plan that inquiries were made as to why it was not put into effect. These inquiries developed that the Germans realized the danger of such a plan and energetically suppressed any attempts of the British Navy to patrol these waters with seaplanes, sending out their best land pursuit planes to shoot them down. An inquiry as to why the British did not patrol this area with bombing planes protected by fighting land planes developed the fact that they were so hard pressed on the front in Flanders and northern France that they could not spare the planes for this work.

Why could not the Marine Corps man the necessary number of planes to allow this operation to be carried out? Jubilant at having discovered a prospective field of usefulness for Marine Corps aviation our squadron commander hurried home and placed the whole scheme before the Major General Commandant, had a hearing before the General Board and the Secretary, and as a result orders were issued soon afterwards to organize four Marine land squadrons as quickly as possible and secure from the Army the necessary planes to carry out

NUMBER OF RAIDS WITH FRENCH AND BRITISH	43
NUMBER OF INDEPENDENT RAIDS	14
POUNDS OF BOMBS DROPPED	52,000
NUMBER OF FOOD-DROPPING RAIDS	5
POUNDS OF FOOD DROPPED	2,600
NUMBER OF ENEMY PLANES SHOT DOWN	12
PILOTS AND OBSERVERS CITED FOR DECORATIONS	25 (MEDAL OF HONOR, 2)

the operation . . . and by May, 1918, we had our planes and four of the best-trained fighting squadrons that ever went to war.

The Northern Bombing Group, which was the title given the combined Navy and Marine Corps land plane bombing operation in Belgium and northern France, although supposedly operating under the British, was in reality almost an independent body. It was composed of four Marine squadrons of eighteen DH4 planes each, known as the Day Wing, and was to have had four Navy squadrons of six Caproni night bombing planes each, known as the Night Wing. Only one Navy squadron was organized and it got into difficulties and sent, prior to the Armistice, only one plane over the front on one raid . . . The results of one of our raids, verified after the enemy had evacuated Belgium, showed that we totally destroyed a troop train, killing about 60 officers and 300 men. The Marine aviators also introduced an innovation at the front, A French regiment was isolated during an offensive near Stadenburg, and it was decided to feed them by plane . . . This necessarily had to be done at a low altitude and under a heavy fire from every weapon the enemy could bring to bear. It is believed to have been the first instance of its kind. This organization participated in the Ypres Lys offensive and the first and second Belgian offensives.

On page 10 is a table of what was accomplished over the front lines. The objectives of some of these raids were seventy-five miles from our aerodromes, nearly all of the distance over German territory:

In the meantime other activities were being worked out by Marine aviation. An organization of twelve officers and one hundred and thirty-three men was organized and sent to the Naval Base at Ponta Delgada, Azores, where they carried on an anti-submarine patrol with seaplanes and flying

boats until the Armistice. A temporary flying field was secured at Miami, Fla., where approximately 282 pilots and 2,180 aviation mechanics were completely trained, including advanced and acrobatic flying, gunnery, bombing, photography, and radio. A Marine aviation unit of six officers and forty-six men was organized and attached to the Naval Air Station, Miami, Fla., and performed practically all the long overseas patrols for that station.

Resources for Marine aviation

Naturally our first and most important peace-time duty was to secure permanent well-equipped flying fields as close as possible to large Marine Corps posts, so that we could by actual demonstration prove our usefulness . . . and we now have nearing completion well-equipped stations at Quantico and Parris Island, and the establishment of a similar station at San Diego is approved and work on it will begin when the ground at the Marine Base is in condition.

The established policy regarding

On the eve of World War I, Lt Rowell, in khaki and field gear, posed for one of James Montgomery Flagg's most celebrated recruiting posters.

Marine Corps Art Collection



pilots is that they will not be ordered to aviation duty until they have had enough experience with troops to have become thoroughly qualified Marine officers. The ordinary length of the detail will be five years, after which they will return to duty with troops.

Aviation is probably the most highly technical branch of the military service. It differs from other arms in the unusually fast development of its equipment, planes, motors, etc. The administrative and technical part of it is really a profession which requires long experience and constant study to fit one to properly make decisions, which decisions must necessarily be correct . . . and for this reason a very small number of pilots who show special aptitude will be continued in aviation duty indefinitely to furnish the number of expert and experienced officers required.

Every officer who served at the front in the World War was given a rather impressive demonstration of the damage and demoralizing effect of bombs dropped from the air, and was perhaps extremely annoyed by being shot up by a machine gun in an airplane which it seemed impossible to hit from the ground. It will be remembered that troops in this war were, for the most part, well protected in trenches and dugouts from aerial attack as well as from attacks on the ground, and that both bombing and gunnery from airplanes will be much more effective against guerrillas and troops with less permanent protection. During the late war proper advantage was not taken of the possibilities of radio and radio-telephonic communication between planes and between ground troops and planes.

The tactical use of Marine aviation

The question regarding aviation which is of most interest to the Marine Corps is: Of what practical use is it to us? We see the planes flying around and they seem to be enjoying themselves, but how will

they help us perform our mission? . . . It is my opinion that a great part of the evident lack of belief in aviation shown by officers serving with ground troops is caused by the entirely unnecessary amount of flying which is done with no specific object in view, except the practice the pilot gets in handling his plane. This naturally creates an impression that the only use the planes have is to give their pilots practice in handling them. This impression should and will be removed. There are many important military problems which must be worked out by aviation and so many interesting opportunities to work in cooperation with troops on the ground that flights should rarely be made in future except with some useful military purpose in view.

In March, 1919, a squadron of six land planes and six flying boats was organized and attached for duty to the First Brigade in Haiti and in February, 1919, a flight of six land planes was organized and attached to the Second Brigade in Santo Domingo . . . and very complimentary reports as to the value of the aviators' work have been received. They patrol regularly the whole island and have saved many long, hot, and fruitless "hikes." They have located bands of "cacos," dispersed them with machine gun fire and performed many useful services which will be explained later.

Let us assume that the Commanding General of a Marine expeditionary or advanced-base force with his troops on board transports is approaching a port at which he is supposed to land in the face of enemy opposition. Would it be of value to him if one or more of his Marine aviators left his ship a hundred or more miles off shore, flew over the port, photographed the harbor and returned in time to have the finished photographs in the hands of all subordinate commanders before land

was sighted? . . . The photographs of the harbor in practically all tropical waters show clearly the channels, buoys, reefs, sandbars, and minefields, if any exist, allowing the ship to be navigated into the harbor without a local pilot.

If the Commanding General desired to prevent the removal from any locality of enemy stores, railway equipment and locomotives, would it not be of service to him if the aviator left the ship before the enemy was aware of its presence and destroyed the railway tracks or bridges and made

“It has been said that after a man reaches a certain age he has too much sense to do what an aviator is required to do.”

the highways impassable by bombing? During the actual landing the planes could with machine gun fire and small fragmentation bombs so demoralize resistance as to make the task of landing much easier and safer . . . They can locate quickly bodies of the enemy and communicate instantly their approximate strength, location, disposition, and actions. The enemy can be watched and any movement instantly reported. In this connection there has been developed a portable radio and radio-telephony ground set which is so small and easily set up that one can be carried by two or three men or on the back of a mule, horse, or donkey. In future operations, every unit which has one of these—and every unit should have one—will be in instant communication with the planes and through them with any other station.

• Photographs of enemy defenses, proposed battle terrain, or any other object or area of reasonable size within a radius of fifty miles can be taken, developed, and the desired number of prints delivered

to the troops in time to use them in the plan of attack or defense. I have personally seen photographs distributed to the various organizations forty-five minutes after the plane which took them had landed.

• Enemy troops and population well in rear of the line of resistance can be kept in a demoralized condition, and enemy ammunition and supply depots and other military objects destroyed.

• Any railways, bridges, and roads within a radius of one hundred miles can be quickly made impassable.

• Rapid communication can be furnished between detached bodies of our troops in difficult country, and officers can be quickly transported anywhere on urgent missions.

• In the event the enemy has planes, we can protect our troops from observation and annoyance and prevent the enemy from securing benefit from his planes.

For the field artillery the following are some of the ways in which we can be helpful:

• Difficult and temporary targets can be located quickly, accurately described and changes in targets promptly reported.

• The bursts of our shell can be accurately spotted and corrections for the next shot instantly reported.

• Photographs of targets can be furnished showing progressively the results of artillery fire.

• At night designated areas can be kept lighted by parachute flares, etc.

• Through its speed and remarkable visibility, and by the use of its radio and radio-telephone, together with visual signals which must be developed, the airplane will cooperate with the signal and communication troops so as to greatly increase their effectiveness.

For Advanced Base Work

• Offshore patrols to prevent surprise

raids by enemy light forces.

- Anti-submarine patrols.
- Spotting for shore batteries in attacks by enemy ships.
- Communication between the base and our vessels offshore.
- Photographing, bombing, and torpedoing enemy craft and bases within reach.
- On account of the aviator's ability in most localities to pick up and chart enemy mine fields, airplanes should furnish valuable assistance in countermining and mine sweeping.

A large part of the work performed by the Marine Corps is to combat guerrilla and bandit warfare, usually in tropical countries where roads are few and ground communications almost nil . . . The enemy encountered under these conditions are usually unstable and can not withstand punishment . . . They base their hope for success on their ability to make raids and get away before the necessary number of our troops arrive. When an attempt to round them up is made their knowledge of the country and their ability to travel light and fast allow them to lead our troops on an exhausting chase for some time before they are dispersed . . . The work of the Marine Corps aviators in Haiti and Santo Domingo has abundantly shown the possibilities in this class of operations. Difficult coun-

Maj Rowell ready for flight.

Marine Corps photo



try can be patrolled so completely and frequently that it is impossible for bands to form without being discovered. To cover an area as thoroughly and frequently as can be done by airplanes, would require a prohibitive number of troops and a weary amount of "hiking." The planes in Haiti have already proved that they can, without assistance from the ground, disperse and almost destroy bands of "cacos" with gunnery and small bombs. When these insurrectos realize that they can not congregate without being attacked . . . their enthusiasm quickly disappears . . . If the planes could perform no other service for our expeditionary troops than to make unnecessary the long marches formerly required in searching for "cacos" they would be worth their keep.

Excerpt from

Major Ross E. Rowell

Since the close of the World War, air forces have been employed in bush, or guerrilla warfare on several occasions; notably by the British in Mesopotamia and in Irak, by the Italians in Tripoli and by the French and the Spanish in Morocco. The aerial operations of those nations met with varying degrees of success. Probably no broader experience has been gained, or greater success achieved through the employment of aircraft in minor warfare, than that which attended the operations of our own Marines during the Nicaraguan campaign of 1927 and 1928. During that period extensive air operations, both independently and in cooperation with ground troops, were conducted against the outlaw groups led by Augustino Sandino. The treatment of this subject, therefore, is based primarily on the experience gained by American air squadrons for the reasons: that authentic data are available, the information has been obtained in active campaign and the Nicaraguan situation provides a case that is fairly typical of bush warfare.



Marine Corps photo

LtCol Rowell posing in front of a Curtiss O2C Helldiver.

Recent experiences and organizational enhancements

No fixed complete organization for expeditionary duty is advisable. A suitable number of the smaller units, comprising the various classes and types referred to herein, should be organized, equipped and trained at all times. This group of smaller units will form a very flexible reserve from which an organization to meet the special needs of any situation can be readily formed.

Frequent training exercises with ground troops should be carried out. In formation work, great flexibility and the maximum development of signal communications should be featured. Once the organization is operating in the field, it is necessary to arrange for some training for the new personnel. Even experienced pilots will require indoctrination, opportunity to study the terrain and the situation, check-ups on their skill in gunnery, bombing and liaison work, followed by "breaking-in" flights over the zone of operations. In the cases of "old" pilots, this period will require at least two weeks. Facilities for conducting gunnery and bombardment training should be available to all air units on active service. Perfection is never attained.

The only important report that merits special consideration is the

one pertaining to the tactical operation. Each tactical mission should be fully covered in a written report. The greatest care should be taken in the phraseology used and the accuracy of the statements made . . . The first paragraph contains a statement of the mission, the number and type of aircraft, names of personnel and the route flown. The second paragraph contains a brief chronological record of the flight, including time, place, observation and action taken. The third paragraph is used to amplify any important events noted in the second paragraph, to comment on the operation or to state an opinion, to make brief note of the weather conditions affecting either air or ground operations, a statement of the ammunition expended, casualties suffered by planes or personnel and an estimate of the enemy casualties.

GENERAL CONDUCT OF OPERATIONS. The senior air officer should have the same dual staff and command status that is given the artillery commander in the infantry division. In other words, the senior air officer should actively command the air organization and at the same time serve as the advisor to the commander on air matters. The commander will desire to have personal contact with the air officer, who is in close touch with the major activities of the entire organization. The air squadrons will operate in support of the ground organizations and also independently. In certain special situations, planes may be attached temporarily to ground units. As a general rule this practice should be discouraged. Better support can be given in most cases if the control is centralized. When supported troops are operating on letters of instruction, the responsibilities of the air commander are great . . . Close relations must be cultivated with the commander and staffs of the organizations with whom he operates . . . Each evening, the air commander will estimate the situation for the following day. When he has reached



Marine Corps photo

LtCol Rowell in a Ford transport, April 1934, San Diego, CA.

a decision, he will impart his instructions to the operations officer. The hour for getting out the next days orders should be late enough to permit the commander to study the various reports and orders of the day, but not so late as to interfere with the rest and recreation of the personnel. Squadron commanders, pilots, observers, flight chiefs, crew chiefs, armament men, and others are interested in learning their duties for the following day before they turn in. During the daylight flying hours sufficient personnel to answer emergency calls must be constantly in readiness. Small formations should be able to take the air on twenty minutes notice . . . Operations orders are too numer-

ous to permit of typing or mimeographing. Occasionally formal written field orders are issued, but the usual daily missions are posted on a blackboard . . . Aviation has already demonstrated its great value in minor warfare, and the future officers unbounded opportunities for further development.

Resources of Marine aviation

The situation that will ordinarily exist in a bush campaign is so radically different from that of a major war that the manner of conducting air operations will vary to approximately the same degree.

THE ENEMY. The modern bandit, outlaw or insurgent . . . fighting qualities vary widely, but his morale is apt to be less sensitive to

casualties than is our own and he is frequently callous to cold steel and blood. While our troops are greatly superior to him in open terrain, this advantage is reduced to a marked degree when the guerrilla is encountered in his native jungle or mountain areas. He no longer fights with the weapons of aborigines, but is equipped with modern high power rifles, automatic and sub-caliber weapons, repeating shot guns, machine guns and even hand grenades. Ordinarily he will not possess field guns or anti-aircraft mounts for his machine guns. Nevertheless, he is very clever in improvising methods of directing automatic gun and rifle fire against airplanes. In Nicaragua, the bandits had several methods of using Lewis machine guns against aircraft from positions on the ground as well as from tree tops specially prepared for the purpose. Contact with outlaw groups is particularly difficult to gain by our ground troops because of the superior mobility of the enemy . . . He employs the tactics of swift concentrations, striking a blow from ambush with superior numbers and then beating a quick retreat.

THEATER OF OPERATIONS. This factor is one of major importance. The distances required to be covered in operations of both ground and air forces will always be great. Communications facilities are generally the worst conceivable. Telegraph and telephone lines may be cut at the pleasure of the enemy, requiring dependence upon field radio sets and aircraft. Roads and trails are consistently bad, and frequently impassable during certain seasons of the year. Areas occupied by the enemy may be such that fresh foodstuffs, fuel, forage and even potable water are scarce and difficult for our forces to obtain. The climate is often trying and local diseases, insects, vermin, reptiles, etc., frequently combine to greatly increase the normal hardships of campaign. Operations are usually conducted in a country where a foreign language is spoken. This greatly hampers

problems of local supply and interferes with intelligence work.

NATIONAL POLICY. For example: we may not bomb towns because it would not be consistent with a policy advocated at some international convention. The result is that all jungle villages become safety zones for the enemy. The safety of noncombatants becomes a matter of prime importance. The bandits then employ screens of women to obtain immunity against air attacks. The use of chemicals, even tear gas, is prohibited for the reason that it might cause our international viewpoint on this subject to be misunderstood. Probably we shall be obliged to take a purely defensive attitude until the enemy has actually inflicted casualties upon us and the situation has gotten entirely out of hand, before we may be permitted to take the offensive. We are required to conform to all of the rules of civilized warfare, while the enemy will torture prisoners, murder the wounded and mutilate the dead. Often legal obstacles will be interposed to prevent the application of military law to properly control unfriendly civilian elements.

OUR FORCES. Our forces will be widely dispersed over a large territory, operating from interior bases with rather small columns consisting largely of mounted troops. Field artillery will seldom be required. The zone of action will be districted and troop commanders will operate entirely under letters of instruction . . . Altogether, the conditions will be such as to make the employment of aircraft a measure of peculiar importance and value.

EXPEDITIONARY MOVEMENTS. The transportation of air squadrons to the theater of operations is a problem that requires careful planning and skillful execution. The bulk, weight and fragile character of many elements of the equipment require the close attention of experienced personnel

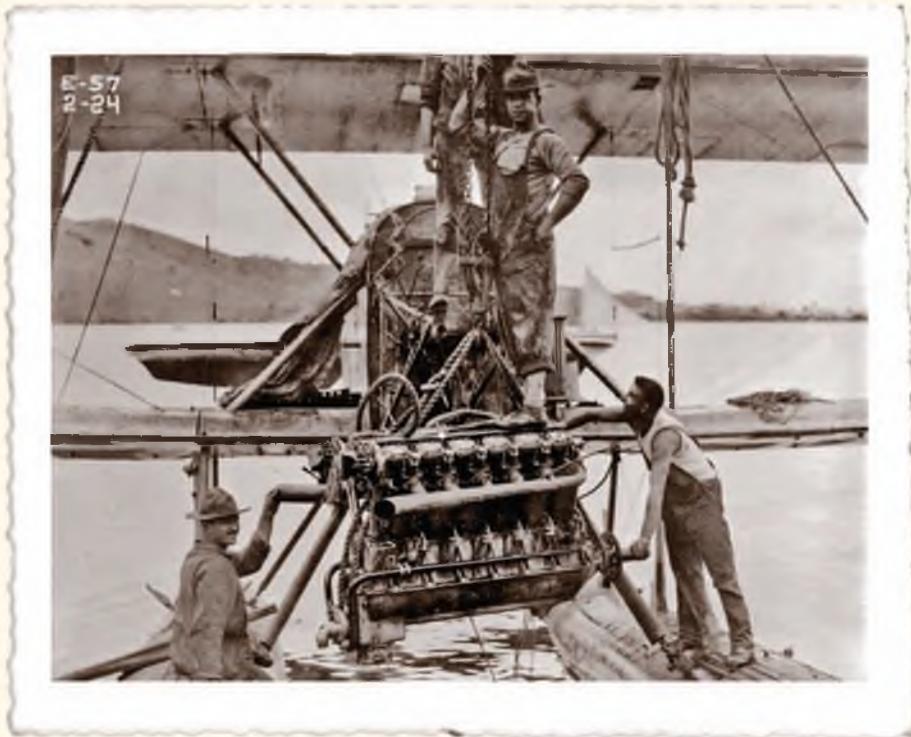
OVERSEAS MOVEMENTS. The simple and most satisfactory

method of transporting airplanes on vessels of the cargo type is to remove the wings, control surfaces and propellers. The fuselages should be wrapped in some waterproof material to protect them from salt water spray and the exposed metal parts covered with grease . . . Under certain conditions it may be desirable to transport air squadrons overseas on Naval carriers . . . planes can be landed with motor boats of the Naval type, but the kind known as "Beetle boats" are the most satisfactory . . . An air squadron that is well trained and properly prepared should be able to embark in about forty-eight hours.

ADVANCED AIR BASES. Air bases will usually be limited to operating airdromes and advanced landing fields. Under certain conditions it may be found desirable to establish an air depot in a rear area.

AIRDROMES. The base, or operating airdrome should be as near as possible to a railroad, and a spur should be built to it whenever practicable. It should be located as near to the command post of the Field Commander as practicable . . . Practically all of the activities of an air squadron can be conducted under canvass if necessary, but certain ones, such as fabric and dope work, work requiring electrical appliances, etc., are greatly handicapped . . . The communications section of the air organization should be authorized to maintain radio schedules with all radio-equipped ground units in the field. Such communication should be strictly limited to airplane movement reports, calls for emergency air ambulance service and such other emergencies as enemy attacks, crashes, etc.

ADVANCED LANDING FIELDS. In disposing their troops all ground troop commanders will give great consideration to the proximity of a suitable landing field. In the Nicaraguan campaign there were several instances where the existence of a landing field was the sole consideration in establishing a



Negative 248, Marine Corps Archives

Mechanics changing an engine.

post . . . supplies will usually be kept at the prescribed level by air transport. A field telephone line will be laid to the nearest command post . . . If the field is exposed to enemy raids, landings will only be made in the presence of ground troops. The ground troop commander will make a reconnaissance, deploy his command and then signal the plane down with his panels. The pilot and observer should assist in the reconnaissance and, if there is a threat of an enemy attack, the plane will be promptly taxied to a suitable take-off position and the engine kept running. In Nicaragua planes took off under fire on several occasions. Patrol and flight leaders will frequently be given their missions by the advanced ground troop commanders at these landing fields.

DEFENSIVE MEASURES. In addition to the precautions necessary at advanced landing fields, mentioned in the preceding paragraph, some defensive measures may be required at the operating airdromes. During the Nicaraguan revolution of 1926-27, a small party of revolutionists in civilian attire succeeded in penetrating the guard

and actually placed a bomb in the cockpit of one of the federal planes on its home airdrome. One determined man could cause great damage by setting fire to the gasoline or detonating the explosives. If such danger exists, it will be advisable to detail an airdrome guard from the nearest ground organization.

Necessity may require the employment of several or all types of aircraft in minor warfare.

PURSUIT. This branch of aviation can be very successfully employed in ground attack under certain conditions. Its use on such missions, however, will be confined to emergencies. The pursuit, or fighting plane is greatly inferior to the two-seater in ground reconnaissance. It is not well adapted for infantry liaison, frequently a matter of considerable importance. It is not advisable to make dive bombing attacks with the auxiliary tank attached. Without that tank its cruising range is considerably limited. It is equipped to carry only one-half the bomb load carried by two-seaters.

ATTACK. At first thought, it would appear that an airplane especially designed for ground attack would certainly be the best

one to use in the type of warfare under consideration. This is not necessarily the case. The ground attack plane as now contemplated for use in major warfare is designed with the idea of making very low, contour approaches in formation, delivering a heavy frontal fire and dropping a large quantity of bombs, unaimed, over a considerable area. In bush campaigns, tactics of this nature will only be practicable on certain occasions. If other tactics are employed, the speed, climb and maneuverability are seriously affected by the weight of the armament carried and the design of the plane. For the same reasons the plane will not be a handy one for carrying out infantry missions in the close quarters frequently encountered in rough, mountainous country. In Nicaragua, Naval observation planes sometimes carried out missions under such circumstances, after attack planes of the Army type had failed . . . Nevertheless, the standard type of ground attack planes have been used effectively in bush warfare and, no doubt, will continue to be so used. In Nicaragua it was found desirable to remove the two synchronized front guns and to move the bomb racks outboard from behind the landing gear so that dive bombing could be executed with safety.

BOMBARDMENT. Missions for bombardment planes, employed as such, will be comparatively rare in a guerrilla campaign.

OBSERVATION. While the observation plane is not particularly well adapted for combat use, it does fulfill the other requirements demanded to a satisfactory degree.

AMPHIBIANS. For operations over water covered areas, swamps, jungles cut by large streams or lagoons and rough country bordering lakes or seas, where landing fields are few or nonexistent, the amphibian plane is an ideal type for general use.

TRANSPORTS. The transport plane is a comparatively new type in the military field but it has already proved its worth.

SPECIAL TYPES. Under exceptional conditions, seaplanes or flying boats might be used for certain operations. The reduced performance and increased maintenance makes such planes undesirable if any other type can perform the mission. There is a great field for the messenger type of airplane.

Tactical use of Marine aviation

The tactics employed must be versatile to the last degree. Air leaders will constantly study the situation to devise new ruses or stratagems which may be utilized to employ the well-known principle of surprise. When the enemy is encountered in a vulnerable disposition, a swift, well directed attack will shatter his ranks and break his morale. If precautions are taken to evade enfilade fire, and full use is made of the speed and maneuverability of the aircraft, success can be gained with comparatively little loss to the attacking planes. On the other hand, if a pilot exposes himself to heavy ground fire in the belief that he cannot be hit, the error of his judgment will quickly become apparent.

This is not intended to be a comprehensive treatise on air tactics in general, but rather a discussion of the variations that are apt to occur in the bush campaign.

EFFECTS OF GROUND FIRE. In connection with ground fire, only the fire of such weapons as are likely to be found in the hands of guerrillas is considered. In any event, there has been little or no campaign experience had with automatic anti-aircraft weapons of greater size than 30 caliber. In flying directly over the enemy, photographic planes can operate with entire safety at an altitude of 4000 feet . . . If the plane is not directly over the enemy, it may approach him at a flat angle to within 1000 to 1200 yards with a fair degree of safety.

This is due to the characteristics of the trajectories of small arms fire and the great difficulty of estimating the range of the plane . . . Low flying planes are practically immune to hostile fire under such circumstances . . . In Nicaragua the planes averaged about one hit per engagement . . . Careful pilots will invariably treat all ground fire as dangerous and conduct themselves with due respect for it. This is not intended to convey that a lack of boldness is advised, but rather as a caution against unnecessary exposure on the part of over-enthusiastic personnel.

“In actual practice, considerable success has been had in supporting ground troops when they have found themselves in defensive situations. Considerable difficulty has resulted in coordinating the attacks of ground troops and aircraft in offensive situations.”

INFANTRY MISSIONS. The infantry missions will frequently be combined with others, the character of which will be discussed in succeeding paragraphs.

The primary purpose of this mission is to provide the means by which the ground troop commander may keep contact and exchange information with the advanced elements of his organization . . . The commander is able to keep himself informed as to the progress and movements of his advanced elements, to modify his instructions to them, to provide for their emergency needs and to supply them with the latest information. In turn, such elements are

able to coordinate their efforts with those of others, and to report their own situations promptly and accurately. The air patrol may also supply the advanced elements with local reconnaissance, assist them in combat and render emergency assistance in many other ways.

The number of planes assigned to one mission depends entirely upon the situation . . . to penetrate difficult terrain and unfriendly areas. On such occasions a two-plane patrol is advisable. Sometimes, when trouble is anticipated, a three plane formation should be ordered. The airplanes will be equipped with fixed and flexible guns and double bomb racks. Each cockpit should be equipped with a let-down board having a writing pad and pencil attached. Other planes in the patrol conform to the movements of the leader and cooperate in carrying out the mission . . . Occasionally the ground troops will be found in contact with the enemy and will desire support from the planes. The airplanes will have a prescribed number of bombs on the racks for such emergencies and for use in case of a chance meeting with the enemy . . .

Upon landing a brief preliminary report of the mission will be made orally to the operations officer, who, if the circumstances warrant, will make a similar report by telephone to the next higher command . . . If panel strips are available in sufficient quantity, two or three groups of signals can be displayed simultaneously. There are many other similar means by which the communications may be expedited. A resourceful panel station officer will never be at loss in getting messages laid out. If he loses his strips, he will remember that undershirts make fairly good substitutes . . . Difficulties in ground-air liaison sometimes occur due to circumstances not apparent to both parties.

VISUAL RECONNAISSANCE. The primary mission of the reconnaissance flight is to obtain information of the enemy or of the terrain, or both, by visual means.

The equipment carried . . . for ground communication are limited to such as are necessary for emergency use. The number of planes employed will be, normally, two or three, according to the situation. If it is the object of the mission to determine the weather conditions or to locate an objective for immediate attack by ground troops or by a larger formation, it may be advisable to dispense with the bomb load and carry a radio set instead. The bulk and weight of the present types of radio sets make it undesirable to carry them in bomb laden planes.

The reconnaissance patrol will either be assigned an itinerary or a limited zone in which to operate. The latter is usually preferable. Aerial reconnaissance is art in which skill can only be acquired through actual experience . . . In exploring a terrain feature, the leader will usually perform "S" turns along the general route. The planes in the rear will maneuver in similar manner but always shaping their courses so that they will view the same objects as the leader does, but from a different angle. This will cause them to obtain the same views under different conditions of light and shade. The altitude flown will depend entirely upon the situation. Small groups will be sought from lower altitudes than large ones. Wooded country, or thick bush will require closer examination than open terrain. The planes will endeavor to utilize surprise by approaching suspicious localities up-wind, with throttled engines, flying just as low as possible . . . Generally speaking, 1,500 to 2,000 feet altitude affords the broadest view at the maximum height at which the observer can identify personnel readily . . . Basically, reconnaissance consists of distinguishing between the normal and the abnormal. The enemy will

attempt to create an appearance of the former condition, but like all human efforts, there will always be certain defects which will betray the situation to the skilled observer. In each airplane, there must be coordinated team work between the pilot and the observer. They should employ a system of hand and finger signals, similar to that of the deaf and dumb language, for the quick exchange of intelligence . . . Thick trees are the favorite cover. When in camp the enemy will often picket his animals in such growths as banana groves. By diving at such places with full throttle, the roar of a steel propeller will often cause the animals to stampede and reveal the camp. In reconnoitering a trail ahead of ground troops, the enemy tactics should be borne in mind. In selecting an ambush position, he first seeks a place with a good avenue of retreat for himself. He next looks for a position with good cover at close range, and one that will restrict the movements of our troops as much as possible . . . The detection of hostile rifle and machine gun fire is difficult. Occasionally it is heard, sometimes holes in the wings are seen and at times, weapons may be seen in the hands of the men. It is more frequently detected by sight. In strong light small puffs of smoke can be seen from fairly low altitudes. In heavy shadows, flashes are seen. The intervals between the flashes or puffs will indicate whether the fire is automatic or single shot. Elongated flashes will be noted when the fire is directed at another plane. Flashes of fire directed at the observer appear as round balls of fire. In some actions, even though the planes have been hit repeatedly, not a shot will be seen or heard by the air personnel.

PHOTOGRAPHIC RECONNAISSANCE. The zone of operations will usually be too large to permit of a mosaic being made of the entire area. Numerous obliques and some mosaic strips of certain areas will be required. It is well to proceed

immediately and make obliques of all towns, villages and landing fields in the zone of operations. Photographic planes operating at low altitudes in unfriendly territory should have armed escort planes to accompany them. It is essential that supersensitive film be available in order that important missions can be performed under unfavorable light conditions.

GROUND ATTACK. While it is not possible to completely destroy the guerrilla enemy with aircraft in ground attack, it is possible to inflict severe casualties, shatter his forces and drive him into heavy cover whenever and wherever he is found. His daylight movements can be restricted, his operations can be confined to terrain offering good cover, he can be prevented from occupying villages or strongholds, his foraging parties can be interfered with, his forces can be obliged to operate in fairly small groups and his morale can be broken and numerous desertions induced.

The primary objective in bush warfare is the enemy personnel. The secondary objectives are his supplies and animal transport. The primary objective is easier to destroy than the secondary ones. Supplies are difficult to destroy and animals stampede, quickly scattering the suitable targets.

The principal weapon used is the fragmentation bomb, which should be of about twenty-five pounds in size. This type of bomb is very satisfactory and can be effectively used in either diving or contour attacks. The fuse has sufficient delay action so that the bomb will penetrate inside buildings before detonating. No troops, guerrilla or otherwise, will stand in the face of a well directed fragmentation bombing attack . . . If the enemy is found in a permanent camp, he may have provided some light shelter. He may dig in with light overhead cover, or reinforce the ceilings of buildings with two or three inches of gravel. In order to neutralize such efforts, it is well

to have part of the formation carry light demolition bombs. The fifty pound demolition type bomb is an excellent size for such purpose. It is heavy enough to serve the purpose and its range is not too great to prevent accurate use at low altitudes, even though instantaneous fuses are used. The moral effect of demolition bombs is much greater than that of the fragmentation type, and they tend to greatly discourage enfilade fire from groups who believe themselves to be at safe distances from the smaller ones . . . Incendiary bombs are not standard at present, but there is a good field for this type to be used against supplies and enemy shelter. Gasoline could probably be used as a filler with fairly good results. The use of multiple-fixed gun installations is not advocated. The length of time for which such guns can be brought to bear in the usual attack is very brief and the pilot is well protected from frontal fire by the engine. In attacking deep formation of well trained troops the case may be different, but, in the bush situation, it is believed that one fixed gun will be sufficient to cover the approach. The saving in weight is an important consideration. A remotely controlled gun in the center section of the wing, where it will just clear the propeller, is a very satisfactory installation . . . In special situations, infantry hand grenades have been used from aircraft. Pilots and observers habitually carry pistols for use in case of a forced landing . . . Up to the present writing, our Government has forbidden the use of chemicals from aircraft for reasons of policy. It would appear that no good reason exists for prohibiting the use of tear gas, an agent which could be very effectively employed. If the unrestricted use of chemical agents were authorized, the guerrilla enemy could be destroyed as fast as he could be located. No other forces would be necessary, than aircraft, and the hostilities would be of short duration.

The object is to deliver a swift,

powerful attack with the minimum exposure to hostile fire. A commanding position, on a high elevation, may warrant an approach from above the clouds, one in a valley or a depression will invite an extremely low altitude one, and flat terrain offers a variety varying between the two extremes mentioned . . . Low altitude deadens the sound of engines and propellers, but it may forfeit the necessity of some reconnaissance and does not afford the opportunity of making a diving attack. A very low ceiling also absorbs sound, but it may also restrict the available altitude seriously. Mountainous terrain may offer excellent cover for an approach, but also greatly restrict maneuvers during combat . . . Each situation will offer a different solution, and a great variety of methods is essential to confuse the enemy. One case may be cited where a bandit group occupied a position planes could not approach without being both seen and heard in time to permit the group to gain good cover. Formations were flown past

the location at a fairly high altitude until the enemy became accustomed to seeing them pass. Eventually the group became careless and a swift attack cut them off from their shelter. Very satisfactory results were obtained.

Usually, however, the enemy will present fleeting targets, with the time and space factors such, that prearranged formation attacks will be practicable. In such cases, dive bombing tactics will be employed. Formations make dive bombing difficult to control and interfere with the maneuvering of the individual planes. Small columns obviate these difficulties and permit the planes to support each other in combat. If the objective is small, from three to six planes can operate in one bombing circle. If it is large, two or more columns may attack simultaneously. In such cases the directions of the attacks must be coordinated . . . A minimum of one thousand feet altitude is necessary to get up sufficient speed in the dive to assure safety and facilitate a rapid recovery . . . In the opening attacks, the front guns will be used

MajGen Rowell (on left), Commanding General Marine Air Wings Pacific, and BGen Mulcahy, Commander 2d Marine Aircraft Wing, at Guadalcanal, 14 April 1943.

Marine Corps photo



to cover attacks but after the enemy has broken, it will be used sparingly as the magazines do not hold sufficient ammunition to permit of prolonged fire throughout the entire engagement.

After the enemy has abandoned his positions, the fight develops into a final stage which may be termed the "mop-up." Small groups are dispersed and pursued, likely hiding places are strafed with front and rear guns and animals are destroyed or driven off. Sometimes it is possible to scatter and stampede the animals of the enemy, so that a return attack can be made about the time he will succeed in rounding them up.

The rally is usually made by prescribing an altitude and direction from the scene of action. When the leader pulls out, climbs to the prescribed position and circles, the formation will form on him. All pilots should be alert at all times to observe this maneuver by the leader. The deputy will be especially alert to keep track of the leader and takes charge if the leader disappears.

Ground troops may be supported in action by aircraft operating in a manner similar to that described in the preceding paragraphs. In such cases, the infantry will display panels to mark their front line positions. The ground commander may display panel signals indicating the desired direction and distance to the objective that he wishes the planes to attack, or it may be necessary for the air leader to act upon his own initiative. The presence of friendly troops will influence the direction and point of the attack by the air formation. Attacks will rarely be made toward the friendly lines. In actual practice, considerable success has been had in supporting ground troops when they have found themselves in defensive situations. Considerable difficulty has resulted in coordinating the attacks of ground troops and aircraft in offensive situations. The reason for this is that the ground

troops can seldom determine the time of the attack in time to notify the air commander.

COMMAND MISSIONS. If intensive operations along the lines previously referred to are being conducted, and an air transport service is being operated, the organization will not be greatly taxed with calls for command missions. One plane will, however, always be in readiness for this purpose. From time to time urgent messages will have to be carried, special medicines must be rushed to some point, rumors of some serious situation require immediate investigation, etc. Occasionally commanders or staff officers of the ground organization will desire to make a personal reconnaissance of a front line activity.

AIR TRANSPORTATION. In bush warfare, transport airplanes will be provided in greater number than that required to provide for the needs of the air organization in order that the needs of the ground troops may be met. To facilitate operations and maintenance, the transport should be organized into squadrons.

GROUND SERVICE. The transport service rendered to ground troops may consist of ambulance service, transportation of personnel or service of supply. The situation may require concentrated effort on one of these services, or all three may be carried on more or less simultaneously. In any event, the demand for air transportation always exceeds the available capacity of the planes. An air commander who can always satisfy all of the numerous patrons of the air transport service will be gifted with exceptional tact. A general policy stating the classifications of persons and articles considered eligible for transportation by air, together with a definite priority for each, should be adopted and published in orders.

Ambulance calls will usually have first priority. Serious cases frequently require special emergency trips, but a great many of the sick and men suffering minor

wounds can be evacuated on the return trips of the regularly scheduled flights. Whenever it is known that medical attendance will be required in flight, the medical attendant should, if possible, accompany the plane on the outbound flight.

The personnel to be transported consists of organization commanders, their staffs, certain casualties and minor troop detachments.

Not infrequently, the transports are called upon to supply columns in the field by dropping emergency articles. There is urgent need of a type of parachute especially designed for dropping emergency supplies in order that losses due to breakage may be reduced . . . For morale reasons, the commander will desire the prompt delivery of the mail. It is usually received spasmodically and, therefore, arrives in large quantities.

INTELLIGENCE. It is possible to arrange to have airplanes dispatched to the capitals of neighboring countries on "diplomatic" missions where valuable information is available.

MISCELLANEOUS MISSIONS. The enemy will attempt to gain support from adjoining areas by spreading false and exaggerated reports of our actions and intentions . . . An excellent counter measure is to employ airplanes to scatter our own propaganda circulars among the enemy troops and sympathizers . . . On such missions, the airplane, escorted by a small combat formation, would proceed to a locality known to be occupied or frequented by the followers of the chief for whom the message was intended. The plane would then circle very low while the observer displayed a small white flag. Eventually some persons would show themselves and the message would be dropped in the usual manner.

Author's Analysis

Rowell and Cunningham lay out the main thrust of their articles, namely—Of what use is Marine aviation for the Corps? Beginning

with the resources available to Marine aviation, each author then describes the tactics used in the various functions that evolved for Marine aviation. Compared with Cunningham, Rowell analyzes more than twice the number of different ways to use Marine aviation. Compared to Cunningham, Rowell's analysis of each role details a significantly broader application of aviation power. Indeed, in the analysis of the missions for Marine aviation that Rowell describes, we see a preview of the many ways leaders applied Marine aviation assets in World War II. During the interwar period that Rowell discusses, Marine aviation's support of the Corps' infantry took many forms, but rarely involved directly attacking the enemy or coordinated offensives. However, based on his account and other historical documents, the interwar operations of Marine air and ground units represented a prototype, not an early manifestation of the modern Marine air-ground task force.

It is no exaggeration that only a small cadre of Marine aviators, including Cunningham, possessed the determination to keep the program alive. Several of the first Marine aviators transferred out of aviation for positions in more essential components of the Corps. Amidst the wobbly steps in the first decade of Marine aviation's existence, considerable good fortune came by way of Congressional leaders designating a specific troop level of 1,020 for the Corps aviation arm. While that was lower than the force level during World War I, it was an increase over the postwar draw-down level. More significantly, this action lent a significant degree of permanence not enjoyed previously. Still, Cunningham articulates in his article that Marine Corps aviation had to clearly demonstrate essential capabilities to maintain its status. He states that the program needed to return to what he believes is its most logical role of supporting

Marine ground elements, even though he admits that "a small minority of the officers of the Corps" doubted whether aircraft were sufficiently practical to justify their expense. The detractors questioned whether aircraft had sufficient tactical muscle to justify their integration into the missions of the Marine Corps. Cunningham recognized the necessity to "demonstrate our usefulness" to commanders on the ground and integrate Marine aviators into the existing command structure.

Less than a decade after Cunningham wrote his article, Rowell was confident that Marine Corps aviators proved their worth in Haiti, Santo Domingo, Nicaragua, and China. In his article, Rowell discusses the new tactics and lessons learned by Marine aviation in small wars, principally the Nicaraguan campaigns of 1927 and 1928. Rowell uses his article to demonstrate the progressive degree of organization and sophistication developed in Marine aviation. Pilots prepared reports according to specifications and planned air missions within a command structure. When new pilots joined the squadrons in Rowell's day, they completed specific periods of training in specific areas.

Both Cunningham and Rowell discuss what Marine aviators previously accomplished. Despite the truncation of Marine aviation's participation in World War I, Cunningham boasts about the formation of four Marine air squadrons. Cunningham confronts the lingering postwar skepticism, citing how Marine "planes in Haiti have already proved that they can, without assistance from the ground, disperse and almost destroy bands of 'cacos' [rebels in Santo Domingo or Haiti] with gunnery and small bombs." Rowell places in evidence, not only the record of Marine aviation in the small wars of the Caribbean and China but also the adaptations of aerial tactics by Marine aviators. Rowell presses the basic

advantage that aircraft enjoy as they transcend obstructing jungle and mountainous terrain.

Cunningham advocates first eliminating that chasm between the Corps infantry and aviation. The benefactor of those efforts, Rowell describes the evolution of aeronautical technology as applied in support of ground combat operations. During the first years of Marine aviation, about which Cunningham writes, there was considerably less specialization of aircraft. Appropriately, he is more attentive to the preparation of the human element. Rowell instead organizes his account of Marine aviation by the increasingly differentiated aircraft types. With regard to tactical methodologies, Cunningham exhibits some impressive foresight and Rowell's discussion of tactics previews the next world war.

Rowell expends considerable detail analyzing the different types of aircraft and their role. He lists the types of aircraft or uses: pursuit, attack, bombardment, observation, amphibians, transports, and special types. The pursuit aircraft in Rowell's day was usually better suited for air-to-air combat as they were lighter, faster, and more maneuverable. In contrast, Rowell believed the attack aircraft was better suited for guerilla warfare. The attack or light bomber, two seat aircraft that could carry a significant quantity of bombs, could better execute tactical maneuvers such as strafing and dive bombing. What would come to be known as strategic bombardment Rowell mentions in his discussion of types of aircraft, but he perceives this use to be of little value to guerilla operations involving Marine expeditionary units. Observation aircraft had proven their advantages, even in the jungles. The advent of the transport aircraft evolved as engines and aircraft of sufficient size became a reality, but according to Rowell, they had already demonstrated their utility and desirability. A final category of

“special types” was included in his discussion, but he advises against overly specialized configurations in favor of multiple uses for each type of aircraft.

Cunningham’s discussion of tactics and technology reflects the methods employed by naval aircraft in military exercises that practiced amphibious landings. Among other tactics, aircraft laid smoke screens along the landing beach, spotted for naval gunners, and observed enemy troop movements. In the last section of Cunningham’s article, he primarily discusses the tactical applications of Marine aircraft conducting observation and communication. Rowell also echoes Cunningham when he explains how aircraft facilitate the speed and capacity of information transferred between ground forces and commanders, making it more possible to respond to a rapidly evolving battlefield. Aviators shared a common perspective on the tactical use of aircraft as airborne artillery against enemy supplies and troop concentrations to the rear. Yet, both authors essentially discourage the use of attack aircraft to apply ordnance in proximity to friendly, offensive ground action—close air support.

Cunningham’s narrative reflects the increased regulation and standardization of aviation units, that is even more evident in Rowell’s detailed procedures. For example, Rowell specifies altitudes for photoreconnaissance and what kinds of bombs to use in which situations. Rowell is unconcerned about interdicting enemy planes about to attack friendly ground forces because the Sandino rebels of Nicaragua did not possess that capability; however, Cunningham knew firsthand the threat represented by enemy aerial attacks from his experiences in World War I. Cunningham’s more hypothetical approach is seen in his discussion of strafing, and in contrast, Rowell’s definitively marks out where to mount the forward-firing machine guns. In another example

of practical applications, Rowell includes instructions on how low-flying, loud aircraft engines could spook enemy pack animals and reveal enemy camps.

Both authors praise the value of radio communication but neither advocates the technology to coordinate simultaneous offensive attack, akin to modern procedures for close air support. Rowell poignantly explains that perhaps the reason was a choice between a heavy radio and a load of bombs. Pilots and commanders could effectively employ radio communication for artillery spotting and informing commanders of enemy movements and location but not “bending” a pilot to put ordnance on target. An aircraft’s superior vantage point provided photoreconnaissance and descriptions of terrain when maps were unavailable. However, the limitations of bulky radio sets, obscuring vegetation, and imprecision in delivering ordnance prohibited the development of close air support during the initial decades of Marine aviation. Nevertheless, Rowell foreshadows tactical principles later used for coordinated offensive operations when he recounts the effective application of firepower to relieve allied ground forces in distinguishable defensive perimeters.

Each writer lists several secondary support roles of aircraft, like the expeditious transportation of commanders, ground units, supplies, and wounded. Rowell adds how overflights of enemy troops could drop propaganda leaflets, disrupt supply lines by scattering pack animals, or rush a diplomat to their destination in a politically charged situation. Rowell even discusses the effectiveness of chemical weapons. Cunningham adds shore batteries and ship borne guns for which aircraft could conduct spotting. Again, reflecting Cunningham’s experiences in World War I, he claims several psychological effects of aerial attacks on enemy soldiers.

Rowell goes into considerable detail on the best uses of different types of planes, tactical approach of attack aircraft (glide and dive bombing), and specific machine guns to use on planes. He reflects on the use of the latter in his critique of the tactics used by other services in World War I when they made “very low, contour approaches in formation, delivering a heavy frontal fire and dropping a large quantity of bombs, unaimed [sic], over a considerable area.” He cites the poor success of this methodology in jungle or mountainous terrain and even the ineffectiveness of trying to blanket a level area to hit a target. He places in evidence the battle assessments of Marine observation planes overflying U.S. Army attack plane missions during World War I. While Rowell examines tactics used in guerrilla wars, the reader can readily recognize the application of his observations in World War II. Overall, his assessment stood in stark contrast to American military leaders who a little over a decade earlier perceived only a minimal contribution for a costly weapon, the airplane. There was still more than a decade of development to be accomplished before the average Marine fighting on the islands in the Pacific would realize the added value of their aviation squadrons, but that cornerstone was squarely in place by 1930. Marine aviation evolved and assumed an increasingly pivotal role in stark contrast with the once experimental and marginally valuable military weapon of World War I.

For the unabridged articles see:
Cunningham, Alfred A. 1920. “Value of Aviation to the Marine Corps.” *Marine Corps Gazette*, September, 221–33.
Rowell, Ross E. 1929. “Annual Report of Aircraft Squadrons, Second Brigade, U.S. Marine Corps, July 1, 1927, to June 20, 1928.” *Marine Corps Gazette*, September, 248–65.

Alfred A. Cunningham:

Marines' First Aviator

by *Second Lieutenant Molly E. Coulter*

The Marine Corps had to perennially prove its worth, and early Marine aviators had to overcome their share of critics. The branches of the United States military existed for more than a century before the advent of human flight in powered aircraft. The pioneers of Marine aviation would not only have to master a new technology but would also have to demonstrate its worth for the Corps. Major Alfred A. Cunningham showed the Marine Corps the value of aircraft.

Commissioned at the age 27, Cunningham possessed the passion to pursue the dangerous and daring vocation of aeronautics. Perhaps more importantly, he also could persuade naysayers that stood in his way. For two years he chased his dream during off-duty time at the Marine Barracks in Philadelphia. He ultimately convinced Major General Commandant William P. Biddle to issue orders that would send the first Marine to Annapolis "for duty in connection with aviation."

Cunningham reported for flight training at the U.S. Naval Academy on 22 May 1912, the official inception of Marine aviation. However, a lack of planes and funding for training postponed his dream until 29 July when he was sent to the Burgess Company, an aircraft manufacturer in Marblehead, Massachusetts, for flying lessons. A combination of the Navy's restricted budget and Burgess' attempt to expand the number of flyers for their aircraft, finally provided Cunningham the three hours of flight time he needed to solo in a seaplane. On 20 August 1912, in a Burgess-Wright Model-F, First Lieuten-

ant Cunningham became the Marine Corps' first aviator and the fifth in the United States naval services. Cunningham spent the next 15 months based out of Annapolis, consulting with airplane manufacturers and flying various experimental planes.

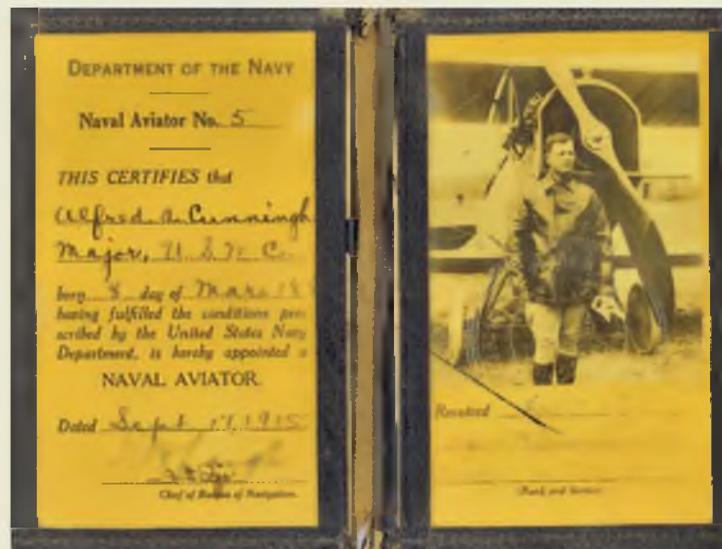
On 11 August 1913 he was forced to give up flying, considered a reckless profession at the time, at the insistence of his fiancée, Josephine Jefferies. He was transferred to the Navy Yard as their

squadrons. His unit arrived in France in July 1918 and merged with Navy bomber pilots to form the Northern Bombing Group. While in France, Captain Cunningham earned a Navy Cross: "For distinguished service in the line of his profession in connection with the organization and training of the First Marine Aviation Force in the United States, and as commanding officer of this Aviation Force in France, where it served against the enemy and rendered valuable service as part of the Northern Bombing Group."

On 17 November 1919, after returning to the United States, he filled the new billet as Officer-in-Charge of Marine Aviation at Headquarters. He promoted Marine aviation and its expansion until transferred to command the First Air Squadron in Santo Domingo on 24 December 1920. He received two letters of commendation for his tireless work within the squadron. In July of 1922 he was assigned back to ground duty

where he attended the Marine Corps School at Quantico, served as assistant adjutant and inspector, and as aide to the staff of commander, Battleship Division Three. He continued to serve as the executive officer for the 2d Brigade Marines in Nicaragua where Marine aviation would demonstrate its value.

On 27 May 1939, he died of coronary thrombosis. An airfield at Cherry Point, North Carolina, and a destroyer were both dedicated to his memory in the 1940s. In 1962, coinciding with the Marine Corps birthday, the Cunningham Trophy was first awarded to the Marine aviator of the year. The first award went to Colonel John Glenn for his historic orbits in space. Lieutenant Colonel Alfred A. Cunningham is now enshrined in the Aviation Hall of Fame.



Maj Cunningham's Naval Aviator certificate.

assistant quartermaster. He managed to remain active in aviation by serving on a board to determine the organization of naval aeronautics.

By April 1915 his wife conceded and Cunningham returned to flying. He attended a refresher course at the new Pensacola Aeronautical Center before proceeding to the Army Signal Corps Aviation School in 1916 to learn how to fly a land-plane. He helped select naval aviation bases on the West Coast and assumed command of the new Marine Aeronautical Advanced Base in Philadelphia. After Cunningham traveled to Europe, he was convinced of the need for the United States to create a force to counter German submarines. This initiative grew into the First Aviation Force, comprised of four

Christian F. Schilt

by David F. Ellrod

General Christian F. Schilt set a standard for heroism, excellence, and leadership among the first two generations of Marine aviators. The Illinois native joined the Marines in 1917 at the age of 22. He was deployed to the Azores for antisubmarine warfare with the 1st Marine Aeronautical Company, which is generally acclaimed as the first domestically equipped and trained aviation unit to go overseas during World War I.

After the war, First Lieutenant Schilt took on a variety of assignments. He participated in an aerial survey and mapping of the coastline of the Dominican Republic for most of 1921 and 1922. In 1926, he placed second in the Schneider International Seaplane Race at Norfolk, Virginia. At the behest of the Navy Hydrographic Office, he set out in 1927 on a 22,000-mile journey to chart the coastline of Cuba and make aerial maps of the Atlantic and Gulf Coasts, taking 5,000 pictures, he photographed 3,000 square miles. He then flew combat missions during the U.S. intervention in Nicaragua where he earned the Medal of Honor.

On January 6, when Nicaraguan rebels had pinned down Marine patrols in the isolated village of Quilali, Lieutenant Schilt flew wounded men off a plateau described as “a football field with a mountain rising sharply at one end and a sheer cliff dropping 500 feet on the other.” He removed his parachute to reduce weight and worked



with fellow Marines to burn and clear huts to improvise a runway. In one of the earliest medical evacuations by airplane, Lieutenant Schilt carried 18 wounded Marines in 10 round-trips. Medics later testified that three of them would have died without the immediate treatment they received. His delivery of supplies and relief personnel allowed the beleaguered Marines to break the encirclement.

Charles Lindbergh offered Schilt an employment opportunity after Nicaragua, which he refused serving the Marine Corps for 29 more years as a flight instructor, test pilot, and commander. Assigned to the American Embassy in London as Assistant Naval Attaché for Air, he had the opportunity to witness and study British air operations in North Africa and the Middle East in early World War II. Upon the

U.S. entry into the war, he served at Guadalcanal and later transferred to command the Strike and Patrol Commands, Solomon Islands. He also displayed a talent for organization, forming and leading the new 9th Marine Aircraft Wing, serving as Island Commander, Peleliu, and commanding the 2d Marine Aircraft Wing's Air Defense Command. Between 1945 and 1951 he reorganized the entire structure of Marine Corps Reserve Aviation. Schilt commanded the 1st Marine Aircraft Wing in Korea and qualified to fly helicopters before finally retiring in 1957. At the time of his retirement, he had 10,000 hours of flight time to his credit. He died a full general in Norfolk, Virginia, on 8 January 1987, exactly 59 years after the end of his most gripping mission in Nicaragua.

Marines in the Azores Islands in World War I

Diary of Walter S. Poague

by Antonio M. Godinho

Fortitudine Editor's Note: Antonio M. Godinho lives in Faro, Portugal, and is an air navigation maintenance engineer with a passion for researching Portuguese aviation history. Sergio Rezendes lives in Ponta Delgada, São Miguel Island, Azores Islands, and is a historian at the Colégio do Castanheiro School, museologist, and has been vice-director of the Military Museum of the Azores for 10 years. Rezendes provided some of the photographs used in this story from the Francisco A. Chaves Collection from the Carlos Machado Museum in Ponta Delgada. Annette D. Amerman of the History Division, Marine Corps University, and James A. Ginther of the Archives and Special Collections, Alfred M. Gray Marine Corps Research Center, Marine Corps University, also assisted on this story.

Regarding the diary entries, they are intact except for some minor copy editing; misspelled words or other grammatical issues were left, as is, to maintain a sense of Poague's state of mind. The following story describes First Lieutenant Walter S. Poague's impressions and adventures while stationed at Ponta Delgada, São Miguel Island, Azores Islands, in 1918.

Wednesday, 9 October 1918

Tonight I had a flight with Ziegler at dawn in old 328, which was on its last legs. They are broken now, caved in. You see we had power enough to get in the air and at twenty-five feet she died and let me down. I saw a twelve-foot steel can buoy just ahead of me and as I wasn't keen about hitting that at sixty-five miles an hour I slued the machine violently to one side, missing the buoy (landed right beside it) and as I was skidding when I lit, wiped off the pontoons, broke wings, propeller, oh! a swell mess, but it couldn't be helped. We only got a swim.

What you have just read is an excerpt from Walter Smith Poague's diary. He was a 27-year old Marine Corps aviator in October 1918, stationed with the 1st Marine Aeronautic Company in the city of Ponta Delgada, Azores Islands.

Poague was born in Chicago on 21 August 1891, into the city's "high society." After graduating from the University of Chicago in 1914, Poague worked as a sales manager at the Real Estate Mortgage Department of the Woodlawn Trust and Savings Bank,

where his father was the director. In June 1917, he decided to enlist in the Marine Corps (the U.S. was officially at war on 6 April 1917).

Monday, 22 April 1918

Nowhere in this account have I detailed how I came to be a Marine. It is interesting and typical. When War became inevitable, I looked for some branch of the service, navy preferred, as I have always loved the sea, army least desired, for I feared the inefficiency of such a rapidly aging body. By chance I heard of commissions in Marines. Somewhere I'd heard the name, but I had not the slightest idea what Marines were or their duties. Buell Patterson was going after the Marines, however, so I telephoned him. The conversation follows:

"Hello, Pat, what are Marines?"

"I don't know. They do something on ships and are to first to fight."

"Sounds good to me."

"Same here."

"I'm going to try it."

"So am I. Goodbye."

And here I am. I had never seen a Marine and had no idea of their duties, but here I am.

As of 6 April 1917, Marine Aviation was an experimental unit, with only seven officer aviators and forty-three enlisted men. It was just a section of Naval aviation, operating with four Curtiss AH hydroaeroplanes. After his enlistment, Poague trained at Quantico, Virginia, where, when his training was completed, he was commissioned a Second Lieutenant. His basic flying training lasted ten weeks.

Lieutenant Poague was sent to Cape May, New Jersey, in October 1917 and stationed at the Aviation Department Flying Field. At this time on 12 October, the aviation unit of the Marine Corps—the Marine Aeronautic Company—was split into the 1st Aviation Squadron (with 24 officers and 237 enlisted men) and the 1st Marine Aeronautic Company (with 10 officers and 93 enlisted men). On 14 October the Marine Aeronautic Company was transferred to Cape May where it was equipped with two Curtiss R-6 floatplanes with the mission to carry out patrol duty along the coast. Lieutenant Poague was assigned to this unit.

Poague's commander was Captain Francis T. Evans, a skilled pilot who was the first pilot to successfully execute a loop with an N-9 seaplane in 1917. The spin-recovery maneuver of the loop became a basic element of aviation safety and earned Evans (retroactively) a Distinguished Flying Cross in 1936. Second in command was Captain David L. S. Brewster and the other officers were First Lieutenant Harvey B. Mims and seven second lieutenants including Poague.

In December 1917, the Marine Aeronautic Company received orders to go to the U.S. Naval Base 13 at Ponta Delgada, Azores Islands, Portugal. Their mission was antisubmarine patrols, using two Curtiss N-9 and ten R-6 seaplanes. The aircraft were very similar in design being both



Hugh H. Squires Collection, Marine Corps Archives

Headquarters' building for the 1st Marine Aeronautic Company.

biplanes with two seats; the main difference was that the R-6 had a more powerful engine at 200 horsepower and had two main pontoons while the N-9 had a 100 horsepower engine with only one main pontoon.

Why were the Marines sent to the Azores Islands? The Azores Islands are an archipelago of nine islands and, at that time, had two excellent harbors: Horta at Faial Island and Ponta Delgada at São Miguel Island. While Horta is considered—even today—a better harbor in terms of winds, sea, and orientation, Ponta Delgada is larger and more populated. When the "Great War" started in Europe in 1914, Portugal remained neutral. But in 1914, clashes broke out in the Portuguese colonies which bordered German colonies, namely in southern Angola and northern Mozambique. Though there was a mobilization effort by Portugal, there still remained no formal state of war between the two countries. In 1916, due to the damaging losses of merchant ships, England asked Portugal to seize all German merchant ships in Portuguese harbors. After some negotiations, the request was approved, and somewhere between 66 and 72 ships were seized on 23 February 1916. Germany responded with a formal state of war on 9 March 1916.

Due to the incidents in Africa, an agreement was made with England, by which the Royal Navy would assume the defense of Madeira and

Azores Islands. The Portuguese Navy remained responsible for the defense of the mainland coast, especially the harbors and for escorting merchant vessels to the islands of Madeira and Azores, and Africa. At the beginning of 1917, Germany declared zones of "unrestricted" submarine warfare, which meant that all civilian ships could be sunk without warning. As a result, the submarine campaign arrived in the Portuguese islands; at Madeira, the harbor of Funchal was shelled on 3 December 1916 by Germany's U-83.

The defenses on all the islands were weak or non-existent. On 4 July 1917, U-155 shelled the harbor of Ponta Delgada, apparently attempting to destroy a coal depot mainly used by U.S. ships. The coal depot was not destroyed; however, this raid raised fears of a possible German submarine base in the Azores Islands. The Royal Navy felt that it could not release units due to huge submarine activity on the coast of England and the fighting in Europe. Therefore, the United States, after an agreement with England, assumed the defense of the Azores Islands. The 1st Marine Aeronautic Company was the first domestically equipped and trained aviation unit to deploy to the war. At the end of July 1917, destroyers arrived at Ponta Delgada with the USS *Panther* defending the harbor. However, due to the lack of ships in Europe, this defense force was sent to Europe a few

months later and replaced by the USS *Tonopah* and some older destroyers and K-class submarines. The new mission of this defense force was no longer to hunt submarines but to deny the area near the islands to German incursions and help ships on their way to Europe.

On 12 December 1917, Funchal was again shelled by a German submarine. The United States knew that it was only a question of time until the American Expeditionary Force arrived in Europe and that the Azores Islands would have a role as a supporting harbor. Two harbors (Feteiras and Ponta Delgada) had artillery to protect British radio antennas, but the airplanes of the 1st Marine Aeronautic Company were suited for this task.

Poague was transported to the Azores Islands by the USS *Hancock*, an 8,500 ton transport ship. The following excerpts record his thoughts during this transition.

Tuesday, 1 January 1918

*On Board the Transport Hancock.
We came on here on Friday, the 29th and I found my quarters. Now I know why they call them quarters—eighths would be better. I almost have to go out in the passage to clean my teeth. But they are very conveniently located, fresh air (at six degrees below zero), have a door just above, and the engine room just below. We've had bitter weather, and expect to sail in the morning at seven.*

Last night, New Year's Eve I volunteered to load ship, which pleasant pastime continued until the small hours. What a contrast to last New Year's Eve, with Bill Buckley and a tall girl in black at the South Shore Country Club. When the whistles and sirens cut loose, at midnight, one of the men, staggering under a load of tin roofs (the Admiral loves tin roofs) remarked, "Well, this may be New Year's to home folks but it's just plain first of January to me." The rest of the day was uneventful except for the turkey dinner.

Wednesday, 2 January 1918

By some queer courage. I turned out at seven to see us sail. Found the tugs alongside and all ready and at the last

minute the word was passed that we do not go for twenty-four hours or longer, as the ice is too heavy to the destroyers which convoy us. So again we wait. I'm fretful to go and can't bear to any more goodbyes.

Saturday, 5 January 1918

We no longer mention sailing. It is a sore subject. But it continues cold. Mornings we smoke, play poker, and read and yawn. After two P.M. we go ashore and return any time before eight A.M. I find these mornings rapidly become the perfect blanks that so much of the time I have been in the Service becomes, due to its inactivity and dullness. I can truthfully say we will not sail tomorrow.

Wednesday, 9 January 1918

Well, "we've done it." We sailed at 7:20 this morning, in spite of ice and misgivings, and as I write we're pounding South-east across the night Atlantic. All day we spent coming down the Delaware, passing Cape

May, of aerial activities, at 4:30 in the afternoon. How decidedly different it all was from my imagination of a sailing—no crowds, no cheers, no fuss.

Thursday, 10 January 1918

All day we have rolled through a black blue sea, the wind to stern. Although she has considerable motion it is not violent, her load is too heavy. On going on deck this morning I found a destroyer about half a mile on each side of us, wallowing along in the sea. We'd picked up our convoy in the night. The wind still follows us, a North-west wind from home.

Thursday, 17 January 1918

We entered the official barred zone today and our attendant destroyers closed in as night fell. We're running to a submarine base and I think a submarine fighting outfit of great value. There can't be any doubt they will try to get us.

Friday, 18 January 1918

At midnight we ran into a gale, a truly new experience. I found it impossible to stay in bed, we rolled so. At intervals of five minutes great seas broke over the deck above me washing and tearing, and combining with the howl of the wind and the shivering of the ship to produce an awesome effect. The waves even came down the ventilating funnels so badly that the kitchen floor was a foot deep in water. Everyone was awake; sleep was impossible. At midnight I went on watch and in the dark found seas piling up like mountains. They seem to rush down on our stern and pick up the ship like a chip, breaking over her and twisting her about. We have posted sentries to keep everyone off the decks. They would be washed away. All day the storm has continued with regular squalls and driving rain. All during my watch the wind was entered on

American seaplanes in the repair and ramp area at Ponta Delgada. The background shows many different types of commercial ships that used the busy harbor alongside the Marine planes.

Francisco A. Chaves Collection from the Carlos Machado Museum



the log as No. 11; that is better than 80 miles an hour.

Saturday, 19 January 1918

The very funniest thing I ever saw was this morning's breakfast. A huge roll to starboard and the long table, fifteen chairs, men, syrup, scrambled eggs, everything sailed down on Captain Evans, who was pinned back of the table, his hands in his lap, his eyes staring, his mouth open. I laughed until my sides ached at his looks as he received all these things.

When Poague arrived at U.S. Naval Base 13, it was commanded by Admiral Herbert O. Dunn who reported directly to Admiral William S. Sims, Chief of U.S. Navy Operations in Europe. Naval Base 13 and the Azores Islands were strategically important to the U.S. because they served as a support location at Ponta Delgada, São Miguel Island, Azores Islands, which are in the north Atlantic about 1,446 kilometers west of Portugal. At the time of World War I, Ponta Delgada was the only city on São Miguel Island, and its harbor was considered small for the number of ships that arrived to refuel or to make repairs on their way to or from Europe. The nearest island was Santa Maria, 50 nautical miles to the south, but had no harbor or bay to support seaplane operations; 90 nautical miles to the west was the island of Terceira; Faial Island, approximately 65 nautical miles from Terceira, had the best geography for seaplanes operations. Lieutenant Poague reveals his first impressions of the Azores Islands on 23 January 1918.

Wednesday, 23 January 1918

The harbor is full of shipping and varied, hence interesting. All morning I have loafed about the ship, but this afternoon I went ashore with Dr. Thompson and we rambled. I am entranced. I feel in these narrow streets, among these houses of every color, quaint, tiny, under a blue sky from "Never Never Land" that I've stepped into a dream. The cleanliness, the age of the place, the courtesy of the people—oh! It's all out of another world from the breathless rush of America. I can't describe the beauties of Del Gada; I can't tell the

loveliness of the street I've just passed anymore than I can describe the beauties which lie around the corner I have not yet turned. There is an atmosphere here which I never encountered, and how I love it. Surely I can work here. Surely among all this beauty I can "dream true." And this is War. Why, it's a picnic. I feel almost a slacker but that I have dangerous work to do and that I volunteered for anything. Surely I'm lucky-lucky.

Thursday, 24 January 1918

Today I've tried to work but failed, so I've loafed. The unloading of the ship is going to be a serious problem, as we are too big to get to the doc. We're going to have to lighter out our entire cargo, which will take quite a while. The lighter and all the harbor boats are colorful. There is a little steam tug, about thirty feet, a trim little craft painted pink, in charge of a gray-bearded old pirate named Caesar. He is the rooster of the flock of hen lighters, brown boats, double decked, holding thirty tons, and what a fuss of crowing he does with his puffy little boat and his peanut steam whistle. We hope to begin unloading tomorrow in earnest. I stood around most of the day as useless and anxious to help as a dog at a bull fight.

Friday, 25 January 1918

A hard day's work is done. We've got a pretty decent system and the unloading proceeds faster than I'd thought. I have a title. I am "Admiral of the Mosquito Fleet" because I had the brilliant idea of using the ship's boats as lighters. The executive officer gave me four big boats and a steam launch and I am unloading two hundred tons a day, which helps a lot.

Saturday, 26 January 1918

And again today we worked like [—] and looked like them from smut and cement dust. It did seem odd to be in charge of the gang where Rollie Harger was working—good old Rollie—he's corporal. I'm lieutenant. We've lifted sacks together and had a smoke during rest. Later, he, Burke (a former instructor in Cornell University) and I were heaving a load

together, for I worked as hard as any of my men, all and remarked on the oddity, three college men, all pulling on a rope, 2,400 miles from home. A week should see us unloaded and another should see us flying. I hope so.

Sunday, 27 January 1918

By some luck we didn't work, and this morning we went ashore to see our new camp site. It is on a level meadow in a curious old park up in the hills, facing off south towards the sunny warm sea. The soil is volcanic ash, red and porous, in which the heaviest rain is quickly absorbed. I find it a lovely place, with the hill-sides overgrown with pine, cactus and bushes which will flower in a few months. On the return we watched Portuguese officers drilling recruits in civilian clothes, for all the world as we drilled on the campus at home last spring, except that although these men were very well dressed, collars, cravats, etc., every man in two companies with one exception was barefooted. And again I thought what a hideous thing War is, to take these simple folk from their sunny homes and put them into the tearing, torturing occupation of the trenches.

Wednesday, 30 January 1918

We're still unloading the ship, but it is getting down. A whale of wind came up last night—a grand little place to fly in.

Friday, 15 February 1918

We've had a couple of machines running and the crowd increases. The natives seem to think we're supermen. Odd, if they really knew.

Saturday, 16 February 1918

A big day in the history of this little town, for this morning we made the first aeroplane flight in the Azores. Crowds lined the streets, docks, water front and house tops. A municipal holiday was declared, quite a grand occasion. One ragged old peasant, delightful in his multicolored patches, on his little noisy donkey, said he got there at five in the morning. Word had been passed that the first flight would be at 10:30, but he wanted to be on time. An old lady in the national costume of huge blue



Francisco A. Chaves Collection from the Carlos Machado Museum

A Marine guards the seaplane landing ramps and repair area.

hood and cape knelt in the middle of the street by the flying beach when the first plane went up and prayed continuously for the safety of its aviators until they returned, nearly half an hour. We sent out three machines and made ten flights. Everything combined to make it a success—fair blue weather and the ever-present element of luck.

One interesting note is the setup of operations to the beginning of flights compared with that of Curtiss HS-1s at Pauillac, France. At Ponta Delgada, the Marines installed their facilities (from tents to machinery shops) in 25 days; in France, with facilities already in place, it took 20 days.

After these initial flights, and according to Poague's diary, an intense instruction period started for the seven young lieutenants (from flight practice in their new environment to operational aspects of their flying). They were the backbone of the unit's operation. The weather was the main

obstacle for the Marine aviators, learning how to operate in the seas and winds around the Azores Islands.

Tuesday, 19 February 1918

Today I had my first flight in the Azores, an hour hop. The most distinct reaction is the surprise at finding how instinctive flying has become. It is now two and a half months since I have flown, and yet the former control came to me as easily as ever. Flying is like swimming, I am sure, or skating, or riding a bicycle, in that once it is learned and the muscles become adapted, it is never forgotten. From the air this rolling, fertile country looks, even better than from the sea. We had expected bad air currents, due to the mountains, but to date haven't found any.

Wednesday, 20 February 1918

First experience at bomb dropping came this morning when Lieutenant Mims and I went up. At a certain pre-

determined point on the ground was a marker, and I flew the plane while he dropped a dummy (practice bomb). I regret to record in this storehouse of truth-and-fiction—that he missed the mark by more than enough.

Wednesday, 27 February 1918

Death came close today. I could see the hollow of the skull through the empty eyes. It's such things that make this flying the greatest thing in the world. Mims and I had been up for half an hour and on returning, making a landing in a stiff breeze, were forced to keep on by a cutter getting in the way. A ten-foot buoy, a monitor and three subs loomed up before us, a hundred feet away, and we were going a hundred miles an hour. We rose and cleared the buoy by two feet, then facing the rock cliff had to turn so sharply that she side slipped on one wing to within eight feet of a heavy dock; after that we had to clear the mass of big shipping



Francisco A. Chaves Collection from the Carlos Machado Museum

Curtiss floatplane of 1st Marine Aeronautic Company taking off in the crowded Ponta Delgada harbor.

700 feet away, which we cleared by perhaps five feet; and just a touch of any one of them would have finished us. But it was well worth it, for if we'd not had to turn off we would have landed at 100 miles an hour and been tripped by a seven inch cable suddenly stretched across the opening, and at that speed we would have broken our necks. A close shave—exciting and a lot of fun.

The initial excitement ends when the weather turned sour and flying was halted. As the days dragged on, Poague lamented his choice, pouring out his dismay at being posted in such a remote location.

Tuesday, 5 March 1918

A windy day as prevent us from flying and for nearly a week now I have done nothing. I am fed up. I'd give ten years for some action, something to do. I never felt such utter self-contempt as in this company. I am useless and I know it, and yet I was placed here. We all were. If I could

make it, I'd resign and enter the British Naval Air Service. I'd see action there, at least, but there is no chance, and the Marines have no place where I could be transferred. I've got to stick it out. Something's wrong, all wrong in this company, and I think it is idleness. Is my "big adventure" to be a fizzle, just a day dream?

Wednesday, 6 March 1918

The thought of and longing for action continues. With my training I would be eagerly accepted in any naval flying service in the world. I've been looking up the British service. Action there, for sure, but I don't see how I could get a resignation accepted to enter it. Always I encounter that stone wall. Good God! The big things of the world are being done by other men no better trained, no more eager I than I am. In these same hours they are fighting gloriously, which I put in pitching quoits or lying on my cot reading. Haven't I a right to my share? Am I not fit to enter into

that high camaraderie? Patience, patience, always that. And all the while I am idling. Some one who knew said "Idleness is the rust which first destroys the finest metals." I've even gone to such fool lengths as to look up court martial laws to find how I could be kicked out. But I won't go that way, even for action.

Saturday, 30 March 1918

Our flying is almost forgotten. Inclement weather has prevent any work for two weeks. You see the wind hops over these mountains in swirls which make air work suicidal.

Friday, 10 April 1918

Sharp comment from the Admiral has driven Capt. Evans to real flying and from 4:30 A.M. to dark machines have been up. A fine blue day has aided tremendously.

While Poague was anxious to fly and fight, his love and skill of writing was evident from his diary entries—which was quickly discovered by Admiral Dunn.

The Admiral wants to give a vaudeville show for the Portuguese Red Cross and I'm asked to run the thing. It will be great fun to get among the drops again and with the odor of grease paint.

The raucous nature of vaudeville shows added a certain level of levity to Poague's days.

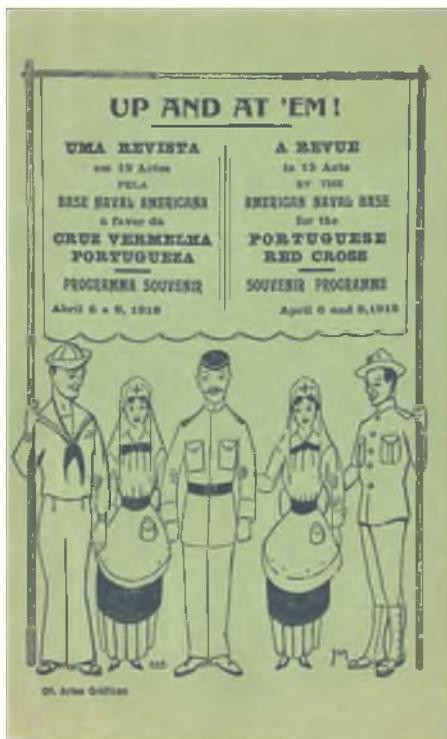
We've got rehearsals in a high-ceilinged, barren dining-room in a restaurant, from nine in the morning to eleven at night. Great guns! If my friends in the show business at home could only see me trying to teach a cook, third class, on a submarine to be a French doll, or a mess attendant on the Tonopah to dance, they'd laugh themselves sick.

The vaudeville show consumed the majority of Poague's time and offered him the ability to hob-knob with the Admiral, who was "very enthusiastic over our idea of the play." On 5 April, the crew and cast had their final dress rehearsal. Poague's talents were further certainly put to the test.

I am property man, assist in making up, scene shifter and most important of all, a combination of stage manager and electrician. With a blue drop with a gold eagle on it, which I had painted, and certain lights, I have a really beautiful effect.

After two showings, the play was deemed a "glorious success" and received "a thousand sincere compliments."

After the resounding success of the vaudeville show, Poague received "a



Hugh H. Squires Collection, Marine Corps Archives
Advertisement for the Red Cross show that was organized by Lt Poague.

most unusual proposition and which was very flattering" on 10 April 1918. He was offered the opportunity to be attached directly to the Admiral's staff and take responsibility for entertainment at the base, to which he "turned it down," after all, as the Lieutenant states in his diary, "I came in to fight, not to dodge." However, just two days later, after much compromise, Poague

accepted the responsibility for much of the entertainment. For his role, he was allowed to move into town and yet retain his piloting duties. "This releases me from officer of the day work and leaves me free except from flying. So now, perhaps, I'll have time to write; it depends on the weather."

Despite his newly acquired additional duties, Poague's skill as a pilot was always tested. He recounted his own close encounter with death on 21 April.

Sunday, 21 April 1918

Another close escape today for which I am glad, both in the closeness and in the escape to live more. A bad landing in the harbor gave me the alternative of trying another landing or trying to clear the fort at the end and circle to sea. In the second, I chose the fort and headed for it, knowing I had a bare chance with a missing motor to clear it. If I didn't, it would mean crashing into it at ninety miles an hour. When I realized I was started, all nervousness left me and it seemed as if I (another person) said to myself 'Well, Walt, enjoy it. It's a good sensation,' and I know I smiled, for the cold air blast hurt my teeth. I record this for it is an odd experience. It did not look that I could clear the stone fort and when I approached it I am told that men on the flying beach turned away their heads. I missed it by between six and eight feet. So I'm lucky in having had one more glorious moment of living—and that's what life is for. I am glad.

The joy of flying never left Poague—his diary is full of the thrills and beauty of the act, and finally, he is tested for his qualification as a naval aviator.

Monday, 20 May 1918

Being officer of the day now has the advantage of a hop at sundown and sunrise. Oh, glorious-beauty, freedom. My observer and I made a hundred-mile flight tonight, going forty miles at sea. The unspeakable beauty of it! We flew half way between the clouds charging up out of sunset and the sea. Up they came from the orange on the western horizon, the 'cavalry of the sky,' and orange and rose in a haze of pink, the sea blue below us, far to the North the upstanding peaks this Island, with

Official pilot card for Lt Poague.



clouds of white and purple and black level strata around the mountain tops. Up there, washed clear of all the earth and free from all pettiness of man, we seemed gods resting in our chariot with beauty, beauty, beauty filling our souls.

Tuesday, 21 May 1918

Another wonderful flight this morning at sunrise; I said good-night to the sun and welcomed it this morning. Oh, surely God is good to have created all of this and the fates of chance kindly to have let me see and revel in it. This afternoon I went out for altitude and climbed so high into the sky that below me this Island, 50 by 8 miles, was spread out a map of green and blue and brown, blue sea all about it. From there it seemed a ridiculous little thing for man to live upon and fortify—an impudent little thing to stick its head up above all this expanse of water. I got a little dizzy on my turns from height, the motor roared the wind tugged at me, and then the long velvet silences of my spirals down from that cold air to the warm surface breezes until my pontoons lit and I was home!

Saturday, 25 May 1918

A cloud is a beautiful thing to watch on a Summer day when you're flat on your back on a lawn, but it's no matter of jubilation when it gets friendly and descends to the sea in a twenty-five mile square mass of dark and wet and impenetrableness. Ask me; I know. On a sunset flight tonight I got about as beautifully lost as a man could—twenty five miles to sea, no compass getting dark—oh, it was a novel sensation. Everywhere was mist, heavy and baffling. Even at a very low altitude, the water was all but invisible and the damp, heavy darkness seemed to sap your courage. I do hasten to add that while I wasn't cheerful, still I wasn't scared. At last a friendly peak came above the low clouds and showed me I was forty miles wrong. When I did get it was quite dark and I sang as I took off my flying clothes.

Thursday, 30 May 1918

The flight was an interesting one, my longest up for two hours and went a very long way to sea. Far below the

big ship looked like a row boat, almost impossible to believe it was a large steamer. So I circled and patrolled until my gasoline got dangerously low, then I spiralled down to them, waved them good-bye and came homeward. And they plowed westward-toward all that I love.

Tuesday, 4 June 1918

After a great many promises Capt. Evan has at last decided to qualify us as 'Naval Aviators.' It's rather funny that after making for months flights alone of one hundred miles or more to sea in all sorts of weather and having to do circus stunts and land in this tiny harbor, we were not qualified for our N. A.'s. It's not his fault, however, but just red tape. So today we made our last test, 3000 feet altitude, spiral down and land within 150 feet of a target. It's a whole lot harder to do than one would think. The judgment of distance is necessarily a fine one. Why, at 3000 feet a target 10 feet square is hardly visible. I had and have had all along a good deal of confidence in my ability to fly a machine and I thought I could make it. I did on the first trial, being the only one of the lot to do so, hence the boyish bragging. Some, Hill for instance, have missed it by half a mile on several trials.

Despite their distance from the trenches and battlefields of Europe, and initially, his lack of knowledge about the Corps, Poague added his own commentary about the Marines fighting at Belleau Wood.

Tuesday, 11 June 1918

The huge battle rages on in France. At a fearful cost the Huns are pouring out men in a vain attempt to force a decisive battle and are failing. They cannot win and this is their last attempt, the last powerful clutch of a drowning man as the waters close over his head. If, as we are told, the Allies have used no reserves, then the Hun is indeed doomed. The two regiments of Marines have lived up to the best of our traditions. Six thousand Marines officially are credited with taking 6 miles by 2 ½ of trenches from thirty thousand Germans and another thirty thousand Huns were called to stop them. It is as I expected.

We have the finest body of fighting men in the world. The casualties were heavy. Every officer in one company was killed and the men were led on to further victories by a corporal. Brave men. I think of all my friends, brown, white teeth flashing through the dust at Quantico. They died well.

In 1918, the influenza pandemic broke out around the world. The pandemic of 1918–19 killed more people than World War I (between 20 and 40 million people) and is cited as the most devastating epidemic in recorded world history. Known as "Spanish Flu" or "La Grippe" the influenza arrived in the Azores Islands at the end of the summer, where Poague and his comrades were not immune to its effects.

Sunday, 7 July 1918

Boynton has become very ill and has gone to the hospital; Brewster is sick in bed and all of us feel badly in greater or less degree, I included. Spanish influenza they call it. I think and it appears to be very painful.

Tuesday, 9 July 1918

This epidemic of Spanish influenza or grippe, rather, has hit Brewster, Sellon and Hill. I have been feeling a bit under the weather, too, but not enough to keep me from at the play which I have been typing all day.

Tuesday, 16 July 1918

I decided to stick out my time of duty as officer of the day today, in spite of feeling pretty fairly rotten, and did so until this afternoon. I went out to the hospital to get some medicine and the surgeon in charge looked me over, pronounced a high fever, and insisted on my going to bed. So I turned into a cot and they began throwing druggists staples into me. And then at ten in the evening, with the wind and rain playing fiercely, came mail! The first in nine weeks, and what a mail! Why it didn't seem anything could be such a tonic as those letters from home. Mother, Dad, dear Sis, with her clever tender letters. I lay until after midnight reading them and then had hard work to calm down enough to sleep.

Wednesday, 17 July 1918

They have diagnosed my complaint as "something similar to grippe,

probably Spanish influenza." At all events, I feel a lot better today and am honestly enjoying the rest and change. This hospital under canvas, rows of tents, with the operating rooms in portable houses, would be a revelation to our doctors at home. But it is well and quietly run, the attendants are kind and thoughtful, and the food is good. All told, it is a credit, and I have the highest confidence in Surgeon Hepler a Newark doctor, who is in command. There is a corking tame rabbit, too, who hops into your tent and sits up solemnly watching you eat and nibbles bread from your hand.

Thursday, 18 July 1918

A little weak, but otherwise "big and strong." I left the hospital this morning and arrived at my alleged home in time to receive more mail. The old adage of raining and pouring holds good now and it is just flooding us with letters praise be! The little details of home life and thought fill my heart.

By the end of July, the submarine menace was considered under control by the Chief of Naval Operations and at this time the 1st Marine Aviation Force arrived in France (Brest). Only one squadron remained in the U.S. ("D" squadron) at Miami. With almost the entire Marine aviation deployed overseas, the call for pilots to continue the effort of building and sustaining the major unit was a natural decision; several of the skilled pilots were transferred back to the U.S. Those departing the Azores Islands were Captain Evans (with a total of 4.3 scouting flight hours), First Lieutenant Mims (3.8 hours), and Second Lieutenants Hill (22.1 hours), Sellon (29.5 hours), and Boyton (1.0 hour) and Gunnery Sergeant Carl Ehlers who also logged only one scout flight. At the officers school, the admittance terms were changed, giving now priority to the personnel who were in the ranks. Also returning home to become a future officer was a Private—Christian Schilt—who became famous in the near future of Marine Corps aviation.

The reduction of the number of pilots did not affect the number of scouting flights. In July, the total of

flights was 104, from which 82 are scouting (78.9 hours). The small decrease of flights, comparing to the previous month, could be justified by four days of bad weather. It is now clear that, on a month with good weather, the total scouting hours were around 80 hours—the maximum that they could sustain. However, keeping up with this operational tempo resulted in an increase of accidents due to material fatigue, which the six remaining aviators contended with.

Summer drew to a close as Poague and his fellow aviators continued their routine—flying and complaining about not flying when the weather was uncooperative. The war news continued to pour in and added further misery to their lack of usefulness in the far reaches of the Atlantic. On 5 November 1918, Poague and Gunnery Sergeant Walton B. Zeigler made their way to the beach at 0600 to conduct a sunrise scout patrol. It is best to use Zeigler's own words for the events that followed:

The motor and plane seemed and tested all O.K. But the wind was against us, as there is only one way to take off in that harbor. We had what we call a down wind of about twenty-five miles per hour and the sea just outside the harbor was very rough.

When we left the beach we both expected to take off before we passed the sea buoy which is at the mouth of the harbor, but when we passed the buoy we were still planning.

After leaving the buoy I expected to feel it take off any moment, but the pontoons just seemed to be touching the top of the waves. We traveled for quite a distance when the plane rose several feet and then settled, and the pontoons struck the top of a wave and gave way. I saw one come through the right lower wing and I loosened my belt to jump, but we bounded and turned over too fast to jump.

We turned over twice and stopped with us hanging head down under water. I fought my way out between the tangled wires and wreckage and was about exhausted when I reached the surface, but was not hurt badly, teeth knocked loose and stiff neck.

I called for Mr. Poague, but received no answer, so I climbed around the wreckage and found him still hanging in his seat with the top engine panel—that is the top wing—just over the front seat against his chest and blocking all of the rear cock-pit . . . He appeared dead then, for he did not move all the while I worked to get him out.

Walter Smith Poague was 27 years old at the time of his death—the war nearly over. His fellow Marines fondly remembered Poague in letters of condolence to the young man's family as did the Portuguese with letters of appreciation for his services to the Red Cross. Poague's diary is nearly a daily record of the unit's actions, weather, flying, boredom, and frustration covering nearly nine months. It was published by his devoted father in an attempt to ensure that his son lived on in words if not in body.

Fortitudine Editor's Note:

First Lieutenant Walter S. Poague was sealed in a copper-lined casket and transported back to the United States by the cruiser USS *Chicago* on 21 November 1918. He was buried in Oak Woods Cemetery in Chicago on 21 December 1918. First Lieutenant Poague died on 5 November 1918, six days before the armistice was signed on 11 November 1918, officially ending World War I.

WILDCATS OVER GUADALCANAL

by Peter B. Mersky, USNR (Ret.)

Editor's Note

Although the raising of the flag on Mount Suribachi provides the Marine Corps with its iconic image and monument, the campaigns to clear the Japanese from the Solomons are the most representative of Marine combined-arms amphibious campaigns of World War II. If the modern Marine air-ground team was born in the small wars of the 1930s, it had its adolescence in the Solomon campaigns of 1942–44.

These campaigns saw some of the heaviest air-to-air combat in Marine history and Marine fighter pilots rose to the occasion. They secured air superiority in a long series of aerial duels against veteran Japanese fighter pilots over the Solomons. Some of the fiercest encounters of this struggle occurred in early September soon after the first wave of Marine aerial reinforcements arrived at Henderson Field on Guadalcanal.

This excerpt is from Commander Peter B. Mersky, *Time of the Aces: Marine Pilots in the Solomons, 1942-1944* (Washington, DC: Marine Corps Historical Center, 1993), 5–11. This book can be downloaded in a PDF version from the History Division's website (<http://www.history.usmc.mil>) under Publications.

The Marine fighter contingent at Guadalcanal was now down to five operational aircraft; it needed reinforcement immediately. Help was on the way, however, for VMF-224 arrived in the afternoon of the 30th, after John Smith and his tired, but elated squadron returned from their frantic encounter with the Japanese fighter force. For their first few missions, VMF-224's pilots accompanied the now-veteran Rainbow Squadron pilots of VMF-223.*

Captain Galer's VMF-224 had no time to acclimate to its new base. (The day after its arrival, it was in action.) The squadron landed on the 30th in the midst of an alert, and was quickly directed to

* When it was first established on 1 May 1942, VMF-223 was called the "Rainbow" Squadron. In May 1943, it changed its nickname to the more Marine-like "Bulldogs."

its parking areas on the field.

The next two weeks saw several of the Marine aviators bail out of their Wildcats after tangling with the enemy Zeros. On 31 August, First Lieutenant Stanley S. Nicolay of VMF-224 was on a flight with Second Lieutenant Richard R. Amerine, Second Lieutenant Charles E. Bryans, and Captain John E. Dobbin, the squadron executive officer. It was VMF-224's first combat mission since its arrival the day before. As the Marines struggled past 18,000 feet on their way up to 20,000, Lieutenant Nicolay noticed two of the wingmen lagging farther and farther back.

He called Amerine and Bryans but got no response. He then called Dobbin and said he wanted to drop back to check on the wayward Wildcats. "It's too late to break up the formation," Dobbin wisely said. "There's nothing we can do." Nicolay closed up on Dobbin and they continued on.

The two young aviators had problems with their primitive oxygen systems and

lacking sufficient oxygen, they possibly had even passed out in the thin air. Nicolay recalled,

We never saw Bryans again. It was so senseless. I remember thinking that after all their training and effort, neither one of them ever fired a shot in anger. They had



Photo courtesy of Capt Stanley S. Nicolay

Three personalities of the Cactus Air Force pose after receiving the Navy Cross from Adm Nimitz on 30 September 1942. From left: Maj John L. Smith, Maj Robert E. Galer, and Capt Marion E. Carl.

Members of VMF-224 pose by one of their fighters on Guadalcanal in mid-September 1942. Rear row, left to right: 2dLt George L. Hollowell, SSGT Clifford D. Garrabrant, 2dLt Robert A. Jefferies, Jr., 2dLt Allan M. Johnson, 2dLt Matthew H. Kennedy, 2dLt Charles H. Kunz, 2dLt Dean S. Hartley, Jr., MG William R. Fuller. Front row: 2dLt Robert M. D'Arcy, Capt Stanley S. Nicolay, Maj John F. Dobbin, Maj Robert E. Galer, Maj Kirk Armistead, Capt Dale D. Irwin, 2dLt Howard L. Walter, 2dLt Gordon E. Thompson. All in this picture are pilots except MG Fuller, who was the Engineering Officer. Lt Thompson was reported missing in action on 31 August 1942.

Photo courtesy of BGen Robert E. Galer





Photo courtesy of Capt Stanley S. Nicolay

1stLt Stanley S. Nicolay beside a Wildcat, probably just before deploying to the Pacific in 1942. He eventually shot down three Betty bombers at Guadalcanal. Note the narrow track of the Wildcat's main landing gear.

no chance. The oxygen system was just a tiny, white triangular mask that fitted over the nose and mouth. You turned on the bottle, and that was it. No pressure system, nothing.

Apparently, the two Marine pilots had been jumped by roving Zeros. Bryans was thought to be killed almost immediately, while Amerine was able to bail out. He parachuted to the relative safety of the jungle, and as he attempted to return to Henderson Field, he encountered several Japanese patrols on the way back, killing four enemy soldiers before returning to the Marine lines.

Marion Carl, who had 11 kills, had his own escape-and-evasion experience after he and his wingman, Lieutenant Clayton M. Canfield, were shot down on 9 September.

Carl bailed out of his burning Wildcat and landed in the water where a friendly native scooped him up and hid him from the roving Japanese patrols. (Canfield had been quickly rescued by an American destroyer.)

The native took the ace to a native doctor who spoke English. The doctor gave Carl a small boat with an old motor which needed some work before it functioned properly. With the Japanese army

all around, it was important that the American pilot get out as soon as he could.

Finally, he and the doctor arrived offshore of Marine positions on Guadalcanal. Dennis Byrd recalled Carl's return on the afternoon of 14 September:

A small motor launch operated by a very black native with a huge head of frizzled hair pulled up to the Navy jetty at Kukum. The tall white man tending the boat's wheezing engine was VMF-223's Captain Marion Carl. He had been listed as missing in action since September 9th and was presumed dead . . . Carl reported that on the day he disappeared, he'd shot down two more Jap bombers. Captain Carl's score was now 12 and Major Smith's, 14.

Now-Major Galer scored his squadron's first kills when he shot down two Zeros during a noontime raid of 26 bombers and eight Zero escorts over Henderson on 5 September. VMF-224 went up to intercept them, and the squadron commander knocked down a bomber and a fighter, after which he was shot down by a Zero that tacked onto him from behind and riddled his Wildcat.

Recalling the action in a wartime press release, Galer said:

I knew I'd be forced to land, but that Zero getting me dead to rights made me sore. I headed into a cloud, and instead of coming out below it as he expected, I came out on top and let him have it . . .

Then we both fell, but he was in flames and done for. I made a forced landing in a field, and before my wheels could stop rolling, Major Rivers J. Morrell and Lieutenant Pond of VMF-223, both forced their ships on the same deck—all within three minutes of each other!

Two days after his forced landing, Major Galer had to ditch his aircraft once more after another round with the Japanese. His flight was returning from a mission when it ran into a group of enemy bombers. He related that:

One of them fell to my guns, and pulling out of the dive, I took after a Zero. But I didn't pull around fast enough, and his guns knocked out my engine, setting it on fire. We were at about 5,000 feet, but I feared the swirling mass of Japs more than the fire . . . so I laid over on my back and dove headlong for some clouds below me. Coming through the clouds, I didn't see any more Japs, and leveled off at 2,000 feet. I changed my angle of flight and grade of descent so I'd land as near as possible to shore. I set down in the drink some 200 or 300 yards from shore and swam in, unhurt.*

Galer would also be shot down three more times during his flying career—twice more during World War II and once during a tour in Korea.

*This was not the first time Galer had a watery end to a flight. As a first lieutenant with VMF-2 in 1940, he had to ride his Grumman F3F biplane fighter in while approaching the carrier *Saratoga* (CV 3). The Grumman sank and stayed on the bottom off San Diego for 40 years. It was discovered by a Navy exploration team and raised, somewhat the worse for wear. Retired Brigadier General Robert Galer was at the dock when his old mount found dry land once more.

THE VENERABLE CORSAIR

by Dr. Tom M. Baughn

As American strategy shifted from defense to offense early in World War II, Marine and Navy pilots would gain an important ally, the Chance Vought F4U Corsair. A powerful Pratt and Whitney Double Wasp radial engine (R-2800) supplied 2,000 horsepower. The planes most distinctive feature was its inverted gull wings attached low to the fuselage to provide clearance for a large propeller. The wings extended from the curved fuselage at a perpendicular angle that was later found to be aerodynamically advantageous in the reduction of drag. The Corsair set new speed records including the first single-engine aircraft to exceed 400 knots. The range, 1,070 miles, was double that of one of its predecessors, the Grumman F4F Wildcat, and the Corsair's more powerful engine would leave every Japanese plane in its wake. With a climb speed of over 3,000 feet per minute, it could effectively patrol at lower altitudes and still have the ability to gain the altitude needed to engage an enemy fighter. The Corsair's length gave it an extraordinary amount of stability along

its longitudinal axis, thus enhancing the accuracy of the ordnance it delivered. Unlike the Wildcat, which required the pilot to raise the landing gear with a crank and manually charge the guns, the Corsair hydraulically operated both those systems.

Marine pilots came to appreciate the "Hog." Its power gave it a significant speed advantage over the fastest Japanese plane as the interdiction of enemy raids became a regular part of the Marine fighter pilot's repertoire. The Corsair proved its worth in both the air-to-air role and the air-to-ground mode. Strafing raids on enemy airfields and shipping were also common mission assignments. Marine Fighting Squadron 124 was the first Marine squadron to deploy with Corsairs when the first of the aircraft arrived on Guadalcanal from Espiritu Santo on 12 February 1943. The Corsair had one of the best kill ratios of

World War II fighters with 2,140 enemy aircraft shot down at the loss of only 198 Corsairs. The powerful engine and its large size also allowed the Corsair to carry a considerable payload.

The speed and greater ordnance capacity of the Corsairs would both encourage and retard development of close air support tactics in the Solomons campaign. The record indicates that during the reduction of enemy control in the lower and central Solomons, Army aircraft often provided attacks on ground targets to support Army and Marine forces. There were a variety of reasons why there was not a more exten-

sive development of Marine air-ground coordination during these campaigns. Developers usually designed aircraft for particular uses, though battlefield exigencies frequently encouraged broader service. Often technological capabilities dictated their typical utilization. The Army's Bell P-39/400 Airacobras were slower and could not climb as fast as the Navy and Marine SBDs, F4Fs, and Corsairs. Accordingly, Army aircraft handled attacks on ground targets while Marine and Navy planes battled enemy aircraft attacks. This pattern changed, to a degree, later in the war as enemy air power declined.



Marine Corps Art Collection

THE NOT SO “TINY TIM”

by Dr. Tom M. Baughn

Marine Corps aviators fought the Japanese in the Pacific during World War II, and Marine ground forces jointly defended Iceland. Marines trained Army troops for amphibious landings in Europe, and from the decks of their ships in the Atlantic, Marines assisted Navy Catalina PBY aircraft patrolling for German submarines. Otherwise, General George C. Marshall made good on his pledge that “as long as I’m chief of staff, there will be no Marines in Europe.” Nevertheless, thanks to a Nazi super-weapon, Marine Fighting Squadrons 511, 512, 513, and 514 of Marine Aircraft Group 51 almost proved the exception to General Marshall’s proscription.

The greatest terror weapons in Europe during World War II were the German V-1 and V-2 missiles. Their speed and unconventional jet and rocket propulsion left the inhabitants of southern England defenseless and in constant suspense as to where the missiles would deliver their destruction. The actual casualties from these Nazi weapons were not staggering compared to the massive bombing raids of Luftwaffe bombers, but the lack of early warning and uncertainty of their trajectories disproportionately struck more fear in the populace.

During the summer of 1944, four Marine fighter squadrons

were prepared to fight the V-1, primarily in Chance Vought F4U Corsairs, equipped with the biggest air-to-ground rocket developed to date, the Tiny Tim. Aircraft machine guns proved ineffective in shooting down the V-1 pulse jet missiles. The 150-pound high explosive warhead of the 10-foot long, 11.75-inch diameter Tiny Tim packed the punch of a 2,000-pound bomb. The Marine aviators were to defend England using Tiny Tim rockets to destroy the hardened sites used to launch the V-1 bomb. The rockets proved effective against hardened Japanese bunkers carved out of mountainsides at Peleliu island in the Pacific. Operation “Danny” trained Marine pilots at Cherry Point, North Carolina, for deployment on escort carriers in the North Atlantic. The fully trained and equipped squadrons were set to sail in two days when General Marshall, in the briefing on the mission in Washington, DC, vetoed the mission. Three of the squadrons did make important contributions to Marine Corps aviation history as the first of their kind to deploy on escort carriers. Carrier duty was a controversial development, but proved to be a significant step in determining a distinct mission for Marine Corps aviation and the development of air-ground teams that deploy as dedicated units in conflicts around the world.

A Tiny Tim on an SB2C Helldiver.

Marine Corps photo



THE MARINE AIR RESERVE IN KOREA

by Second Lieutenant Kyle J. Bare

On 25 June 1950, North Korea invaded South Korea. By the end of July, the North Korean Peoples' Army took all of South Korea except for a small area around the port city of Pusan. United States Army General Douglas MacArthur, in command of the American forces in Korea, called for reinforcements to help hold the Pusan perimeter and launch a counterattack.

Although few Marine air reservists helped reinforce the defense of Pusan, reserve pilots and ground support personnel were significantly instrumental in the Inchon-Seoul operations. After President Harry S. Truman authorized the activation of the nation's reserves, the Marine Corps immediately started activating its reserve squadrons to bring the 1st Marine Aircraft Wing up to war strength. On 23 July 1950, 6 of the 30 reserve Marine Fighter Squadrons and 3 of the 12 reserve Marine Ground Control Intercept Squadrons were activated and ordered to Marine Corps Air Station, El Toro, California. The first activated air reservists arrived at El Toro on 31 July 1950. Many of them were World War II veterans and only 10 percent needed basic indoctrination and training when activated. Integrating into squadrons headed to Korea or replacing pilots in squadrons in Marine Aircraft Group 33 already in Korea, reservists supplied the forces needed for immediate deployment. On 3 August, the nine remaining Marine ground control intercept squadrons activated. Transfers from the 2d Marine Aircraft Wing and the reservists helped to bring the 1st Marine Aircraft Wing up from 3,733 to almost 9,500 men. Between the 10th and 15th of August, the 1st Marine Aircraft Wing shipped to Korea in time to support the 1st Marine Division's landing at Inchon on 15 September 1950. During the landing and push inland toward Seoul, experienced Marine tactical aircraft control squadrons on the ground directed reserve and regular Marine pilots to deliver accurately tons of bombs and rockets against enemy troops, often just ahead of friendly lines. By the time

the wing came off the line on October 9 its pilots had flown 2,736 fighter sorties, rescued 139 injured or stranded Americans, lost 11 aircraft, and suffered 6 pilots killed in action.

The Marine Corps continued to activate air reservists after the 1st Marine Aircraft Wing left for Korea. On 12 August, commanders activated Marine Reserve Fighter Squadrons 232 and 235. Beginning on 15 August, the Marines of the Volunteer



Marine Corps photo

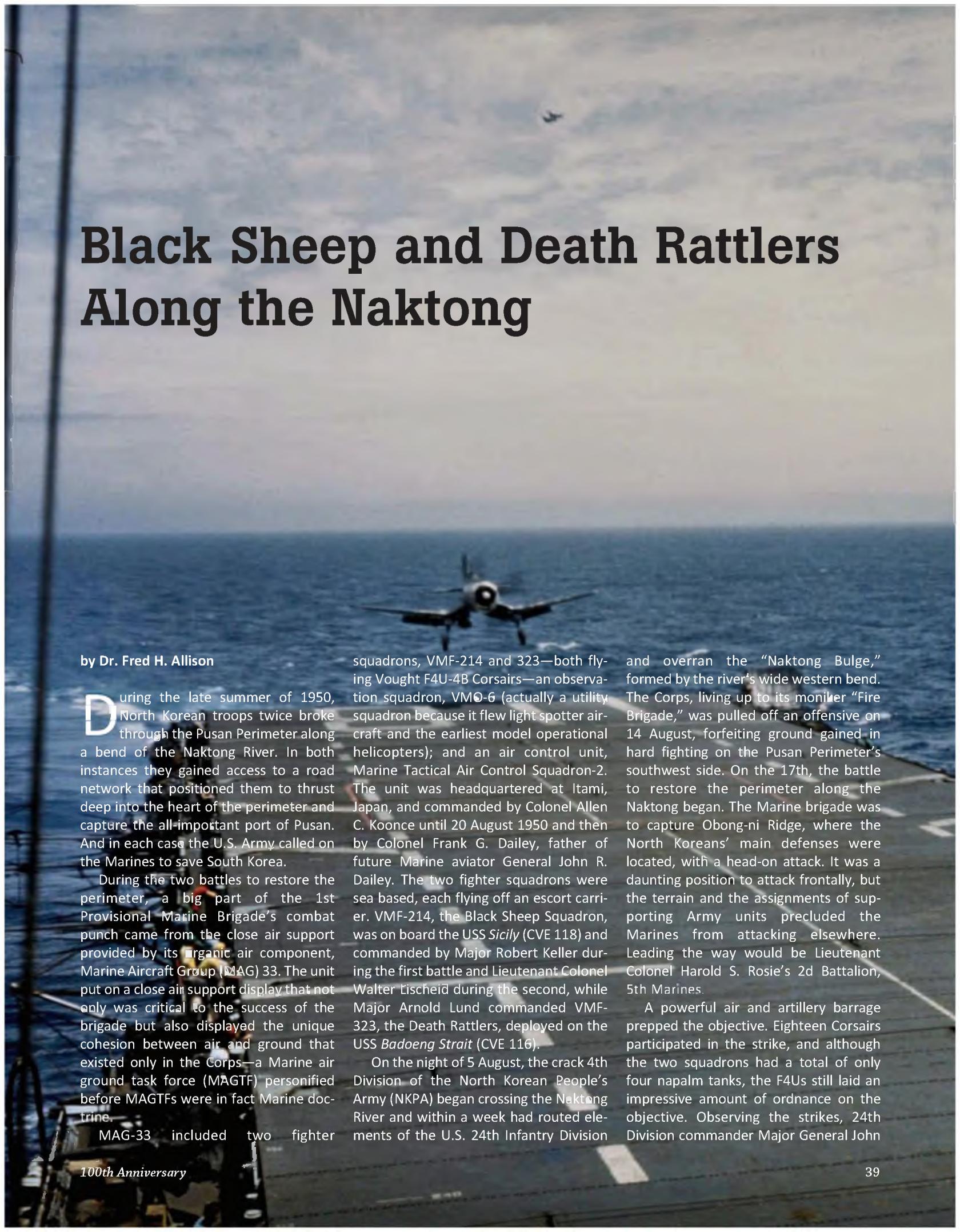
Marine "Night Ace" and Proud Mechanic: *The Marine Corps' second night fighter ace, 1stLt Andre, right, 33, of Miami, Florida, stands with his plane captain, Sgt Bayless, 21, of Port Orchard, Washington. Andre flew this Corsair night-bomber on his 36th Korean mission when he shot down an enemy night fighter over North Korea. He also claimed four enemy night fighters in World War II.*

Reserve started activating and integrating with units headed for Korea. Volunteer reservists made up most of the replacements sent to 1st Marine Aircraft Wing beginning in late 1950. In January of 1951, with thousands of Chinese forces added to the war, the Marines activated the personnel of six more fighter squadrons and Marine Fighter Squadrons 131, 251, and 451.

Several reserve aviators distinguished themselves early in 1951. Reservists

Walter Jung, James H. McCleery, James L. Frazier, Robert W. Taylor, William J. Rainalter, and Arthur W. Wagner earned the Silver Star flying against Communist forces. At the same time, reservists Frank H. Presley and Edward J. McGee served as commanding officers for squadrons in Korea. Reservists made up roughly a third of the enlisted men and more than half of the officers in the 1st Marine Aircraft Wing halfway through 1951. In July, the enemy shot down Harry Reed, Commanding Officer of Marine Fighter Squadron 312, while leading an attack against Pyongyang in bad weather and heavy antiaircraft fire for which he was posthumously awarded the Silver Star. Frank S. Hoffecker of Marine Fighter Squadron 311 led a successful 17 jet strike earning the Silver Star and died on another mission one month later. Warren York, a veteran with two Distinguished Flying Crosses, lost his life during a night strike in October 1951. The executive officer of Squadron 312, reservist Edward J. McGee, and Robert W. Hamilton of Marine Attack Squadron 513 each earned the Silver Star late in 1951. By the end of that year, roughly a one-fifth of the enlisted and 60 percent of the officers in the 1st Marine Aircraft Wing were reservists.

Reservists continued to earn accolades in 1952. Richard L. Blume, Henry S. Miller, Robert L. Bryson, and John R. Burnett served as squadron commanders during three-month tours. Reservist John A. Andre became the second Marine night fighter ace when he shot down a Soviet-made Yak-15 at night in 1952, adding to the four Japanese planes he shot down at night over the Philippines in World War II. Donald L. Parks earned the Navy Cross while Elmer R. Foster, John S. Sutherland, Thomas S. Moore earned Silver Stars later in 1952. Early in 1953, William T. Stratton made a night jet kill flying an F3D Skyknight with Marine Night Fighter Squadron 542. Dale G. Gough of Marine Attack Squadron 121 received the Silver Star for action late in the war. Marine air reservists served through the end of the conflict in 1953. Reservists flew 48 percent of 1st Marine Aircraft Wing sorties in Korea.



Black Sheep and Death Rattlers Along the Naktong

by Dr. Fred H. Allison

During the late summer of 1950, North Korean troops twice broke through the Pusan Perimeter along a bend of the Naktong River. In both instances they gained access to a road network that positioned them to thrust deep into the heart of the perimeter and capture the all-important port of Pusan. And in each case the U.S. Army called on the Marines to save South Korea.

During the two battles to restore the perimeter, a big part of the 1st Provisional Marine Brigade's combat punch came from the close air support provided by its organic air component, Marine Aircraft Group (MAG) 33. The unit put on a close air support display that not only was critical to the success of the brigade but also displayed the unique cohesion between air and ground that existed only in the Corps—a Marine air ground task force (MAGTF) personified before MAGTFs were in fact Marine doctrine.

MAG-33 included two fighter

squadrons, VMF-214 and 323—both flying Vought F4U-4B Corsairs—an observation squadron, VMO-6 (actually a utility squadron because it flew light spotter aircraft and the earliest model operational helicopters); and an air control unit, Marine Tactical Air Control Squadron-2. The unit was headquartered at Itami, Japan, and commanded by Colonel Allen C. Koonce until 20 August 1950 and then by Colonel Frank G. Dailey, father of future Marine aviator General John R. Dailey. The two fighter squadrons were sea based, each flying off an escort carrier. VMF-214, the Black Sheep Squadron, was on board the USS *Sicily* (CVE 118) and commanded by Major Robert Keller during the first battle and Lieutenant Colonel Walter Lischeid during the second, while Major Arnold Lund commanded VMF-323, the Death Rattlers, deployed on the USS *Badoeng Strait* (CVE 116).

On the night of 5 August, the crack 4th Division of the North Korean People's Army (NKPA) began crossing the Naktong River and within a week had routed elements of the U.S. 24th Infantry Division

and overran the "Naktong Bulge," formed by the river's wide western bend. The Corps, living up to its moniker "Fire Brigade," was pulled off an offensive on 14 August, forfeiting ground gained in hard fighting on the Pusan Perimeter's southwest side. On the 17th, the battle to restore the perimeter along the Naktong began. The Marine brigade was to capture Obong-ni Ridge, where the North Koreans' main defenses were located, with a head-on attack. It was a daunting position to attack frontally, but the terrain and the assignments of supporting Army units precluded the Marines from attacking elsewhere. Leading the way would be Lieutenant Colonel Harold S. Rosie's 2d Battalion, 5th Marines.

A powerful air and artillery barrage prepped the objective. Eighteen Corsairs participated in the strike, and although the two squadrons had a total of only four napalm tanks, the F4Us still laid an impressive amount of ordnance on the objective. Observing the strikes, 24th Division commander Major General John



Marine Corps photo

Bomb blasts erupt along the Naktong River in preparation of the Marines' early morning assault. The rough mountainous terrain over which this desperate fight occurred is evident.

H. Church commented that the Obong-ni Ridge appeared to be "floating."

Despite the shellacking, the ridge's defenders did not go down easily. The struggle for the heights was about as vicious and bloody as any South Pacific battle and lasted all day. North Korean People's Army machine guns, mortars, and grenades took a heavy toll on the Marines. The ridge provided the North Koreans plenty of protection. They had dug in on both its forward and reverse slopes. When the Communists came under air or artillery fire, they hunkered down in their reverse-slope positions, but when the Marine riflemen advanced, the enemy defended from their forward-slope positions.

Corsairs circled overhead and dove on the enemy when called upon and also acted as eyes for the land-bound Marines, providing them with real-time battlefield reconnaissance. While the North Koreans' defensive positions shielded them from everything but direct strikes, Marine pilots were determined to make those pinpoint attacks. One Marine rifleman watched a Corsair that, after twice failing to knock out a gun emplacement during a 30- to 45-degree dive, climbed high directly over the target. When only a speck in the sky, the Corsair

rolled over on its back, pulled through into a vertical dive and came screaming down on the target. At the last moment, a bomb fell clear of the blue fighter and silently slid downward to explode directly on the enemy position, obliterating it in a cloud of dust and smoke.

Despite the enemy's strong defenses and tenacity, at 1100 one platoon of Company D managed to seize their first objective, Hill 109, immediately after MAG-33 pilots had blasted the NKPA positions there. The platoon, however, only had 15 Marines still standing and was forced to fall back. Meanwhile, Marines of Company E, clawing up Obong-ni Ridge south of Company D, neared their assigned ridge-top objectives. They, too, called in an air strike to precede their final assault, but the Marine pilots, overanxious to direct their 20mm cannon fire against the enemy, accidentally strafed some of the company's Leathernecks.

The fighting that morning left the 2d Battalion staggered and suffering 60 percent casualties. At 1300 Lieutenant Colonel Raymond L. Murray, the 5th Marines' commander, ordered the 1st Battalion to advance in relief of the 2d. As the fresh Leathernecks moved forward, fire from the Black Sheep and Death

Rattler's Corsairs, as well as Marine tanks and artillery, devastated the enemy positions along the hills. By 1500, riflemen of Companies A and B, 1st Battalion, had resumed the attack and like the 2d Battalion came under withering enemy fire. The effects of Marine combined arms, however, began to tell during the afternoon assault.

Company B, advancing on the right, gained the crest of the ridge and by late afternoon was dug in on Hills 102 and 109, but Company A, attacking on the left, was held up by "a solid sheet of Communist fire." As darkness approached, the unit consolidated its position below the hilltop. The Marines expected the worst after darkness fell.

They did not have to wait long. At 2000, in the gathering hazy, dusty darkness, the clanking of treads announced the presence of four enemy T-34 tanks grinding along the road that passed the northern end of the Obong-ni Ridge and led to the rear of the Marine positions. A forward air controller called in an air strike, and within minutes MAG-33 Corsairs had the tanks under attack. A direct hit gutted the trailing vehicle, and

the North Korean infantry around the T34s scattered. Marine M26 tankers and gutsy Leathernecks armed with 3.5-inch rockets and 75mm recoilless rifles then moved in and knocked out the other three steel monsters.

The battlefield settled into an uneasy peace until 0230 when, out of the darkness, the North Koreans launched a sudden and determined assault against the Marines' lines. At some points the NKPA troops broke through and hand-to-hand fighting ensued. One platoon of Company A was overrun; elsewhere the Marines managed to fight off the assault. As dawn broke, Companies A and B still held their lines, but at a high cost: 175 of the 375 Marines defending the ridgeline positions were casualties of the night's horrific assault.

The attack, however, was the NKPA 18th Regiment's last gasp, and the unit was hardly prepared to face the morning's maelstrom of Marine combined arms. Corsairs of VMF-323 were over the battlefield at dawn and ready for action as Companies A and B continued the pre-

Aircraft mechanics of VMF-214, the Black Sheep, on the hangar deck of the USS Sicily, enjoy a short ice cream break in the long hours keeping squadron Corsairs flying to ensure Marines ashore had close air support.

Courtesy of Bill Lischeid



vious day's advance. At 0734 Lieutenant Colonel George R. Newton, the 1st Battalion's commanding officer, called for an air strike on a nest of NKPA machine guns. Nine minutes later, a Death Rattler pilot silenced the guns by planting a 500-pound bomb directly into the enemy position. The strike came so quickly and so close to an advancing platoon of Marines that all of them were knocked off their feet and one was killed. Five minutes later, the survivors seized the crest of Hill 117.

Throughout the morning, an inferno of supporting fire preceded advancing troops of the 1st and 3d Battalions, 5th Marines, as they swept the remaining North Koreans from Obong-ni Ridge and seized the next rise west of the ridge, Hill 207. Describing one of the morning's Corsair attacks, a correspondent wrote:

You could see the smoke and fire flash of the rockets leaving the wings, and then would come the great tearing sound the rocket made in flight, and then the roar of its bursting against the hill. And after the rockets had gone, you would see the little round dots of smoke in the sky as the wing guns fired, and all the crest of the hill in front of How Company was a roaring, jumping hell

of smoke and flame and dust and noise." It is little wonder that one North Korean prisoner, when asked which U.S. weapon he feared most, replied, "the blue airplanes.

The Communist soldiers who survived this meat grinder took panicked flight, a trickle at first then a flood, as masses fled west toward the Nakdong River. The Black Sheep had the "late shift" that day and did not launch their first strike until 1229, giving them a timely arrival at the enemy rout. Targets were in the open—massed troops, tanks, field artillery, and vehicles—bared for imminent destruction. Captain John S. "Jimmy" Thach, USN, captain of the USS *Sicily*, listening in on the strike frequency described one particular strike:

They had to fly right down over the ridge then start shooting right away, or start shooting really before they got to the ridge, with rockets. After the first one came down, the Marines on the ridge were standing up and looking. They wanted to watch the shells! The last pilot that came down after they'd put these rockets in there called the controller again and he said: "Would you please have the people in the front row be seated. I can see the back of their heads in my gunsight and it makes me nervous!" That's how close these Corsairs were. These pilots would come back and talk to me and say: "Captain, those people on the ground think we're really better than we are and we're worried. We had a fellow today—we were doing some real close work, right over his head . . . and he [the forward air controller] said, Shoot at the top of my head. I'll duck and let it go by.

Captain Emmons Maloney flew into the battle space with a division of Corsairs and while awaiting target assignment, heard an excited call from a forward air controller: "Catch them now they're going across the river!" The F4Us circled and wheeled above the enemy troops, each in turn making runs on the retreating enemy.

Captain Howard J. "Mickey" Finn, a Black Sheep pilot, flew as a tactical air controller (airborne forward air controller) that day. Of all the missions he flew in the Korean War, this one stood



Courtesy of LtCol John S. Perrin and SgtMaj Floyd P. Stocks
Sailors and Marines on the USS Sicily await orders to launch aircraft.

out. He was impressed with the “excellent control from the ground,” how the aviators and infantry Marines worked together until the grunts recaptured the ridges. By making dummy runs—attack dives with no ordnance expended—Corsairs herded the enemy in the direction ground controllers wished to move them so as to maximize their vulnerability. The enemy was utterly defeated, he remembered, and the North Koreans “began to pour across the Nakdong River. The planes strafed them in the river, along the roads, and in the rice paddies. We could see the enemy in military formation.”

Another Black Sheep pilot also found the day’s action particularly memorable. Many years later Don Conroy, “The Great Santini,” told his son, Pat Conroy, that the fliers had been told “to keep the North Koreans on their side of the Nakdong River . . . I radioed to Bill Lundin. I was his wingman. ‘There they are. Let’s go get ‘em.’ So we did.” When asked how he knew he got them, Conroy responded,

“Easy, they were running—it’s a good sign when you see the enemy running. There was another good sign—they were on fire.”

According to the war diary of the USS *Sicily*, a flight of Black Sheep strafed the “retreating Reds with 20mm and incendiaries. The enemy was killed in such numbers that the river was “definitely discolored by the blood.” Enemy soldiers were indeed killed by the hundreds; an estimated 300 bodies floated in the Nakdong River and littered its banks.

At 0645 the next day, 19 August, the 3d Battalion’s Company H seized the Marines’ final objective in the Nakdong Bulge, Hill 311. With the Pusan Perimeter along the river restored, the grunts of the brigade were taken off the line for a rest. Meanwhile, the Black Sheep and Death Rattlers tag-teamed between replenishment runs to Sasebo, Japan, and missions to various hot spots in support of Army units.

On 1 September, however, the NKPA launched a series of all-out attacks against the perimeter. Along the Nakdong River, four North Korean divisions overwhelmed the U.S. 2nd Infantry Division,

and the Communists surged even farther east than they had in August. The Pusan Perimeter as well as the vital port of Pusan were again in dire peril.

The 1st Provisional Marine Brigade got the word to move back toward the Nakdong River, but they were not going without their Marine close air support squadrons, VMF-214 and 323. However, the Black Sheep had just begun their first period of liberty since arriving in the Korean war zone a month earlier. The pilots had flown their aircraft off the USS *Sicily* to Itami Airfield, Japan, and headed for liberty in nearby Kobe. At about midnight, Colonel Lischeid, the Black Sheep skipper, got the word to recall his fliers. He later wrote: “Someone in the big wheels office in Tokyo stepped on the panic button and things really began to happen . . . I was alerted to get all the pilots into the base and be ready to leave by 0800 the next A.M.”

As for the rest of squadron—the enlisted men and some of the officers—a Douglas R5D transport that was flying them to Kobe got a radio call: Divert to Ashiya Air Base, Japan, from where air strikes are to be launched against the

North Koreans in the Naktong Bulge. Bright and early the next morning, the pilots were back at Itami. They fired up their F4Us and flew into the U.S. Air Force base at Ashiya, where they joined up with the squadron's other Marines.

Although the ground Marines were not to go back into combat until the next day, 3 September, VMF-214 and VMF-323, which had also relocated to Ashiya, were ordered to launch air strikes immediately. However, the squadrons' aircraft mechanics wondered how they were going to get their planes ready since all their equipment and tools were still on board the carriers. As always as been the case with Marine aircraft mechanics, they improvised to provide combat-ready aircraft for aircrews. Staff Sergeant Floyd P. Stocks, a plane captain in VMF-214 wrote:

We worked like madmen to keep things going. With no tools it was

rough. They brought a few screwdrivers and pliers down from SMS-33 [Service and Maintenance Squadron 33] and that was it. My plane was out for prop governor and we finally got a part made by a Jap in a motor transport machine shop.

Stocks also noted what all Marines who work on Air Force bases find out: "There was a nice club there. We had good steaks to eat and beer to drink."

On the first day of the Ashiya-based strikes, the Black Sheep flew 12 sorties to the Naktong Bulge, although their only available ordnance was 20mm shells for the wing cannons. The fliers were further hampered by the weather, which was not conducive to effective air support. Major Keller and his flight of Corsairs gained contact with a strike controller and were given a target. A solid layer of clouds, however, hung low over the mountainous target area. Keller

led his flight down anyway and broke through in a valley, the surrounding mountaintops of which were obscured by rain clouds. The pilots flew through the valley several times, turning back around as they neared rising terrain at each end that disappeared into the clouds, but they never found the reported target.

The weather that day also fouled up Lieutenant Colonel Lischeid's strike. Though his flight had a "messy time clobbering up the enemy troops and installations," nevertheless, the Corsairs left "many fires" where they had strafed. Pulling out of his final run through the smoke and wet haze, Lischeid lost sight of the other aircraft in

Major Robert Prescott Keller, squadron leader, is catapulted from the carrier deck to lead Marine air strike against Communist Korea, less than three hours after flying his squadron from Japan.

Marine Corps photo





Courtesy of VMF-323

VMF-323 F4U-4B Corsair, loaded with ordnance on the USS Baedong Strait, catapults for a close air support mission in Korea, 1950.

his flight and flew back alone to Ashiya.

The next day, the 5th Marines, in conjunction with Army troops, commenced its ground assault on NKPA positions about four miles east of Obong-ni Ridge, outside Yongsan. Corsairs of both VMF-214 and 323 were overhead during the day in direct support of the 1st and 2d Battalions' attacks, averaging only seven minutes from strike request to ordnance on target. During one morning strike, Death Rattler pilots dropped napalm on NKPA troops firing on 1st Battalion Leathernecks as they made their way through a rice paddy.

The Black Sheep did not launch any morning sorties because they were notified at 1030 to prepare to redeploy to a forward base at Taegu, South Korea. The order was later rescinded, and instead they were told to launch combat strikes from Ashiya immediately. In half an hour, the first of four combat missions VMF-214 would fly that day to the Naktong Bulge was airborne. Black Sheep pilots strafed and rocketed Communist troops who were holding up the 2d Battalion and ravaged enemy troops, equipment,

and supplies in support of army units operating in the bulge near Kang-ni.

The next day, advancing Marines came across the results of the air strikes and artillery fire outside the village and according to the Marine Corps' account of this fight, the road, hillsides, and ridgelines were littered with hundreds of dead North Korean soldiers. Destroyed Communist tanks, vehicles, mortars, anti-tank guns, and "enough small arms, ammunition, and gear to equip several hundred men" were also strewn about the countryside. The Marines and soldiers made good progress during the day. Black Sheep pilots flew supporting sorties, hitting enemy troops and equipment and attacking NKPA tanks maneuvering behind the front lines. They knocked out one of the armored vehicles. The squadron, however, did sustain a casualty. Major Kenneth L. Reusser's F4U was hit by enemy fire during his last mission of the day as he attacked a truck convoy guarded by enemy tanks. Reusser bailed out, landed in a rice paddy well fertilized with human waste (as was common in Korea), and was rescued

within minutes by a helicopter. At Ashiya the next morning, the other pilots welcomed him back with appropriate remarks regarding his body odor and his poor headwork in selecting landing zones.

The next day's weather—heavy rain and fog—precluded any close air support for the brigade and soldiers in the Naktong Bulge fight, a fact that the North Koreans figured out pretty quickly. They consequently launched a vicious counter-attack against the ground Marines. Although the going was tough, a heavy dose of Army artillery and reinforcements arriving at a critical time helped the Marines to push the North Koreans back to the Naktong River. That night, the Marine brigade was pulled off the line, and Army troops filtered into the hard-won positions overlooking the river. The 1st Provisional Marine Brigade had a scheduled port call at Inchon.

The close air support, flown by Marine

aviators in the Naktong River fights, epitomized the mission the Corps had always envisioned for its aircraft. The close air support attacks made a deep impression on envious Army troops who had never seen anything like them. An Army officer wrote in the *Combat Forces Journal*: "Our tactical air arm should spend a few months with the Marines. I don't know what causes the difference, but it is there. The Marine pilots give us the impression that they are breaking their hearts to help us out and are as much in the show as we are."

When newspaper accounts portrayed Marine close air support in a favorable

light and Air Force close air support as lacking, Lieutenant General Gerald E. Stratemeyer, commander of the Far East Air Force, asked General Walton Walker, the 8th Army Commander and the chief customer of Air Force close air support, for a comment to shore up the air service's public image. Stratemeyer's timing, however, was off. Walker got his request in the midst of the first battle for the Naktong Bulge, when the Marine air-ground team was putting on a virtuoso performance of coordination and combat power. Walker initially lauded the Air Force, writing, "I have every praise for the cooperation and assistance of [Fifth

Air Force commander Major General Earle E.] Partridge and his people, and have gone on record in this regard." But then Walker turned, asserting that "the vast majority of officers of the Army feel strongly that the Marine system of close air support has much to commend it." Walker acknowledged that he agreed with them, and he ended with a real punch: "I feel strongly that the Army would be well advised to emulate the Marine Corps and have its own tactical support aviation."

Allison, Fred H. 2006. "Perfecting Close Air Support in Korea," *Naval History*, April, 45-51. Reprinted with permission. <http://www.usni.org>.

Close Air Support

Master Sergeant John DeGrasse

This painting of the advance of parka clad Marines through enemy positions in North Korea under the watchful eye of an F4U Corsair overhead neatly illustrates the unbreakable bonds of the Marine air/ground team. The orange panels in the background marked the position of friendly forces for the attacking pilot. MSgt DeGrasse, who had served on the staff of *Leatherneck Magazine* during World War II, was one of very few official Marine combat artists assigned to document the Korean War.

Marine Corps Art Collection



BOEING VERTOL CH-46 SEA KNIGHT

by *Second Lieutenant Daniel J. Canham*

Two primary factors shaped the development of the CH-46 Sea Knight: the development of turbine engines and the need to increase the lift capacity of Marine Corps' helicopters. In the 1950s, the Department of Defense limited the number of Marine Corps aircraft. However, the Marine Corps needed to increase the capacity of total operational payloads. Because the Marine Corps could not increase the number of helicopters, it had to enhance the vertical lift capability of each. To achieve an improved power-to-weight ratio, designers sought to replace the existing reciprocating engines with turbine engines. For comparison, the older UH-34 helicopter engine weighed 3,500 pounds and could produce a maximum of 1,525 horsepower. The new T64-GE-6 General Electric turbine engine weighed 728 pounds and could produce a maximum of 2,800 horsepower.

The development of the CH-46 in the late 1950s began when the U.S. Navy and Sikorsky Aircraft Corporation were working on the HSS-2, a turbine powered helicopter. In January 1958, General Randolph M. Pate, Commandant of the Marine Corps, requested the procurement of a version of the HSS-2 to replace the UH-34, but the Marine Corps wanted a more robust rear loading ramp for troops and cargo. In March 1960 Boeing Vertol, sent its YHC-1A to the Landing Force Development Center at Quantico, Virginia, for testing. Six pilots flew the helicopter and gave it positive reviews. In February 1961, the YHC-1A was chosen over the Sikorsky design and given the designation HRB-1, or CH-46 under the unified designation system.

On 30 June 1964, three CH-46s arrived at Lieutenant Colonel Eldon C. Stanton's Marine Medium Helicopter Squadron 265. The aircraft had two rotors with a diameter of 50 feet and three blades. The blades folded for transportation on amphibious ships. Two T58-GE-8B turbine engines powered the CH-46A. The aircraft could

carry three crew members and seventeen combat equipped troops; fifteen litters and two attendants; or 10,000 pounds of cargo using an external hook. The CH-46A

had a maximum speed of 139 knots at sea level and a range of 211 nautical miles when cruising at an average of 120 knots. The T58-GE-10 turbine engine debuted in

Marines from Company E, 2d Battalion, 3d Marines, move up Hill 366 on a search and clear mission, 2,000 meters south of the DMZ. The pilots of CH-46s had to often maneuver in tight spots in order to support the ground Marines.

Marine Corps photo



October 1966 with a 12 percent increase in power for the CH-46D.

Marine Medium Helicopter Squadron 164 arrived at Marble Mountain near Da Nang in South Vietnam on 8 March 1966 with 27 CH-46As. The aircraft quickly became an important part of the helicopter assault capability of III Marine Amphibious Force. In their first 35 days in South Vietnam, they flew almost 2,700 sorties. Eight of the helicopters were hit by enemy fire wounding two crew members. On 15 July 1966, 27 CH-46As, along with UH-34s and UH-1Es, lifted 2d and 3d Battalions, 4th Marines into the Song Ngan Valley. The lift was part of Operation Hastings, a spoiling attack aimed at dislodging the North Vietnamese 324B Division, preparing an offensive on Hue

City. The Marines renamed the Song Ngan Valley "Helicopter Valley," after five CH-46s went down in the valley. One hit a tree as it maneuvered to avoid another CH-46 in a dangerous downwind landing. Moments after the first helicopter hit a tree, another maneuvered to avoid troops in Landing Zone Crow and collided with a third. Two Marines died in these collisions. Enemy fire brought down two more helicopters. One of the two made a forced landing, and was repaired and recovered later that day. North Vietnamese 12.7mm antiaircraft fire hit the other at 1,500 feet. The helicopter caught fire, and although both pilots and one crew member survived, 13 other personnel died.

While in Vietnam, the CH-46 experienced two major mechanical problems.

First, sand, kicked-up by rotor wash, eroded the engines. Engineers solved this problem with filters on the engine intakes. The second was more difficult. The driveshaft connecting the engine and the main transmission created vibrations that at times caused the rear pylon to severely crack or break off of the aircraft. Modifications strengthened the aft pylon and minimized the possibility of damage to electrical and hydraulic systems. Technicians never pinpointed the exact cause of the problem, but there were no more failures after the modifications. After Vietnam, the CH-46 received further increases in power, speed, and range. The CH-46E will fill the medium lift role of the Marine air ground task force through 2019.

Helo Relief

Colonel Peter Gish

Marine General James Mattis often used the phrase "No Better Friend; No Worse Enemy" to describe the modern Marine Corps. This painting of Marine CH-46 helicopters bringing in desperately needed supplies to a Kurdish refugee camp on the Turkish border of Iraq during Operation Provide Comfort following the close of the first Gulf War is emblematic of the frequent assistance that Marine aviation provides to humanitarian relief missions around the globe.

Marine Corps Art Collection



General Roy S. Geiger:

A Marine for All Conflicts

by Second Lieutenants Daniel J. Canham, Katherine C. Gordon, and Dr. Tom M. Baughn.

Editor's Note: The authors acknowledge LtCol James B. Wellons' thesis on Gen Geiger in the development of this article.

General Roy S. Geiger had a long and momentous influence on Marine Corps aviation. Few if any Marine commanders have surpassed his broad combined-arms operational successes. General Geiger took on every type of leadership challenge while in the Corps.

Roy Geiger was a heavy-set, bear-like and totally fearless man. He was the kind of man that likely could only happen in the Marine Corps. One of the pioneers of Naval Aviation, he had flown and commanded almost every kind of aircraft or aviation unit that ever existed. He gained a knowledge of ground combat during his time as a ground officer. Like all Marine officers he always kept his feet on the ground. (General Holland M. Smith)

Geiger attended a broad range of schools, including Marine Infantry Officer School, Naval War College, Army Command and General Staff School, Army War College, and the Naval War College Senior Course/Advanced Course.

Geiger put himself at the point of friction because he wanted to be where the action was. He sought the front lines of battle, but also engaged policy makers to convince them that the Marine Corps, especially its aviation arm was a sound investment. In the interwar period, Geiger helped shape Marine Corps aviation by instigating doctrinal and technological innovations, professional military education, and joint operations. He brought all of his talents to bear in his command of some of the fiercest battles of World War II. Geiger believed that there is always a solution and pioneered important doctrinal and practical innovations in close air support, amphibious operations, and combined arms warfare. He believed that "Marines are capable of doing anything—even if it isn't done according to the book."

Geiger's resolute, some would say stubborn nature formed before entering

the Marine Corps. Born into a middle-class family in the logging town of Middleburg, 25 miles southwest of Jacksonville, Florida on 25 January 1885, he was the sixth of seven children. Working hard to distinguish himself in a large family, he became fiercely independent. He also mirrored the strong willed convictions of his single-parent mother. Geiger's determination served him well in college. He worked his way through schooling at Florida State Normal School, the principle state school for teacher training at the time. In 1904 he obtained his teachers' certificate and received his Bachelors of Law degree from John B. Stetson University in 1907. However, Geiger quickly became tired of representing guilty clients, and at the age of 22, decided to enlist in the Marine Corps—despite several physical ailments. He would remain a Marine for the rest of his life.

After enlisting, Geiger was promoted to the rank of corporal after just seven months of service at Marine Barracks, Washington, DC. In 1909, the Marine Corps decided that his performance and education qualified him for a commission as a second lieutenant. He next proceeded to infantry school in Port Royal, South Carolina, where he graduated high in his class despite a misconduct event. He would go on to several different posts as an infantry officer and more instances of inappropriate conduct. On one occasion after a social function on a British warship, and still intoxicated, he swam back to the USS *Delaware* (BB 28) for his scheduled duty. His first combat tour of duty came in 1912 with the 1st Provisional Regiment in Nicaragua where his superiors noted his command abilities. In January 1913 he was sent to Panama where he met Major Smedley Butler who became a lifelong mentor. [insert pic6] Geiger next served with the First Brigade in the Pacific, first in the Philippines and then the Marine Detachment, American Legation in Peking, China, until 1916. His time as an infantry officer afforded him significant leadership learning opportunities and the respect of ground commanders.

Geiger returned to the states and



Marine Corps photo

Geiger served with Marine Detachment, American Legation, Peking, China, from 1913 to 1916.

received unexpected orders to attend flight school. The founder of Marine aviation, First Lieutenant Alfred A. Cunningham had recommended Geiger to Colonel Lejeune and Geiger reported to Pensacola, Florida, for flight training. Cunningham wrote that "having canvassed all of those who appear to be suitable for aviation, in order of desirability, I would place Geiger No. 1 on the list." Geiger became the fifth Marine aviator on 9 June 1917. In the face of

inhospitable weather in the northern United States, Geiger and Cunningham moved the pilots to Miami Springs, Florida, where Geiger and Lieutenant Marc A. Mitscher, USN, began training pilots for deployment to the war in Europe. When the Navy had no planes for training Marines, Geiger turned to the Curtiss Flying School. He procured their Curtiss JN-4D Jennies and absorbed the instructors at the school into the Marine Corps Aviation Reserve to facilitate the training of Marine Corps pilots. This group in Florida would become the 1st Marine Aviation Force, composed of four landplane squadrons commanded by Major Cunningham. Geiger briefly commanded the Marine Aeronautic Company in Philadelphia before deploying to the USS North Carolina for balloon and seaplane reconnaissance that searched for German submarines.

During World War I Marine Corps aviation received its first wartime mission as part of the Northern Bombing Group conducting day missions with land-based bombers. Geiger commanded Squadron A (later Squadron 7). Initially, Marine aviation leaders requested their use in support of the Marine 4th Brigade, but due to the Army's opposition, they were relegated to attacking German submarine bases and supporting French or British forces. Geiger's extensive knowledge of ground operations and aggressive leadership style ran him afoul of Cunningham's authority at times, but his perseverance in challenging circumstances indelibly shaped Marine Corps aviation for four decades.

INTERWAR CONVENTIONS

After World War I the ranks of the Marine Corps shrank significantly, and the air components were shifted to new locations at Quantico, Virginia, and Parris Island, South Carolina. In 1919 Geiger went to Haiti to command Squadron E in support of 1st Marine Provisional Brigade. Alfred Cunningham once admitted that "the only excuse for Aviation is usefulness in assisting troops on the ground," and in Haiti Marine aviation fulfilled that mission. Geiger encouraged Lieutenant Lawson H. Sanderson to develop air support tactics, including strafing, diving, and glide bombing. In Haiti Geiger insisted that the aviators cultivate relationships with the ground Marines. Squadron E also provided logistical support (e.g., mail delivery, supply drops), aerial reconnaissance including aerial photography, and

transportation of wounded Marines to hospital facilities.

During his three-year tour as Commanding Officer, 1st Aviation Group at Quantico, Geiger was determined to succeed with the resources he was given. He inherently understood that the existence of Marine aviation depended on the ability to demonstrate, especially for political decision makers in Washington, its capability and utility. To that end, Geiger involved the 1st Aviation Group in every exercise, air show, and demonstration that he could find.

Geiger was a leader who led by example. He was rarely found behind a desk. He preferred to be behind the controls of the lead aircraft or in front of his men. He was described as a superior commander by Major General Smedley Butler. Geiger wanted to develop the mission of Marine Corps Aviation in a positive direction. Accordingly 1st Aviation Group was involved with Fleet landing exercises of the East Coast Expeditionary Force at Culebra, Puerto Rico. These amphibious operations shaped amphibious doctrine for ground and air arms of the Marine Corps.

In the late 1920s budgets were shrinking across the services, however, Marine Corps aviation was fully engaged with two-thirds of its force stationed outside the United States. It had a purpose: support the Marines on the ground in amphibious and expeditionary operations. Geiger's experience as an infantry Marine and his training at Command and General Staff School positioned him well for contributing to the development of this doctrine. He also understood the benefit of joint operations from the training of Marine pilots with the Navy. While attending the Army War College in 1928 Geiger focused his studies on the "capabilities of aviation, working not as a separate arm or service, but rather working as a partner and co-equal team member of closely integrated air, land, and water fighting elements." For months Geiger researched and prepared his argument. In May 1929 he finally produced "Relation of the Army and Navy Air Components in Joint Operations." Not all naval leaders shared his views. Additionally, there was always the competition with the Army Air Corps and their doctrines for strategic attack. Geiger, who authored Marine air doctrine, focused on the Marine Corps aviation mission of supporting the ground troops and understood the difficulties of

air units cooperating closely with the ground elements.

When he returned to Quantico in 1929 he found new aircraft and facilities which he promptly put to use. Geiger used humanitarian relief efforts to conduct training. On 28 October 1931, Geiger assumed leadership of all Marine aviation, becoming the officer-in-charge of Marine Corps aviation. With the introduction of the Fleet Marine Force concept in 1934 by Major General Commandant Ben H. Fuller, Geiger instituted the aviation doctrine embedded in the concept. Amphibious operations became a valuable niche that the Marine Corps filled.

In 1935 Geiger again returned to Quantico to prepare his Marines for war that loomed on the horizon. Technological advances in aircraft and training benefited Geiger's preparation efforts. The Japanese had already incorporated the Link simulator to train their pilots in the intricacies of instrument flight, and Geiger lost no time in adding the same training for Marine pilots. Some referred to the training as 'black magic,' but Geiger went one step further and endeavored to establish common training and techniques with the Navy. Geiger and his airmen advanced combat aviation, experimenting with two-way communications between aviators, forward air controllers, and naval gun-fire controllers. Marine aviation developed its mission, as Geiger stated it, believing "the primary reason for the Marine Corps' having airplanes is their use in close support of ground units." Geiger believed that in order to fully

Marine Corps Archives, Quantico, VA (12-E-3-2)
Capt Geiger about 1917.



realize that mission it was necessary for the Marine Corps to use dedicated escort carriers for their aircraft. However, he was unsuccessful at convincing the Navy to allocate such limited resources.

In 1941 Geiger received a temporary assignment to the office of the Chief of Naval Intelligence as an assistant naval attaché in London. He observed the naval and aerial operations at Gibraltar and the Suez Canal as well as ground operations in the Libyan Desert. He was quite critical of the Royal Air Force and the lack of coordination with the British Army. In August when he returned to the Fleet Marine Force, he reorganized the air arm of the Marine Corps as a fighting force to be reckoned with.

Geiger's big challenge prior to World War II was training fresh recruits who were to face a major war. He showed how expeditious his Marine air wing was when he moved the whole First Marine Air Wing from Quantico to San Diego just three days after the 7 December 1941 attack on Pearl Harbor. Geiger was in the middle of an expansion period at the time but followed orders to move with the resources that he had available and continued his mission on the West Coast. In his praise of Geiger, General Holland M. "Howlin' Mad" Smith remarked that "no . . . aviator since the Wright brothers has ever exercised, quite interchangeably, such major air and ground commands, all in one war."

After American air and ground assets were challenged in the defenses of the Hawaiian Islands and the Midway Atoll, Marine and other United States forces took the offensive in the Solomon Islands, starting on Guadalcanal. In August 1942 Geiger received orders to command air units at Henderson Field on Guadalcanal. When he arrived in the Pacific to take charge, his reputation reassured the air units cobbled together to stop Japanese efforts to cut off most access to Australia and surrounding allies. Their confidence in his leadership was well founded as he streamlined organizational structure at Henderson Field by type of aircraft. He also dismissed service rivalries and integrated services as needed to meet the numerically superior enemy aerial attack.

On 22 October 1942 General Alexander A. Vandegrift departed Guadalcanal to meet with Admiral William "Bull" Halsey on his flagship. Vandegrift was familiar with Geiger's prowess as a combat leader, and he



Marine Corps photo, (516369)

LtCol Geiger at Quantico, Virginia, on 13 September 1936.

placed him in command, not only of the air assets on the island, but also the entire 1st Marine Division ground forces. While Geiger was in charge, Japanese Lieutenant General Masao Maruyama launched a major attack on Henderson Field with several days of heavy naval bombardment. The Marines held the line under insurmountable odds. On Guadalcanal "the ground and air Marines had lived, suffered, and died together in a common cause; they for the moment had achieved a very large measure of mutual respect."

Geiger received the Navy Cross and Distinguished Flying Cross for his actions at Guadalcanal. His leadership inspired his men to perform beyond their limits when anything less would likely have led to losing the foothold they held on the island.

It was in the Guadalcanal campaign, the first American offensive operation in the war, that the Marines showed the results of their superior training and morale . . . and without the amazing assistance of Geiger's planes the campaign would almost certainly have been a tragic failure.

With a successful campaign accom-

plished on Guadalcanal, Geiger next travelled to various island airfields, charged with organizing the air wing in the Pacific. On 24 April 1943, he returned to Washington for his second term as the director of marine aviation.

As the battle in the Pacific continued, Geiger became even more convinced that the Marine aviators needed their own escort carriers. Marine island-based aviators would not be able to effectively operate and provide air support because of the much greater distance between objectives in much of the rest of the Pacific. Unfortunately, Navy and even some Marine commanders remained insufficiently convinced to allocate any of the still meager U.S. carrier force to Marine aviation.

During the summer of 1943 Geiger became the commander of I Marine Amphibious Corps and led the unit's invasion of Bougainville in the Solomon Islands. Marine Corps commanders were determined to learn from past tactical experiences on Guadalcanal and New Georgia. Thus, on Bougainville the Marines planned to

seize, consolidate, and expand the beachhead; and when fighting inland developed into extended

land warfare, the Army would move in to free the Marine assault troops for other purposes . . . the construction of a fighter runway and a bomber strip would be initiated immediately upon landing.

For the landing on Bougainville, the surf was treacherous causing issues with the landing craft and tank lighters. The Japanese fiercely defended their shore from defensive bunkers and pill-boxes. Despite these difficulties the Marines successfully captured the beachhead, and on 8 November 1943 Geiger arrived there and took command of all forces ashore. He knew from his experiences at Guadalcanal that it was imperative that the perimeter of their defenses be extended and that a fighter strip be built. He had the Marine riflemen clear the higher elevations in the eastern sector and the Army those in the west. He then pulled engineers from building roads to build a fighter strip at Cape Torokina.

From 6 through 18 December 1943, the Corps made its final expansion of the beachhead on Bougainville by forcing the Japanese from Hill 600 and Hill 600A. Taking the ridge was a struggle, and Marines on the ground were unable to overcome the well defended Japanese positions in the hills that would become known as the

“Hellzapoppin Ridge.” Because of the positions of the Japanese entrenchments on the reverse slope of the ridge, artillery was ineffective. Geiger was forced to use combined arms and air support to finally destroy the Japanese stronghold. The bombers used delayed-fuse bombs, flew at low altitudes, and at distances as close as 75 yards from the front lines. Geiger’s use of Marine Corps aviation to deliver ordinance with a devastating effect on the Japanese was outstanding. Air support would not again be used to that extent until Okinawa. Geiger received the Distinguished Service Medal for his leadership of I Marine Amphibious Corps.

In spring of 1944 Geiger assumed command of III Amphibious Corps including the Southern Troops and Landing Force. The three pronged assault of major objectives in the Central Pacific included Geiger’s recapture of Guam. Under the guidance of General Smith, Geiger toured the battlefields of Saipan to acquire situational awareness of terrain and enemy tactics before the landings. Geiger analyzed how Allied officers among the different services communicated and cooperated poorly on Saipan. Accordingly, Geiger impressed on all of his staff how mutual respect was critical in working together. He and his team planned and con-

ducted a textbook amphibious operation, arguably one of the best operations of World War II. He earned his second Distinguished Service Medal for Guam.

Geiger’s next mission was on the island of Peleliu, where his III Amphibious Corps battled vicious Japanese defenses.

While Geiger had enjoyed productive and cooperative Joint relationships in his previous operations, he observed in the planning process that [Major General William H. Rupertus] had little regard for the integration of his Army counterparts, a factor that haunted the III PHIB on Peleliu.

Geiger confronted an even greater challenge in the new Japanese tactics that shifted a significant amount of their defensive firepower inland. To maintain an increased situational awareness and aid his decision making, Geiger remained at the front lines during most of the campaign.

During the invasion of Okinawa, code named Iceberg, General Simon Bolivar Buckner Jr., USA, designated Geiger as his second-in-command that would replace him as commander of the Tenth Army in the event of his death. For the first time in the Pacific theater, all-Marine air groups operated from escort carriers in support of the invasion. The Japanese opposition became increasingly tough as Allied forces moved inland. The final drive up the northern portion of the island involved “savage fighting” on Motobe Peninsula. Neutralizing gun emplacements required close combat mixed with demolition charges and flamethrowers. On 18 June 1945, three days before the official end of the Okinawa campaign, General Buckner was killed while visiting a battalion observation post of the 8th Marines. The following day, Geiger received a promotion to Lieutenant General, became the senior pilot in the Marine Corps, and the first Marine ever to command a field army. During his tenure, on 21 June Lieutenant General Geiger saw the end of hostile resistance on the islands. In his report on the action he proclaimed that “from Okinawa flew all types of aircraft, driving the final wedge into the Japanese innermost defenses.”

After World War II, General Geiger succeeded Holland M. Smith as the commanding general of the Fleet Marine Force. Smith lamented that he

Left to right: BGen Noble, Adm Halsey, MajGen Geiger, and MajGen Turnage, reviewing plans on Bougainville on 13 November 1943.

Marine Corps photo (65463)



was not invited to attend the surrender ceremony on the deck of the USS *Missouri* (BB 63) in Tokyo Bay on September 1, 1945 . . . however, the Marines are a team, not a collection of individuals, and our team was ably represented by General Geiger.

Geiger was the sole Marine representative to witness the surrender of Japan on the *Missouri*. He also represented the Marine Corps at the Bikini Atoll atomic tests. After witnessing the experiments, He began addressing the implications of that weapon for amphibious warfare. He concluded that World War II style of amphibious landings would not be feasible against a nuclear-armed adversary and wrote to General Alexander A. Vandegrift expressing his views. Vandegrift formed a panel to study the subject. The board concluded that vehicles such as “carrier-based helicopters presented the only viable possibilities for amphibious attack in an atomic war.” Assault helicopters expedited movement of forces that could bypass shore defenses and land at any number of possible locations, a tactic validated in numerous rapid deployment operations since.

Geiger’s foresight was invaluable in preserving an integrated air-ground Marine Corps during post-war budget cuts. The Army and Air Force wanted to reduce the Marine Corps to a token force with no organic aviation capability. They argued that the United States did not need a sizable Marine Corps, especially one that had its own air component, when it already had the Army. The Air Force argued the logic of strictly compartmentalizing America’s armed services by function with all air assets combined under its command. The Corps looked to Geiger, among others, to stand up and defend them. He was well respected, not just as an aviator and not just as a Marine, but as an experienced joint commander. Geiger frankly testified that

as a Marine and a member of the naval service, I can be proud of our share in the recent victory without detracting in any way from the contributions of the other services, and I am not going to enter in any arguments as to which leg of a table is most important . . . we have come to have a keen appreciation of the importance of the other fellow’s job, and more significant still, of the danger to the Nation born of ignorance and con-



Marine Corps photo (96369)

MajGen Geiger on Peleliu, September 1944.

tempt for the other fellow’s problems. In those 170 years we have never acquired the view that to support another arm or branch in the performance of a service to the country was to suffer either an indignity or loss of prestige. I wish everyone could share in this same healthy outlook.

In his book *First to Fight*, General Victor H. Krulak described Geiger as, “a gruff, plain-talking man of impressive

physical proportions, snow-white hair, and ice blue eyes,” who “gave the committee [reviewing the organization of the U.S. military] its money’s worth, and more.” General Geiger once intoned his own resolve and dedication to duty stating that he would “rather die than retire,” and nearing his career that spanned nearly four decades, he developed liver cancer and died 23 January 1947, two weeks before he would have reached mandatory retirement age.

BLACK SHEEP:

The Life of Pappy Boyington

by Stephanie C. Washburn

Book Review: John F. Wukovits, *Black Sheep: The Life of Pappy Boyington*, (Annapolis: Naval Institute Press, 2011).

An intriguing look into the life and personal motives of Gregory “Pappy” Boyington, John F. Wukovits’ *Black Sheep: The Life of Pappy Boyington* provides a sympathetic and distinctly different biography of the leader of VMF-214 and one of the Marine Corps’ top aces. Beginning with Boyington’s early childhood, Wukovits works his way quickly through Boyington’s formative years and his introduction to the Marine Corps. Although he seems to gloss over most parts of Boyington’s childhood, Wukovits is very careful to point out Boyington’s early fascination with aviation and his decision to change his major from architecture to aeronautical engineering at the University of Washington so he might further understand the intricacies of flight. From his 1919 introduction to airplanes as a five year old, to his eventual recruitment by the Marine Corps under the Aviation Cadet Act, Boyington never stopped dreaming of ways to pilot an aircraft. He adapted well to the life of a pilot but balked at the restrictions and rules of military regulations. In addition, because of his heavy drinking which strained his relationships with his family, Boyington found himself constantly in financial straits. When the opportunity to fly with the American Volunteer Group in Burma arose, Boyington jumped on the chance to earn more pay and to spend more time flying, especially in combat.

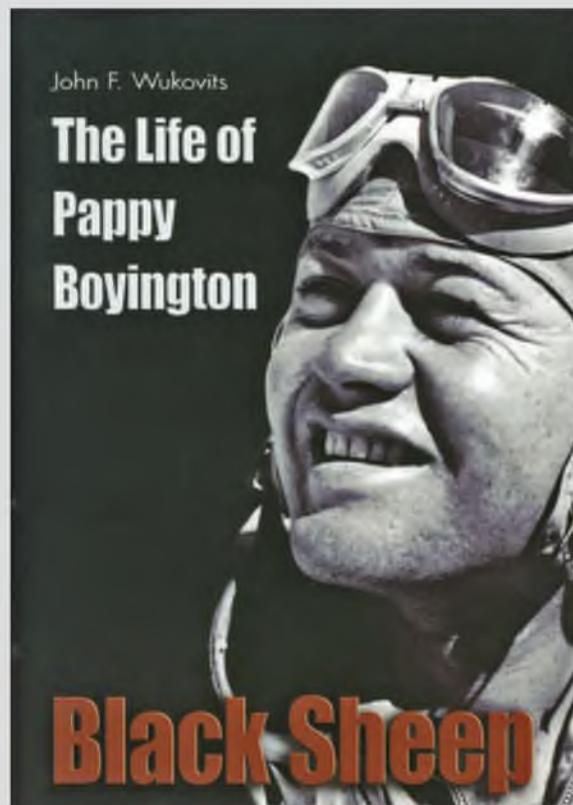
As Wukovits introduces the American Volunteer Group (AVG), he also introduces the theme of a dichotomy in the perception of Boyington. The American Volunteer

Group saw Boyington as an alcoholic failure, which stands out against the men of VMF-214 and his fellow prison mates in the closing months of World War II who revered him as a hero and an irreplaceable leader.

After resigning from the Marine Corps and enjoying an alcohol infused cruise across the Pacific, Boyington arrived in Burma with the hopes of leading one of the American Volunteer Group squadrons. However

ing tone when discussing the American Volunteer Group’s disdain for Boyington, he is very sure to highlight the combat information Boyington learned from Chennault and his experience in Burma. Any complaints Boyington leveled against the restrictions of the Flying Tigers, Wukovits slightly tempers with the importance of the instructions and tips about the American aircraft and the Zero absorbed from Chennault. Boyington later recycled and revamped that knowledge.

As much as the pilots of the American Volunteer Group despised Boyington, the men he commanded in the Solomon Islands can do nothing but point to his leadership ability and awe inspiring ability as a pilot. Finally receiving command of a squadron like he had desired in Burma, Wukovits points out that Boyington focused on what his true strengths were and delegated away the bureaucratic affairs for which he had little patience. Boyington built up his squadron of replacement pilots, the famed Black Sheep squadron, without dealing with the stress of bureaucratic paperwork that irritated him and produced one of the most effective fighter squadrons in the Solomon Islands. Wukovits focuses on how Boyington earned the respect of his men by



his late arrival and tendency to reach for the bottle precluded him from being placed in a leadership position in what became known as the Flying Tigers. As a result, Boyington languished in non-combat rotations, flying patrol missions and missing the chance to engage with Japanese pilots. Widely regarded as a drunk and irresponsible by his fellow Flying Tiger pilots, Boyington chafed at the rules his commander Colonel Claire L. Chennault imposed. Although Wukovits seems to take a condemn-

refusing to micromanage and willingly taking the older aircraft while leaving the newly arrived planes to his men. Actions like this earned Boyington his men’s loyalty, and they never faulted him for his drinking as the pilots of the (AVG) had. Whereas the pilots in Burma accused Boyington of flying drunk, every pilot of VMF-214 adamantly argued that while he was a heavy drinker and may have climbed into an aircraft hung over, Boyington never flew drunk. The Black Sheep instead laud-



Marine Corps photo

Maj Boyington, Commanding Officer of VMF-214, in the South Pacific.

ed his abilities as a leader and his skill as an instructor, pulling together a booklet, *The Combat Strategy and Tactics of Major Gregory Boyington, USMCR*, praising Boyington's tactics after he had been shot down by the Japanese. Even those men who spent time as prisoners of war alongside Boyington for the last year and half of the war remarked at his leadership skills and willingness to help other inmates.

Using Boyington's own book, *Baa Baa Black Sheep*, letters from squadron mates, diaries, action reports and newspaper articles, Wukovits paints a largely glowing picture of Gregory "Pappy" Boyington as he describes both the Flying Tigers and the Black Sheep. While Wukovits provides a thorough accounting of Boyington's time with both the American Volunteer Group and the Black Sheep, his tone makes the book read more as a story rather than a biography. The time spent discussing the (AVG) is less exciting than that spent describing the Black Sheep. Even though he uses a multitude of sources, Wukovits seems to focus on

those that help paint a sympathetic picture of Boyington. Those who impeded Boyington as he tried to command or fly in combat situations come across as villains. Claire Chennault who continued to give squadron commands to others in Burma and Colonel Joseph Smoak who seemed to hold a grudge against Boyington from their early days in flight school, did all that he could to impede Boyington in the Solomons.

While *Black Sheep* is informative and an engaging read, Wukovits' sympathy tends to lead the reader to think the book is just a story rather than a history and analysis of Boyington's time in Burma and the Solomon Islands. He lacks the objectivity of Bruce Gamble in his biography of Gregory Boyington. Wukovits continually pointed to the poor family environment Boyington grew up in and his weakness for alcohol as reasons for why he failed with the American Volunteer Group and why he became a mess when not commanding the Black Sheep or fighting through imprisonment in Japan. Wukovits even goes so far as to sug-

gest Boyington's "life might have been less fractious had he confided in more people like that Catholic chaplain." However, Wukovits is very good at highlighting that Boyington took his experience in Burma and used it to shape his experience in the Solomons. He used a very transparent and egalitarian method to lead the Black Sheep as a result of his frustrations with the way Chennault ran the American Volunteer Group.

What Wukovits may lack in objectivity, he makes up with an engaging story that is a quick read and a thorough introduction to one of the Marine Corps' top aces. He provides a comprehensive picture of the time Boyington spent in the Solomon Islands with the Black Sheep, and proves that while Boyington did have serious issues with his alcoholism and inability to manage certain situations, he was a stellar pilot who contributed mightily to the campaigns in the South Pacific. As a result, *Black Sheep: The Life of Pappy Boyington* is a good book that is a good resource to use in conjunction with Gamble's when discussing Gregory Boyington.

MADE TO ORDER

by Second Lieutenant Molly E. Coulter

Marine Observation Squadron 1 received the first Marine Bell UH-1 Iroquois in 1964 after nearly six years of research and development. Initially the Marines wanted two types of helicopters, an observation helicopter to replace the over-worked Kaman HH-43 HOKs, and a light assault support helicopter that weighed around 3,500 pounds and could cruise at 85 knots. After several years of failed prototypes, Vice Admiral Robert B. Pirie, USN, the Deputy Chief of Naval Operations for Air, suggested an existing trainer or light utility helicopter might serve both functions. This would both reduce cost and expedite the development process. The Bureau of Weapons then selected a U.S. Army Bell UH-1B. By switching the Army communication equipment with their own, and making corrosion and rotor brake adjustments for shipboard operations, the Marine variant, the UH-1E, was born. The Army system of naming helicopters after Indian tribes had produced Iroquois as the moniker for the UH-1. However, soldiers christened it the "Huey." The nickname stuck with the Army, the Marines, and even Bell, who eventually stamped "HUEY" on the directional control pedals.

The UH-1E was a heavier aircraft than originally requested but exceeded all other specifications. The 4,734-pound empty weight allowed 1,300 pounds of payload, a 100-mile combat radius, and a maximum speed of 140 knots. Bell suggested arming the Huey years before it reached the Fleet. However, the Marine Corps initially used the aircraft for unarmed observation and troop transport in Vietnam. The battle between the Air Force and the Army regarding armed



Marine Corps photo

A UH-1E helicopter lands at Fire Support Base Cunningham during Operation Dewey Canyon in South Vietnam in 1969.

helicopters for close air support missions forestalled arming Marine rotary aircraft. The Air Force wanted to use fixed-wing aircraft for close air support and escort missions. The Army campaigned to arm their helicopter fleet and use it as air cavalry for air assault. Political considerations restricted the use of fixed-wing aircraft for Marine Corps missions in the areas surrounding South Vietnam. Armed helicopters became an alternative for the Marine Corps because of political limitations and in reaction to the tactical problems of engaging small, highly mobile enemy ground units that blended into the countryside relatively easily.

Postproduction armament kits made it possible to equip the UH-1E with as many as four M60C machine guns, two racks, and a strip of electrical tape on the windshield as a forward

aiming point. Once armed, the Hueys' missions shifted. By 1967, two-thirds of UH-1E sorties were as gunship escorts. While not designed for this use, the aircraft proved there was a great need for such tactical support. Accordingly, North American Aviation developed a new dual-purpose observation and gunship platform, the OV-10 Bronco, including a night attack version to share the burden. The tadpole silhouette of Hueys became synonymous with the Vietnam War. Adaptations allowed the helicopter to continue as part of the Marines' modern aircraft arsenal. The AH-1J SeaCobra, originally called the Huey Cobra and developed directly from the Huey, became a long-term mainstay for the Marine Corps as the AH-SuperCobra. The newest variants are the UH-1Y Venom, introduced in 2009, and the AH-1Z Viper.

