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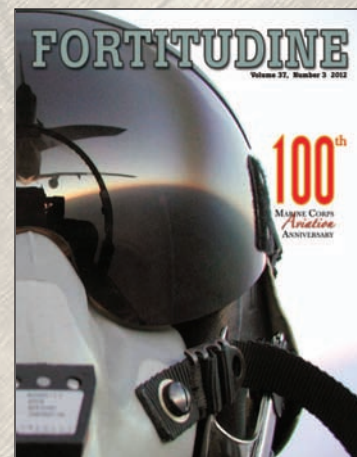
MARINE CORPS
Aviation
ANNIVERSARY



FORTITUDINE

*100th Anniversary of
Marine Corps Aviation*

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About the Cover: A Marine All Weather Fighter Attack Squadron 121 pilot refueled his F/A-18D Hornet over the skies of Afghanistan. The helmet visor reflects the refueler, a McDonnell Douglas KC-10 Extender, USAF.

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

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“Where do we get such men?”

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

This edition of *Fortitudine* is dedicated to the memory of Lieutenant Colonel Chris “Otis” Raible, commanding officer of VMA 211, the “Wake Island Avengers,” and Sergeant Bradley Atwell, an aviation technician with Marine Aviation Logistics Squadron 16, both of whom were recently killed in action in Afghanistan during a Taliban attack on the airfield at Camp Bastion. While the investigation into this deadly attack is still ongoing, it was clear long before this attack that Lieutenant Colonel Raible was an extraordinary leader of Marines.

On the night of 14 September 2012, approximately 15 Taliban fighters, allegedly wearing American uniforms, broke through the outer defenses of Camp Bastion, located adjacent to the larger Marine base at Camp

Leatherneck. Camp Bastion is the temporary home to several USMC squadrons flying missions in support of the NATO effort in Afghanistan. Once the enemy attack commenced, Lieutenant Colonel Raible responded nearly instantaneously, and he jumped into a vehicle along with another Marine. Lieutenant Colonel Raible moved so quickly that he left his position armed with only his 9-millimeter sidearm. The gun battle with the insurgents lasted for over four hours. It was during this time that Lieutenant Colonel Raible was killed attempting to retake his flight line from the enemy. Before being eliminated by U.S. Marines and a British reaction force, the insurgents destroyed six Marine Corps Harrier aircraft and damaged two others. However, the loss of the valiant Lieutenant Colonel Raible was far more

significant than the destruction of any airplane.

In the movie, *The Bridges at Toko-Ri*, the lead character played by actor William Holden, is forced to crash land following a successful bombing mission over North Korea. A two man rescue helicopter sent to retrieve him is hit by enemy ground fire and also crash lands nearby. Holden and the two rescue crewmen fight off North Korean soldiers until all three men are killed. Back aboard the U.S. Navy aircraft carrier where Holden’s mission began, the admiral in charge of the battle group is visibly upset over the loss of his best pilot and the rescue crew who tried to



LCpl Harrison York, an AV-8B Harrier II maintainer with Marine Attack Squadron 211, 3d Marine Aircraft Wing (Forward), salutes Capt Stephen White as he taxis at Camp Bastion, Afghanistan. The aircraft bears the name of LtCol Raible, the former squadron’s commanding officer who was killed during an attack on Camp Bastion on 14 September 2012.

Sgt James Mercure





Sgt James Mercure

LCpl Ethan Burk stands in front of a bullet-riddled concrete barrier after the night attack on Camp Bastion. Wounded during the attack, Burk and LCpl Kevin Sommers maneuvered out of the kill zone to inform the British quick reaction force about the insurgent attack.

save him. Watching flight operations from the bridge the admiral rhetorically asks: “Where do we get such men?”

Lieutenant Colonel Raible’s fight against the insurgents at Camp Bastion reminds us of a historical parallel to another member of this legendary Marine squadron, Captain Henry T. Elrod. Captain Elrod was the executive officer of VMF-211, and he lost his life on the ground resisting the Japanese assault of Wake Island on 23 December 1941. While Captain Elrod’s and Lieutenant Colonel Raible’s individual combat actions are separated in time by over 70 years, both men were killed in action not in the air as they had been trained to do, but fighting on the ground alongside their Marines.

Henry Talmage Elrod, sometimes called “Hammerin’ Hank” for his aggressive flying style, arrived on Wake Island just three days before Pearl Harbor. On 12 December 1941, Captain Elrod, flying a lone Grumman F4F Wildcat, attacked a formation of 22 enemy aircraft. He shot down two aircraft and was later credited with successfully sinking the Japanese destroyer *Kisaragi* with bombs. Once his squadron no longer had any operational aircraft left to fly, he defended a critical part of the island’s ground defense. When Japanese Naval Special Landing Force troops assaulted Wake during the

early morning hours of 23 December, Captain Elrod was in the thick of the fight. His scratch force of grounded aviators and civilian volunteers tenaciously repelled multiple Japanese infantry attacks when after hours of intense combat he was killed in action. He is credited as the first Marine aviator to receive the Medal of Honor for actions during World War II. His stalwart defense of his sector on Wake reinforced the long held view of the Marine Corps that “every Marine is a rifleman.”

So where do we get such men?—ask Lance Corporal Ethan Burk of Marine Aviation Logistics Squadron 16 and a squadron mate of Sergeant Atwell. Lance Corporal Burk, a native of Milford, Texas, was also at Camp Bastion the night of the Taliban assault. He was alone driving a four-wheeled tractor when his vehicle drew the fire of insurgents who had broken through the wire. Feeling something hit his arm and imagining that he banged it as he bailed out of the tractor to escape the incoming enemy machine gun fire, Burk found another Marine, and they both took steps to repel what they believed was an imminent enemy assault upon their position. When the anticipated attack did not take place, Burk signaled a nearby British reaction force in order to fill them in on what he thought was going

on. It was at that moment that Burk was informed by one of the British soldiers that he was wounded and bleeding. After checking in with his command, only then did Burk seek out a Corpsman who confirmed that he had indeed been hit in the elbow by a machine gun round and had fragments of the bullet still lodged in his arm. He later had the fragments surgically removed. When asked if he wished to be evacuated home, Burk retorted, “I just got here, why would I want to go home?”

This latest edition of *Fortitudine* will focus on the exploits of Marine Corps aviation from the Vietnam era to the present day. While there has been considerable historical emphasis on Marine Corps aviation during the earlier conflicts of World War II and Korea, there has been little coverage or time given over to recounting the exploits of Marine aviators who served and flew during the Cold War and beyond. This edition will hopefully shed further light on some of the more significant episodes of Marine Corps aviation history during and after the Vietnam War.

Marines pay their final respects to LtCol Christopher Raible during a memorial ceremony on 19 September 2012. Raible, Commanding Officer of Marine Attack Squadron 211, was from Huntingdon, Pennsylvania.

Sgt Keonaona Paulo



The Core Capability of Marine Aviation

by Lieutenant Colonel Shawn P. Callahan

Marine aviation fills a variety of missions in support of the Marine air-ground task force, but two roles stand out in the minds of most Marines: close air support, and assault support or tactical mobility. This perception is based in truth, for the most distinctive feature of Marine aviation relative to other air forces over most of the last 100 years has been its deeply ingrained focus on supporting ground units, and this is most evident in these two basic functions. Some form of close air support has been a regular mission of Marine aviation for at least 85 of its 100 years, and while the definition of close air support has varied over time, it has always included three major components: It involves the attack of targets close to friendly forces, it requires communication between the attacking aircraft and the supported unit, and it implies that the attack is made to further the objectives of the ground combat force. The prominence of close air support among Marine aviation missions warrants an examination as to how close-air-support doctrine has

Alfred A. Cunningham.

Marine Corps



Don Brammer

DH-4B at Port au Prince, Haiti, early 1930s.

evolved, how the training and equipping of Marine aviation for close air support has changed, and what results such efforts have produced for Marines in combat.

As with the other services, the first decade of aviation in the Marine Corps was characterized by operational experimentation that proved necessary to develop viable concepts. As a result, during this period Marine aviation was employed in ways that would later appear unorthodox. In World War I, for example, Marine aviators did not support the 4th Marine Brigade and instead served alongside Navy squadrons in antisubmarine operations and in strikes against naval bases. This did have a positive effect in the long run, for while the Army's air forces left the Great War strongly influenced by the strategic air concepts of Sir Hugh Trenchard, Marine pilots like Alfred A. Cunningham were apologetic for the disconnect which had occurred in the war, stating that "the only excuse for aviation in any service is its usefulness in assisting troops on the ground." The Marine Corps perpetuated Cunningham's attitude with personnel policies which did not allow Marine pilots to separate themselves from the rest of the Marine officer corps, having no distinct military occupational specialty and insisting that they alternate flying tours with ground tours. These attitudes and policies, and the experiences in postwar deployments of Marine aviation to places like China, Haiti, the Dominican Republic, and Nicaragua as part of larger task forces provided fertile ground in which to germinate what would later become a deeply ingrained concept of close air support.



Marine Corps

Lawson H. M. Sanderson.

Several historians have attributed combat operations at Ocotal, Nicaragua, in 1927 as the birth of close air support in the Marine Corps, but to do so would suggest that, it was a revolutionary combat innovation. In fact, the process was much more gradual. Marines had been refining the techniques necessary for close air support since the initial postwar deployment to Haiti in 1919.

During that deployment Lieutenant Lawson H. M. Sanderson refined the technique of dive bombing, using steep dive angles to hit targets in heavily vegetated terrain. The accuracy imparted by such techniques was vital to the ability of Marine pilots to bomb in proximity to friendly troops, but Marine aviators only gradually developed the other capabilities required to conduct true close air support. The defeat of a Sandinista attack on the Marine garrison at Ocotal eight years later was the most conspicuous event in this progression because in that engagement the bombing by Major Ross E. Rowell's flight of five aircraft was decisive in driving the enemy away. While this did earn him the first Distinguished Flying Cross to be presented to a Marine, it could not be said that there was close communication with the ground force in this event or that the static tactical situation required detailed coordination between ground and air

units. Rowell was, however, vital to the process of continued innovation and air-ground team building. Continued cooperation over the next year between his squadron and Marine leaders on the ground, like Lieutenant Merritt A. Edson, helped solidify the value of aviation to the Corps light infantry forces in the field and provided ample opportunities to refine techniques for bombing and increasing cooperation.

The development of a formal doctrine and the tools for implementing a close-air-support doctrine took longer, and the establishment of the necessary training programs was further behind that. As the Corps shifted its focus to a potential amphibious war in the Pacific, it adapted its vision for using aviation to support landing forces, but the 1935 *Tentative Landing Operations Manual* discussed air support in only very general terms, giving no detail at all on what was later discovered to be a critical issue: how such support should be coordinated and synchronized. By 1939 Headquarters clearly stated that the primary function of Marine aviation was the support of Fleet Marine Forces in landing operations and operations ashore, but it was the *Small Wars Manual* published in 1940 that provided specifics on procedures for close air support, such as the use of marking panels and techniques for communicating directly between a flight leader and the ground unit he was supporting. This document also describes the synergistic use of close air support in a concept very similar to modern-combined-arms

Ross E. "Rusty" Rowell.

Marine Corps





Don Brammer

VMSB-231 Douglas SBD Dauntless bombers taxi at Majuro Atoll, South Pacific, in World War II.

doctrine, asserting that air support for ground troops would present the enemy with few tactical options against this new form of ground warfare.

These were important steps in the right direction, but other obstacles remained, and Marine aviation was unprepared to provide close air support in World War II. Like the rest of the Marine Corps, it faced the challenges of rapid expansion, which were exacerbated by the long-training requirements to produce combat-ready pilots. The Corps also suffered from a lack of any specific training program for close air support and had only just started to replace the relatively primitive two-seat, fabric, open-cockpit biplanes like the De Havilland DH-4 and Vought O2U. While these had proven to be vital tools of innovation in the 1920s, they were not well suited for the high-intensity combat of World War II, and the best that could initially be obtained were still-inadequate mission-specific aircraft like the Douglas SBD Dauntless scout-bomber. The Corps also started the war without any air command and control system to speak of. On Guadalcanal, no forward air controllers were assigned to ground units, and mission coordination was sometimes conducted by infantry battalion officers going to the nearby flight line at Henderson Field.

As the war went on, the vision for amphibious close air support was hamstrung by unsatisfactory naval escort carriers, Marine squadrons not properly equipped, and Marine pilots not fully trained. Consequently, Marine avi-

ation did not support the Marine ground divisions for most of the key battles in the Central Pacific, leaving the landing forces dependent on carrier-based aircraft of the Navy. It was not until the final year of the war that Marine aviation realized its full potential for close air support. The first occasion occurred in the Philippines where Marine Air Group 24 and Marine Air Group 32 supported the 6th Army. The second was at Okinawa where the culmination of previous efforts led to effective Marine air-ground teamwork. There, carrier-based Marine aviation provided much of the initial support to the landing forces and was then replaced by land-based Marine aviation, all coordinated by a robust command and control system that included air-liaison parties in the ground units. This system generated effective support for ground units in an environment where the Japanese were contesting U.S. air superiority, long considered a vital requirement for close air support and the loss of which often led to the suspension of close-air-support missions. At the conclusion of World War II, Marine aviation had an enhanced close-air-support capability with a cohesive air-ground team, effective aircraft and weapons, well-trained, experienced pilots, and a robust command and control system. The close-air-support doctrine had evolved to include all the modern precepts of close air support with the notable exception of positive control, which is the requirement for a forward air controller to issue a clearance to expend ordnance before any weapons system can be employed.

The de facto separation of Marine aviation from ground units that characterized much of the war in the Pacific led Marine leaders to question the value of their air arm, but their ultimate response was to further focus Marine aviation on its reason for existence—support of ground forces. Fortunately, the short interval before the start of the Korean War meant that the Marine Corps entered that conflict with the doctrine and resources it needed to demonstrate the full potential of the air-ground team. The inclusion of two carrier-based Corsair squadrons in the 1st Provisional Marine Brigade, sent to the Pusan perimeter, simply could not have been possible without the lessons learned from World War II. The Pusan battles and Inchon landings were successful due to these lessons learned.

The greatest challenge to air-ground cooperation was the newly created Air Force, which sought to implement a doctrine based on a different vision of air power, rooted in its World War I and II experiences. The Air Force argued that the effectiveness of Marine aircraft would be maximized when it was centrally controlled along with all other air units. Some of the same, innovative Corps leaders from early days of close-air-support development, fought against this vision. A concession was made so that Marine aircraft would be used to support Marine units whenever possible, but the ability for Marines to plan and execute as an integrated team was jeopardized by the additional layers of command that now separated them: The 1st Marine Division was subsumed into the 8th Army, and the 1st Marine Air Wing was absorbed into the 5th Air Force. Fortunately the agreement to align Marine sorties with Marine ground units was honored in dire circumstances like the Chosin Breakout. At Chosin, Marine aviators were put to the test by executing perilously low attacks in extreme weather conditions with a precision that earned them high laurels.

By the end of the Korean War, the Corps close-air-sup-

port doctrine had been refined to the point of what was nearly identical to that in use 55 years later: “The attack of hostile ground or naval targets which are so close to friendly forces as to require detailed integration of each air mission with the fire and movement of those forces.” The doctrinal refinement was paralleled by other programs of far greater significance, even if their impact was indirect. One of these was The Basic School. Although a comprehensive school for new officers had existed with periodic gaps since the establishment of the School of Application in 1892, in the 1950s the program was enhanced and formalized into The Basic School. Since that time, almost all Marine officers have attended The Basic School, and as a result, aviators have an appreciation for the needs of and challenges faced by ground troops. The Corps commitment to this training has been vital to the cohesiveness of the air-ground team and is often the first thing cited to explain the fundamental differences between Marine aviation and those of the other services. Another concept, born of the experiences in World War II and Korea, was improved expeditionary airfields. One result was the short airfield for tactical support, which included catapults, arresting gear, and aluminum mats suitable for jet aircraft operations.

The late 1950s and early 1960s was a period of rapid modernization within naval aviation and the Corps. During this period, the Corps used the Douglas A-4 Skyhawk, Grumman A-6 Intruder, and McDonnell Douglas F-4 Phantom. The Corps developed tools like the TPQ-10, a ground-based radar-direction system, to provide control of attack missions under all weather and visibility conditions. The Intruder, under radar control, provided an especially credible and potent nighttime close-air-support capability.

With the onset of the Vietnam War, the Corps put their air assets to the test. One month after the 9th Marine Amphibious Brigade landed at Da Nang, Marine

F4U Corsair firing rockets over Okinawa, Japan, during World War II.

Marine Corps





Marty Halpin

Col John D. Noble, Commanding Officer MAG-12, eats first piece of cake near a Douglas A-4C Skyhawk aircraft of VMA-225 at Chu Lai, South Vietnam, 1 June 1965. The celebration marked the opening at Chu Lai of the short airfield for tactical support, a new type of expeditionary airfield.

Phantoms from VMFA-542 were operating out of that airfield, soon to be the home of Marine Air Group 11. Next, just 45 days after the order was issued and less than three months after the initial landing, a short airfield for tactical support was established at Chu Lai, which immediately became the home of Marine Air Group 12, including two A-4 squadrons, VMA-225 and VMA-311. A third group, Marine Air Group 13, was added, providing fixed-wing close air support throughout the III Marine Amphibious Force area of responsibility.

Critical to this teamwork was the spirit of cooperation that existed between ground combat officers and aviators, although some deviation from the policies was necessary. A small number of aviators were sent directly to flight school without the benefit of The Basic School, and winged aviators were not always used as forward air controllers in ground units. Furthermore, because of pressing manpower constraints, Marine aviation increased the commitment of aviators to ground units by making the aviators spend the last half of their thirteen-month combat tour as forward air controllers. This commitment of hard-earned aviation training and combat experience made the greatest effect in creating air-ground synergy.

Counterinsurgency in densely vegetated terrain highlighted a need for observation aircraft to provide coordinated airborne support. The Cessna O-1 Bird Dog met this need until it was replaced by the North American Rockwell OV-10 Bronco. Both of these aircraft were flown by VMO squadrons and had two aviators: A pilot flew and provided forward air control, and an artillery officer usually coordinated indirect fire support from the rear seat. The resulting shift toward more airborne forward air controllers actually helped alleviate some of the shortages of tactical-air-control parties, making the forward air controllers more mobile and available to a greater number of ground units.

Additional capabilities were provided by jet aircraft such as the two-seat Grumman TF-9J Cougar, flown by headquarters and maintenance squadrons in tactical air coordinator (airborne) missions. The role of the Cougar in coordinating complex-close-air-support operations was superseded by the Douglas TA-4F Skyhawk. Another important wartime improvement was the attack helicopter. Bell UH-1 Iroquois (Huey) arrived at Da Nang in May 1965 and provided rotary-wing close air support. In 1969, the Bell AH-1G Cobra (Huey Cobra) arrived, which



Col Kevin K. Baggott

Shown are VMO-1 pilots Captains Kevin K. Baggott (left) and Rick D. Boyer (right) next to their OV-10 Bronco that they flew during Operation Counter Drug in Puerto Rico in 1989.

the Army had developed, but the Marines happily adopted it. Initially flown by VMO-2 out of Marine Air Group 16's Marble Mountain Air Facility, it were later reorganized into HML-367. The Huey Cobra significantly enhanced the capability of the Marine air wing to provide

closely coordinated, accurate fire support for ground forces.

Marine close air support proved critical during a number of engagements, but the most graphic example is probably the battle for Khe Sanh where the 26th Marines

A Marine UH-1N Huey patrols over Mogadishu, Somalia, supporting relief operations during Operation Restore Hope in 1993.

Department of Defense





Ben Kristy

McDonnell Douglas AV-8B Harrier II of VMA-331 in low-level flight over the desert.

was surrounded by several North Vietnamese Army divisions. General William W. Momyer, the Air Force general in charge of Westmoreland's air efforts, saw the battle of Khe Sanh as an opportunity to lure the North Vietnamese Army into a set-piece battle where they could be destroyed by heavy air power. It will never be known how effective his heavy bombers and tactical fighter-bombers were at pulverizing this enemy, but several things are clear: Marine close air support was the preferred weapon when needed close to the Marine perimeters, Marine aviators kept the enemy at bay by their precise bombing attacks, and the North Vietnamese Army never launched an attack which presented a credible threat of overrunning the combat base.

Unfortunately, the battle also reignited an interservice dispute which had been simmering between the Air Force and Marine Corps since the Korean War. The Air Force doctrine called for centralized control of air power to maximize its efficiency and concentrate its effects at an operational level. This doctrine was in direct opposition to Marine doctrine, which saw air power as a tactical tool to be made readily available to ground commanders. To General Momyer, the existence of the 1st Marine Aircraft Wing as a subordinate unit of the III Marine Amphibious Force could not be tolerated any more than the existence of a second air force. Consequently, he used the air operation around Khe Sanh as an opportunity to finally achieve centralized control under a concept called single air management. The move for single management was staunchly opposed by Marine leaders and quickly escalated to General William C. Westmoreland, who was then

overruled by Commander in Chief Pacific, Admiral U. S. Grant Sharp Jr.

In the postwar period, the Marine Corps shifted its focus to its forward deployed forces, most notably the expeditionary units. The wartime adoption of the attack helicopter, Sea Cobra, provided expeditionary units with an organic-close-air-support capability that paid big dividends in contingencies like Operation Urgent Fury in Grenada in 1983. This integral-close-air-support capability was soon augmented by the vertical and/or short takeoff and landing aircraft McDonnell Douglas AV-8B Harrier II. The Corps also stressed its commitment to an expeditionary aviation capability that was capable of accompanying ground Marines wherever they went. Equally important was the Omnibus agreement signed in 1986 by the Joint Chiefs of Staff. At a time when the Goldwater Nichols Act was stressing joint command and furthering such concepts through the empowerment of Joint Force Air Combatant Commanders, the Omnibus agreement placed limits on this more modern version of the single management concept when it came to tasking Marine aviation that was more devoted to missions like close air support.

The post-Vietnam fielding of the Harrier was paralleled by other modernization programs like the McDonnell Douglas F/A-18 Hornet. The Marine Corps ultimately adopted three combat models to replace the Corps' aging fleet of aircraft. This transition process was incomplete, however, when the ground war in Operation Desert Storm commenced. As a result, the 3rd Marine Aircraft Wing provided close air support with various air-



Department of Defense

The Lockheed Martin KC-130J Hercules refueler aircraft can be upgraded to provide air support using Hellfire, Griffin, or Viper Strike missiles. This upgrade is called the Harvest Hawk. The aircraft shown is from VMGR-252 at Camp Dwyer, Afghanistan, 2011.

craft from aging Hueys to brand-new Hornets and conducted visual-close-air-support procedures with the Mk-80 series “dumb” bombs alongside more sophisticated systems like radar-beacon forward air control, laser guidance, and night-vision goggles. Marine aviation was fulfilling its charter to provide expeditionary fire support: Helicopters rearmed and refueled at forward locations, and jets operated from airbases under austere conditions and from on board ships. Ultimately, the adoption of new aircraft and advanced technologies proved well worth the considerable time, money, and effort. Antiaircraft fire claimed two Broncos over Iraq, but the seven Hornets that were hit by air defense systems, all survived to fly more combat missions within days.

As the first real test of the joint force air combatant commanders concept, Desert Storm once again found Marine commanders at odds with the Air Force. The philosophical differences were manifest once the first few days of “prescribed” joint air tasking orders were completed, and the Air Force command and control system was too slow to react to the dynamic battlefield and target its missions appropriately. In essence, this was a repeat of some mistakes committed in Korea, but the Marines solved it with the same ingenuity they had applied in 1968—by working around the system to accomplish the mission in spite of the air tasking order. This commitment and “can-do” spirit, combined with potent new weapons systems, produced first-class support for the two Marine divisions involved in complex breaching operations and the brief, but dynamic battle for Kuwait which followed.

Important acknowledgment of the Marine Corps expertise at close air support came in 1995, when the Corps was recognized as the lead service for defining the new joint-close-air-support doctrine. The first major product of this was *Joint Publication 3-09.3, Joint Tactics, Techniques, and Procedures for Close Air Support* (close air support), which demonstrated strong Marine influence over the procedures that were now prescribed for all services to conduct close air support. To begin with, close-in fire support was reclassified as rotary-wing close air support, and Air Force Lockheed AC-130 Spectre missions were brought closer to adopting procedures consistent with the other close-air-support platforms, a process that continued in subsequent editions. More importantly, the current definition of close air support was adopted: “Air action by fixed-and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces.” By essentially adopting the pre-existing Marine definition under the authority of the Joint Chiefs of Staff, a debate, which had existed for decades, ended. The Air Force had sought to tie close-air-support proponents to a specific distance from friendly forces at which the mission could be conducted without the requirement for a ground unit to clear aviation fires. Instead, all the services had to conform to the Marine approach, defining close air support by what it did and how it did it, and in the process, rejecting the notion that beyond some inflexible distance such coordination might be unnecessary.

Some might argue that while the increased emphasis on joint action has given Marine close-air-support proponents greater influence over doctrine, it is also sowing the seeds of its own destruction. Some have argued that joint aircraft programs like the Lockheed F-35 Lightning II, using increasingly precise weapons (GPS-guided joint direct attack munitions) that require less pilot skill, meant that the aircraft and pilot assets are unimportant. To dispel this illusion, one needs to look at the preference for Marine close air support by Marine ground forces during Operation Iraqi Freedom. Furthermore, one needs to look at the failings of the other services to execute the joint doctrine. One example is the Fairchild Republic A-10 Thunderbolt II or Warthog, a superior close-air-support platform flown by brave and skilled pilots, but which has been involved in numerous fratricides in Iraq in 1991 and 2003. The trend in these mishaps was that skilled pilots were making well-intentioned decisions, but that they were not informed by the Marine ethos toward close air support, foremost of which is the principle that no weapon be dropped without

absolute assurance that friendly forces are not being targeted. Even in less dynamic battlefields, like Operation Anaconda in Afghanistan in 2002, unnecessary and dangerous chaos resulted from other services which had neither internalized the new joint-close-air-support attitudes and procedures, nor equipped themselves with an adequate command and control system for coordinating air attacks with the fire and movement of ground forces.

As the Marine Corps celebrates the 100th anniversary of its aviation forces, it should continue to pursue advanced expeditionary aircraft capable of providing close air support like the Lightning II, but it must also maintain its commitment to the intangible programs that embrace the heritage of the air-ground team. To the outside observer, the Marine Corps devotion to preserving its own air force and program like The Basic School might appear dogmatic, but the history of Marine aviation with its single-minded focus on maximizing support of the ground combat element is a distinctive feature that is just as important to the future of the Corps as its warrior ethos.

Lockheed Martin F-35 Lightning II.

Andy Wolfe



LIEUTENANT GENERAL THOMAS H. MILLER JR.

By Second Lieutenant Taylor H. Couch and Dr. Fred H. Allison

Lieutenant General Thomas H. Miller Jr. led a distinguished career as a Marine Corps aviator, leader, and visionary: As an aviator, he broke the world speed record in 1960, flying a McDonnell Douglas F4H-1 Phantom II; As a leader, he served as the Deputy Chief of Staff for Aviation from 1975–79; As a visionary, he supported not only vertical and/or short takeoff and landing (V/STOL) aircraft, e.g., Harrier, but also other acquisitions and programs that helped evolve modern Marine aviation.

He is considered one of if not the first American to fly the AV-8A Harrier. As Deputy Chief of Staff for Aviation, he led the fight to obtain the Harrier's upgraded variant, the McDonnell Douglas AV-8B, Harrier II. Because of his enthusiasm for V/STOL aircraft, Miller is considered, in the Marine Corps, the "father of the Harrier."

Miller, a native of Texas, began his military career in the U.S. Naval Reserve V-5 Program in June 1942 before enrolling in aviation training. When it came time to select Navy or Marine Corps, Miller opted to go Marine. He later asserted that he wanted to be a Marine aviator because he figured they were the "damned best there was." On 1 March 1943, Miller was designated a naval aviator and commissioned a Marine second lieutenant. He and John Glenn ended up in the same squadron, Marine Fighting Squadron 155, which deployed to the Pacific in February 1944 where they flew combat missions at Midway Island, and the Gilbert and Marshall Islands.

After World War II, Miller became a test pilot at the Naval Air Test Center, Patuxent River, Maryland.



LtGen Thomas H. Miller Jr.

Lieutenants John Glenn (left) and Miller (right) are shown in their Marshall Island Quonset hut in 1944 while serving with VMF-155.

During the Korean War, he served in Marine Fighter Squadron 323 and flew the F4U Corsair in numerous combat strikes. In 1955 Miller, Executive Officer, Marine Attack Squadron 224, was in charge of introducing and evaluating the legendary Douglas A-4D-1 Skyhawk jet to the fleet.

In 1960, Lieutenant Colonel Miller worked at the Bureau of Aeronautics as the research and development project officer on the F4H Phantom II jet. In an attempt to set a new world speed record, Miller flew a 500 kilometer closed-circuit

course near March Air Force Base, California, on 5 September 1960 at 1,216 miles per hour, breaking the previous record by 400 miles per hour. He was awarded the Distinguished Flying Cross for this accomplishment.

After graduating from the Army War College in June 1966, he served as Head, Air Weapons Requirement Branch in the Department of Aviation, commanded by Major General Keith B. McCutcheon. From this post he lobbied for the acquisition by the Marine Corps of a dedicated attack helicopter, the Bell AH-

1G Cobra, then being flown in Vietnam by the U.S. Army. He succeeded in this endeavor and gained approval to build a twin-engine variant for the Marines, the AH-1J Sea Cobra. He also gained approval to put the same engine package on the Bell UH-1 Iroquois or Hueys that the Marines flew. Miller believed the multiengine variants were safer in the event of mechanical malfunction, especially over water, in addition to providing greater power and reliability.

In 1968, Major General McCutcheon sent Colonel Miller and Lieutenant Colonel Bud Baker to Farnborough, England, to investigate a revolutionary jet aircraft being developed by the Hawker Siddeley Company. This aircraft was the Harrier, which could take off and land vertically but otherwise performed like a fixed-wing jet. This V/STOL capability appealed to the Marine Corps for its close-air-support needs by providing basing flexi-

bility and reducing on-target times to support ground forces. While in England, Colonel Miller became probably the first American to fly the Harrier, and upon return to the U.S., he recommended the Harrier for the Marine Corps. General Leonard F. Chapman, Jr., Commandant of the Marine Corps, and General McCutcheon agreed with Miller's assessment and pushed for an initial buy of 12 Harriers in lieu of 17 additional McDonnell Douglas F-4s. Colonel Miller, who knew the McDonnell family, garnered their support of the Harrier program despite the F-4 cuts. With an agreement that McDonnell Douglas would manufacture Harriers in the U.S., Congress authorized their purchase.

Ordered to Vietnam in December 1969, Miller served as Assistant Chief of Staff, G-3, and later as Chief of Staff, III Marine Amphibious Force. Upon returning to the U.S., he became Assistant Wing Commander in 1971 of the 2nd Marine Aircraft



Marine Corps

Lieutenant General Thomas H. Miller Jr.

Wing and assumed command of it in 1972. After completing his command of the 2nd Marine Aircraft Wing in July 1974, he became Deputy Commander and Chief of Staff, Fleet Marine Force Pacific, in Hawaii. In April 1975, he became Deputy Chief of Staff for Aviation. From this leadership post Miller fought for and acquired the more capable Harrier, the AV-8B, and lent early support to developing a tiltrotor aircraft that eventually became the Bell Boeing MV-22 Osprey. Miller also supported the initiative to create Marine Aviation Weapons and Tactics Squadron 1, which standardized aviation tactics, techniques, and procedures across the Marine Corps. Indeed Marine Aviation Weapons and Tactics Squadron 1 has proven to be the most significant factor in making modern Marine aviators the resident experts in air-support tactics.

Miller retired from the Marine Corps 1 July 1979. He passed away on 27 November 2007. His impact upon Marine Corps aviation was summed up by his lifelong friend, Senator John Glenn: "His vision and concepts expanded and altered the role of Marine Corps aviation to make it ever more effective as part of the Marine air-ground team."

LtCol Miller (right) in England in 1968 after he flew the Harrier. With him are John Farley (left), chief test pilot for Hawker Siddley, and Dr. John Fozard, Harrier designer.

LtGen Thomas H. Miller Jr.



Trial by Fire: Donovan Earns Multiple Medals as Sea Knight Aviator in Vietnam

By Beth L. Crumley

Over the course of 77 days in early 1969, First Lieutenant Joseph P. Donovan, a young helicopter pilot, became one of the most highly decorated aviators in the history of the Marine Corps. Flying with what he later described as the finest Marines (crew chiefs, mechanics, and gunners) the Corps had to offer, Donovan earned an astounding array of medals, including two Navy Crosses, a Silver Star, two Distinguished Flying Crosses, and a Purple Heart. He was also awarded a

total of 35 Strike/Flight Air Medals.

Designated a Marine aviator on 2 April 1968, Donovan was originally a UH-1E pilot and later stated that he was “fully qualified to serve my tour in Vietnam as a Huey gunship pilot.” However, by August 1968, he was ordered to Vietnam to serve with Marine Medium Helicopter Squadron 364 (HMM-364). Operating initially out of Phu Bai and later Marble Mountain Air Facility, located near Da Nang, HMM-364 was flying Boeing’s

improved CH-46D Sea Knight. Their mission was one of resupply, medevacs, and insertions and extractions of troops.

After a period of transitioning to the Sea Knight, Donovan settled into the day-to-day realities of flight operations in Vietnam. There was rarely a “routine” flight. On 24 January 1969, while copiloting aircraft YK-22, the flight came under enemy fire. A hydraulic line was hit, resulting in the loss of both the auxiliary and number two hydraulic

First Lieutenants Joseph P. Donovan and William A. Beebe were photographed on 1 September 1969, the day they arrived at Phu Bai to serve with HMM-364.

Honorable Joseph P. Donovan





Marine Corps

A Sea Knight from HMM-364 delivers supplies to Company K, 3d Battalion, 5th Marines, in July 1969.

boost system, and drenching the aircraft and crew with hydraulic fluid. The helicopter made an emergency landing at a remote fire base on the western edge of Charlie Ridge, north of Thuong Duc. It would not be the last time Donovan and his crew would find themselves in peril.

Marine patrols in the area north of the Nam O Bridge in Quang Nam Province had increased. Troops had swept the area and discovered no enemy, although an extensive tunnel system ran through the area. However, the situation heated up on the night of 22–23 February when the enemy acted. Mortars and 122-millimeter rockets hit Da Nang, igniting a 450,000-gallon fuel tank and damaging six helicopters. Crew chief and earlier 1968 Navy Cross recipient, Corporal Ernesto “Gooie” Gomez stated that

my aircraft had been assigned the night medevac mission on the evening of 21

February 1969. 1st Lt Donovan, and his co-pilot 1st Lt Sam Ware had preflighted YK-5 earlier . . . the bird and the crew were ready for the evening medevac. I had just finished buttoning her up when I heard the whooshing of incoming, followed immediately by their exploding on impact in and around Marble Mountain Air Facility. As the rockets and shells rained down on our location, I started the auxiliary power plant in preparation for engine start as Lt Donovan and Lt Ware ran toward the chopper.

Donovan launched at about 2200 as wingman in a flight of two Sea Knights, assigned to medevac a seriously injured Marine from an area north of the bridge. The lead aircraft had the corpsman on board. Once airborne, the lead aircraft experienced mechanical difficulties, and

with no radio, the pilot was forced to return to Marble Mountain. Donovan, having never flown as a night helicopter aircraft commander, resolutely elected to continue the mission, stating that “we will try.” Gomez handled the medical as well as crew chief duties: “When the Marines call you in the middle of the night with a medevac, something happens inside you . . . it sounds kinda crazy, but these guys are surrounded, these guys are getting hit, these guys are getting shot . . . and we’re going out there in a helicopter to help them.”

As they approached the designated area, Donovan observed a rocket launching site, and the accompanying gunships went after it. Despite the heavy enemy fire and without gunship support, he maneuvered the Sea Knight onto the side of a cliff and loaded the wounded Marine in the inky darkness, illuminated by rocket launches. Gomez stated that “it was

difficult to see through the smoke of the incoming. A grenade went off nearby and Donovan yelled 'I'm hit!' over the intercommunication system (ICS)."

Although wounded in the leg and face, Donovan managed to fly the damaged helicopter and headed toward Charlie Med in Da Nang. He noted that "rockets were hitting all over Da Nang. I was flying very slowly along China Beach toward the river and III MAF . . . and it was lights out at Marble Mountain."

Once at Charlie Med, Gomez ascertained that the helicopter was still operational, and Donovan launched a second medevac mission. Again, he landed in an hazardous area, without gunship support, to take on a wounded Republic of Korea Marine. Informed there were eight more seriously wounded Marines in another area, Donovan proceeded to

the site. Coordinating his approach with gunship fire, he picked up the wounded Marines, only to lift out and land again a third time, picking up two additional casualties in critical condition. After returning to Charlie Med and preparing to fly again, at dawn Donovan was ordered by Major Ernest C. Cunningham to stand down. Said Gomez,

Not too many other helicopters got off the ground that night . . . It was now almost dawn. We had refueled under the flashes of incoming rounds while the tower and airfield were closed. We had flown all night from outpost to outpost. We were shot at, by, and flew through enemy rockets, .51-caliber machine gun rounds, and other assorted small arms. We had grenades thrown at us. I had seen black pajamas in the

LZ Lt. Donovan had managed not to pass out, but he was very weak.

For his courage and devotion to duty, Donovan earned his first Navy Cross. He earned a Distinguished Flying Cross, less than a month later, on 17 March 1969.

Go Noi Island is located on the Hoi An River between An Hoa and Hoi An in the Quang Nam Province of Vietnam. In 1969, it was a hotbed of Viet Cong and North Vietnamese Army activity. Donovan launched on a daytime medevac flight, given the mission of picking up nine wounded Marines. Although UH-1E helicopter gunships attacked enemy positions around the landing zone, he encountered heavy fire upon his approach. While his crew sought to suppress that fire, he was able to land the aircraft. Almost immediately, however, the landing zone came under heavy

Marines of 2d Battalion, 26th Marines, board a "Purple Foxes" helicopter, 1969.

Marine Corps



mortar fire, and he was forced to lift off. After additional strafing runs by the gunships, he landed once more, and although dangerously exposed to enemy fire, maintained his position until all the wounded were on board the aircraft.

Throughout the month of April, Marines in Quang Nam Province undertook a series of operations, including large patrols to secure the “rocket belt” around Da Nang. Stretching from the Hai Van Pass in the north to Marble Mountain in the south, this area was where enemy forces launched 122-millimeter rockets into the Da Nang complex.

On 21 April, Donovan was assigned to evacuate seriously wounded Marines of Company B, 1st Battalion, 5th Marines, from a rice paddy, northwest of Liberty Bridge. As he neared the designated landing zone, Donovan commenced a high-speed, low-altitude approach toward a tree line to the north of the wounded Marines. He immediately came under machine gun fire, which damaged the forward section of his aircraft. Despite the continuing enemy fire and his damaged helicopter, he flew close to the casualties who were loaded and flown to the hospital at Da Nang.

A subsequent inspection of Donovan’s helicopter revealed the aircraft was no longer airworthy. He took command of a second aircraft and immediately received another medevac mission to the same area. Once again, he was forced to fly through intense enemy fire. As the wounded were being moved on board, additional ground fire erupted which prevented the Marines on the ground from getting the rest of the casualties into the helicopter. Lance Corporal John E. Harris, who was manning the starboard .50-caliber machine gun, was wounded in the right arm but continued to lay down suppressive fire. Donovan was then forced to lift out of the landing zone. Once he determined that

Harris was not seriously wounded and the aircraft was still capable of accomplishing the evacuation, he communicated to the Marines on the ground that he would attempt another landing. He was, however, informed that another helicopter would complete the medevac mission. Donovan later stated that Harris “was, and is my personal hero on this mission.” For this action, he received his second Navy Cross (Gold Star in lieu of second award.) Seven days later, he would, once again, find himself on a mission that would require courage and devotion to duty.

The 1st Reconnaissance Battalion was stationed at An Hoa Combat Base. On 28 April, Donovan flew a reconnaissance team of 15–18 Marines into enemy-held territory some twenty miles southwest of Da Nang. During his briefing, he advised the reconnaissance team that “when we land and the ramp goes down, wait one minute, if no fire, then get off.” He initiated a high-speed approach to the planned landing zone and, once again, encountered intense enemy fire. Climbing to a safe altitude, he selected an alternate landing zone. As the Sea Knight landed and unbeknownst to Donovan, a young reconnaissance lieutenant and another Marine bounded off the ramp and immediately engaged the well-concealed enemy. As small arms and automatic weapons fire peppered the helicopter, he lifted off and his crew chief said “Sir, we left a man in the zone.” He returned to the landing zone and maintained his position until the two Marines were on board. According to Donovan, they didn’t climb out of the landing zone as much as they dived off the side of a mountain. Said the red-haired, blue-eyed, reconnaissance lieutenant at the debriefing at An Hoa, “Sure appreciate you coming to get me.” Donovan would be awarded a Gold Star in lieu of his second Distinguished Flying Cross.

On the morning of 9 May 1969,

Donovan and another pilot assigned to HMM-364, First Lieutenant William A. Beebe, had been flying medevacs for more than six hours. They returned to Marble Mountain Air Facility and refueled, fully expecting to be relieved by another section when a call came in from Alpha Company, 1st Battalion, 5th Marines. The company had two killed and another ten wounded: They were still fighting a large North Vietnamese force near the village of My Hiep 3. The terrain was flat, teeming with rice paddies and dikes.

As information flowed in over the radio, it became apparent that the casualties were widely separated at multiple locations. In 2003, Donovan’s crew chief, Sergeant Kenneth A. Altazan stated that “thirty-four years later I can still hear the garbled chatter and almost subliminal flow of information over my headset . . . It was a disaster looking for a place to happen.” Donovan neared the landing zone, marked by yellow smoke, flying at low level and escorted by gunships. He later stated that “the Marines and the NVA were all mixed up, and there was no clearance to fire.” Because the wounded were scattered over a large area at five different positions, Donovan flew at low altitude over the rice paddies and spent an inordinate amount of time on the ground. As such, his Sea Knight got hit many times.

At one point, as the helicopter began taking on casualties, one of the Marines carrying a casualty was shot, and both men fell. Altazan later stated that “at this time I unplugged my intercommunications system (ICS) cord and ran to help the two fallen men at some distance from the aircraft. Carrying one on my shoulder, and helping the other as best I could, I heard or felt a sniper’s bullet hit the man I was carrying. The impact caused me to fall with my wounded Marine, and I injured my knee.” With the help of Hospital Corpman-3, John L. VanDamme,

Altazan and the wounded entered the aircraft. The quick-thinking gunners, realizing Altazan had no communication with the cockpit, informed Donovan that the helicopter was clear to take off. As the helicopter continued to take hits from enemy fire, they were advised to pull out of the zone. According to Altazan, Donovan “responded emphatically and in no uncertain terms that ‘We’re not leaving this zone until we’ve got all your medevacs! Do you understand that?’”

Donovan said that “the last location was the most difficult. It was close to the tree line.” Altazan noticed movement some distance from the helicopter and realized that a Marine was located in a small crater waving a green T-shirt. According to Altazan,

I did not have time to tell Lt Donovan that I was leaving the aircraft, but I decided to go to this man who obviously was not able to come to us. As I bolted from the front door of the aircraft, I forgot to unplug my long cord and in full stride was jerked from my feet when I reached the end of that cord. As I got up again I felt a terrible pain in my knee and was not certain that I was going to be able to even get to the medevacs, much less help them . . .

When I got to the spot, I found two men. One was unconscious, and the other was exhausted and suffering heat stroke. I picked up the unconscious man and grabbed the other man by the belt . . . I can still reflect back on the surreal scene before me as I approached the plane—a pilot holding his aircraft fast in a fire-swept zone, my right gunner firing his .50-caliber machine gun, the other gunner standing in full view on the steps of the front door firing over and past me with his rifle,

Huey gunships and fixed-wing aircraft literally right over our heads . . .

The floor of the helicopter was covered with “wounded Marines, spent brass, medical bandage wrappers, hanging intravenous bags, windblown grass, and debris” as they finally lifted out of the zone. Both Donovan and Altazan were awarded Silver Stars for their actions.

A year later, Donovan was presented the 1970 Frederick L. Feinberg Award by General Lewis W. Walt. The award, established by the Kaman Aircraft Corporation, is awarded annually to a helicopter pilot for “outstanding achievement in rescue, flight, and test development of a new aircraft or general high level of performance in operational flying during the preceding

year.” Given Donovan’s record, it was an honor he deserved.

Years later, Donovan would reflect on his service in Vietnam and his Marine air-ground team:

By my count on every mission, we were a team of pilot, copilot, crew chief, two gunners at each .50 cal, and the Navy Medic, or in the case of Doc Linkous, a Navy Doctor on board, not to overlook the maintenance crew that constantly went without rest to keep the aircraft ‘up.’ We were and are a Marine air-ground team linked by oath and blood to those on the ground we serve. We all achieved the missions, and we all respect the memory of our squadron mates and Marines on board who paid for the lives of their fellow Marines with their own.

Eileen C. Donovan

On 27 July 2007, Lieutenant Eileen C. Donovan, daughter of Joseph and Beba Donovan, earned her “Wings of Gold” after completing her training at The Naval Aviation Training Center, in Pensacola, Florida. The wings she received were worn by Colonel Eugene R. “The Papafox” Brady who commanded HMM-364 when her father flew under Brady’s command in Vietnam. She has continued in her father’s footsteps, flying Sea Knights in Marine Medium Helicopter Squadron 166. Perhaps most notable, Captain Eileen Donovan and Captain “Big Cat” Stephenson, flew the very same HMM-364 “Purple Fox” helicopter on 21 April 2010, 42 years to the date, that Lieutenant Joseph Donovan completed the 21 April 1969 mission for which he was awarded his second Navy Cross. On 23 June 2010, HMM-

166 was redesignated as a tiltrotor squadron, VMM-166. Captain Eileen Donovan, is currently assigned to VMM-166, flying the V-22 Osprey.

Captain Eileen C. Donovan.

Honorable Joseph P. Donovan



Marine Aviator Helps Police Take Out An Urban Sniper

By Dr. Fred H. Allison

Marine reservists are sometimes asked to assist U.S. local authorities, bringing their expertise and materiel assets into play. In 1973 in downtown New Orleans, Lieutenant Colonel Charles H. Pitman flew his Boeing Vertol CH-46 Sea Knight helicopter with heavily armed police on board who took out a determined and deadly sniper.

It was chilly, rainy, windy, and hazy, typical January weather in New Orleans. Pitman, the commander of Marine Air Reserve Training Detachment (now called Marine Aircraft Group 49 Detachment C), had just returned to his office after jogging. Marines were in his office setting up a television. He asked, "What the hell are you doing?" They replied that "there's a sniper shooting people downtown and we thought you'd be interested." As he watched the drama unfolding, he assumed the Coast Guard would handle the emergency response because they were the best outfitted and trained for this type of operation. He thought the Coast Guard would provide helicopters for the police in order to neutralize the sniper. Furthermore, due to his previous collaboration with the Coast Guard, regarding emergencies at high-rise buildings, he ordered two Marines with M-14 rifles to protect the Coast Guard helicopters.

Pitman continued to watch the television but saw no Coast Guard aircraft flying downtown. Later, his Marine shooters came back and stated that the Coast Guard wouldn't fly because of the awful weather. He believed he could fly into downtown despite the weather and approaching darkness. "I knew where the



Marine Corps

Lieutenant Colonel Charles H. Pitman.

[Mississippi] River was and how it went—we could hover down to the river and then follow it into New Orleans." He submitted his plan and was authorized to fly. He recalled that the reservists were "jumping up and down" and "going nuts watching the events on TV." They wanted to go. He selected his executive officer, Major Charles "Wimpy" Wimmeler as his copilot and a couple noncommissioned officers as shooters.

With the weather so lousy that it stopped the Coast Guard from flying, Pitman began flying, slowly, up the river toward New Orleans, keeping his Sea Knight only feet above the water and staying clear of obstacles. As he approached downtown New Orleans, he found the fog-shrouded mile-long Interstate 10 bridge over the Mississippi only by the vehicle headlights on it. He turned the Sea Knight right and proceeded to land in a parking lot next to city hall. With his crew waiting at the parking lot, a policeman drove him near the Howard Johnson hotel and pointed to another police car

about a block away. The policeman wanted him to go to that police car in order to communicate with the chief of police. Pitman took in the scene:

People were shooting at each other, the fire trucks [were] in the road and they [were] shooting water at the building because the guy [sniper] started fires [in the hotel]. And in every doorway there's a policeman, maybe a plainclothes or whatever. Everybody's got a gun, except me. I walk down the street at a normal pace so as not to attract attention. I get to the car and get on the radio and I said, 'This is the helicopter pilot. I need to talk to the chief.' The chief says, 'Come into the command center.' I said, 'Where is the command center?' 'In the Howard Johnson's on the first floor.'

Pitman walks to hotel, and he enters the lobby to find a chaotic situation:

The emergency lighting is on. There's a policeman with a crowbar who has the elevator door open and another policeman is shooting an automatic weapon up the elevator shaft and somebody is shooting back. There's a darkened area, it's the restaurant, and there are all these things lying there. These are all the firemen in their rubber suits and equipment, and they're sleeping because they've been up since 4 AM and on the job and getting shot at and everything. Over by the bar are a bunch of people in pajamas, patrons of the hotel that they wouldn't let go



Marine Corps

The Boeing Vertol CH-46 Sea Knight openings for the door and machine gun port were used by the New Orleans Police to shoot the sniper.

because they want to sort out who's who and what's what. In the middle is this big square table, 20 feet on a side, it's all lit up, and all around the table are police officers. I'm standing there in my flight suit and the little guy over on the far side looks at me and he's got a two-star general standing next to him. He pushes the general aside and says to me, 'Sir, come over here.'

It was Chief of Police, Clarence Giarrusso, searching for ideas; he thought the sniper(s) were on the roof. With a helicopter now available, the chief wanted Pitman to fly the Sea Knight, loaded with policemen and Marines, over the building

to assess the situation and shoot the sniper if possible. He lifted off, ascending toward the rooftop from the south. He swooped up over the roof line, and the combined team of Marines and policemen used a searchlight to locate the sniper. Because another policeman in another high-rise building had located the potential location of the sniper, the shooters blasted the concrete and cinderblock alcove that protected the sniper. When the shooters ran out of ammunition, Pitman started to descend, and as he did, the sniper shot at the Sea Knight with his .44-caliber magnum Ruger rifle and hit the helicopter.

Over the next few hours, this same cat and mouse scenario repeat-

ed itself: Pitman flying the Sea Knight over the roof; shooters chipping away at the alcove and running out of ammunition; sniper taking a shot at the Sea Knight as it dropped away from the roof. However, the sniper's end was near. Using a feint in order to get the sniper to reveal himself, Pitman dropped over the edge of the roof line and then flew right back up. The sniper came out of the alcove to shoot at the helicopter, but the shooters on the Sea Knight blasted away. The body was riddled with about 200 bullet holes.

For his bravery under extreme risk, Pitman was awarded an Air Medal and received the John Paul Jones Leadership Award from the Navy League.

Cobra: The Evolution of the Attack Helicopter

By Second Lieutenant Sivasubramaniam Ambikapathi and Stephanie Washburn

Over the last 40 years from the Vietnam War to the Long War, the Cobra helicopter has been used by the Marine Corps. Though it has undergone numerous technological improvements, it still remains a widely respected and lethal attack helicopter for close air support and ground escort operations.

The Cobra began its evolution in the early years of the Vietnam War when the Army decided to develop a dedicated attack helicopter. Because of urgent operational needs, Bell Helicopters modified the UH-1 series (Huey), calling the new helicopter the Huey Cobra or Cobra for short. It incorporated most of the components of the Huey but with a slender profile (“three feet, six inches wide as compared to over eight feet on the standard UH-1”). It also retained the

The first of 49 twin-engine AH-1J Sea Cobras to be delivered to the Marine Corps. The Sea Cobra’s 20-millimeter cannon was capable of firing 750 rounds per minute. The helicopter cruised at 185 miles per hour and dove at 219 miles per hour.



J. Webster

Marines trained in the AH-1G Cobra at Hunter Army Airfield in Florida. This photo shows the Cobra with a dual 40-millimeter grenade launcher in the turret, and a minigun and rocket pod on the wing.

“Lycoming T-53-L-13 gas turbine engine” and “the pilot, gunner, and the vital parts of the aircraft were protected by armor.”

The increased firepower of the Cobra was impressive. Its fuselage had two short wings, “less than two feet long,” which could be outfitted

with different weapons. Depending upon the type of turret, it could fire 7.62-millimeter miniguns or 40-millimeter grenades, and later, was armed with a multitude of different weapons, including 2.75-inch rocket pods. The Army was delighted with this new attack helicopter, and the first units arrived in South Vietnam on 29 August 1967. It was renamed the AH-1G (Attack Helicopter-1G). The Marine Corps received their first 24 Cobras in South Vietnam on 10 April 1969 and were assigned to VMO-2 at Marble Mountain Air Facility, Da Nang.

Because of its historical mission with amphibious operations, the Marine Corps also wanted a shipboard Cobra variant. This variant would be called the AH-1J or Sea Cobra and would include several important upgrades: rotor brakes, standard Navy avionics, and twin engines (“two 900-horsepower turboshaft engines coupled together”). The last upgrade improved reliability, payload, growth





Sgt R. L. Roeder

A left-front view of an AH-1T Sea Cobra helicopter from Marine Light Attack Helicopter Squadron 269.

potential, and safety. Furthermore, the Sea Cobra's armament included a three-barrel, 20-millimeter cannon in the front turret and different combinations of 7.62-millimeter miniguns, and seven or nineteen tube rocket pods on the wings. The Marine Corps received their Sea Cobras in February 1971.

Bell developed a variant of the Sea Cobra with a "larger diameter rotor" and increased weapon capabilities to include the TOW (tube launched, optically tracked, wire guided) missile. This variant was labeled the AH-1T. The Marine Corps put the AH-1T Cobra into service in 1979.

By 1986, the Cobra evolved into the AH-1W, Super Cobra (the current variant being used). It provides "full night-fighting capability with the Night Targeting System (NTS)" along with the potential armament of 20-millimeter cannons and TOW, Hellfire (air to surface), Sidewinder (heat seeking, short range, air to air), and Sidearm (self defense against anti-aircraft weapons and SAM radar) missiles as well as 5- or 2.75-inch rocket pods. The Super Cobra uses more powerful twin engines that can produce up to 1,690 horsepower each with a maximum speed of nearly 207 miles per hour and increased performance in hot weather environments. The Super Cobra is capable of air support, antitank attacks, armed escort, and air-to-air combat missions using

Forward Looking Infra Red technology for both nighttime and low light conditions. The Super Cobra has an advanced fire control system and a Heads Up Display with Doppler navigation, which helps the pilots seek and engage targets with different weapons systems. The cockpit of the Super Cobra is protected from small arms fire with Kevlar seating and armor. The body of the helicopter is built to absorb small caliber ammunition hits with self-sealing fuel tanks, and the main rotor can withstand the impact of 23-millimeter bullets. Eight Super Cobras can be refueled while flying with a modified Sikorsky CH-53E Super Stallion.

The evolution of the Cobra has continued with an upgrade package for

the AH-1W Super Cobra. This upgrade converts the AH-1W variant into the AH-1Z Zulu Cobra that is less vulnerable to ground fire and improves survival for the crew. The Zulu variant has self-sealing fuel tanks and systems, "energy-absorbing landing gear," and energy reducing "crashworthy seats." Defensive capabilities include warning systems when the aircraft is targeted by laser or radar systems. The aircraft can be loaded with combinations of the following ordnance: Hellfire antitank and anti-ship missiles, up to 16 each; 70-millimeter rocket pods, up to 76 total; Sidewinder air-to-air missile; "night-time illumination flare"; fire bombs; 20-millimeter cannon; "77- and 100-gallon external fuel tanks"; and three types of practice bombs. The aircraft has the latest avionics suite with a targeting system that has the "longest range" and "highest weapon's accuracy possible of any helicopter sight in the world," and a third generation Forward Looking Infra Red system. The Zulu variant has a "bearingless four-bladed foldable rotor system" that decreases vibration. The new rotor system increases performance, payload, speed, using the same General Electric T-700 engine as the Bell Helicopter UH-1Y Yankee general-purpose utility helicopter. The AH-1Z Zulu has 84 percent identical components with the UH-1Y Yankee.

An AH-1W Super Cobra helicopter with Marine Light Attack Helicopter Squadron 267 departs Camp Bastion, Afghanistan, 19 August 2011, en route to a close-air-support mission.

SSgt James R. Richardson



BOOK REVIEW

Last Men Out

Paul Weber, review of *Last Men Out: The True Story of America's Heroic Final Hours in Vietnam*, by Bob Drury and Tom Clavin, 2011.

I must confess that I have not read much about Vietnam. While Vietnam literature has never captured my imagination as has the Second World War, *The Last Men Out*, certainly did. In 271 engaging pages, you are taken through the last disastrous days of South Vietnam's existence from the perspective of the Marine Security Guards stationed at the U.S. Embassy in Saigon and the Consulate Guards in Da Nang and Can Tho.

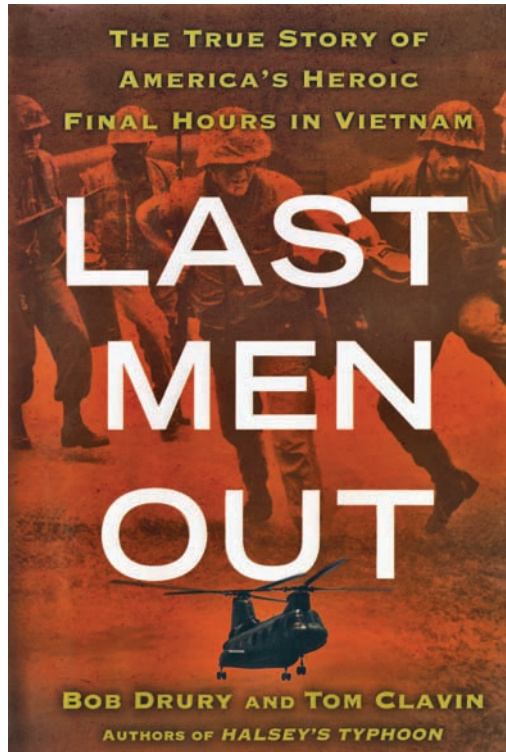
The strength of this book lies in learning about all the Marines, not just the leaders, Major James Kean and Master Sergeant Juan Valdez. (For those of you who remember the coffee commercials, this is his name.) Included in the narrative are short biographic sketches of each Marine. These sketches show how each Marine faced the uncertainty

and stress of a potential "Alamo" last stand on the roof of the embassy.

The authors are strongly sympathetic to the South Vietnamese allies. The authors continually stress the

promises made over the years by the U.S. that it would stand by the South Vietnamese and see the war through to a successful conclusion. Part of the problem with convincing the Ambassador to leave was that, until the very end, he worked under a personal illusion that the U.S. still had influence and could negotiate with the North Vietnamese. In the end, it took a direct order from Secretary of State Kissinger for Graham Martin to leave.

I highly recommend this book as a companion to General Moore's excellent book: *We were Soldiers Once . . . And Young: Ia Drang—The Battle That Changed The War In Vietnam*. Moore's book details the beginning—combat operations in Vietnam of 1965; Drury and Clavin's book details the end—the confusing withdrawal of 1975. If you are familiar with Vietnam literature, *The Last Men Out* should prove an interesting addition, and if not, a good place to start.



Vietnamese board CH-53s in LZ 39, a parking lot. The 9th MAB extracted 395 Americans and 4,475 Vietnamese in April 1975.

Department of Defense



Operation Urgent Fury: Grenada, 1983

By Dr. Fred H. Allison

The 22d Marine Amphibious Unit, a component of Amphibious Squadron Four, sailed out of Morehead City, North Carolina, on 17 October 1983 bound for Beirut, Lebanon. Two days out of port, the ships carrying the 22d Marine Amphibious Unit unexpectedly took a turn south and stopped about 500 miles north of the small Caribbean island of Grenada. Here radical Communists, linked to Cuba and the Soviet Union, had deposed and killed the Prime Minister and started establishing a hard-line Communist government. Their military entity, called the People's Revolutionary Army, had about 600 men bolstered by a few thousand militia and police. Most importantly they had military-advisory support of Cubans and some Communist weapons, including 12.7- and 37-millimeter antiaircraft weapons. There were also about 750 Cuban "construction workers" present.

The situation was a distinct threat to U.S. strategic interests in the region. Of great concern was the status of the 600 Americans on the island, many of whom were medical students at St. George's University. The last thing the U.S. wanted at this time was another hostage crisis—Iran was still a fresh memory. Marines of the 22d Marine Amphibious Unit, commanded by Colonel James P. Faulkner, got the word: "Prepare for action on Grenada"; they had scant information or maps, nevertheless, with considerable urgency, they planned various contingencies of which the most likely being a noncombatant evacuation. While they waited and planned, on 23 October word came of the Beirut bombing that killed 220 of their fellow Marines.

Meanwhile the Organization of Eastern Caribbean States was agitated at the "horror show" occurring on Grenada and requested that the U.S. do something. The Organization of Eastern Caribbean States planned to invade Grenada if the U.S. did not. However, Washington acted. The Joint Chiefs of Staff sent word near midnight on 23 October: "Conduct military operations on Grenada"; protect and evacuate U.S. citizens and designated foreign nationals; neutralize Grenadian forces; stabilize the country; and maintain the peace. Operation Urgent Fury was on. The landing was to occur in less than 30 hours.

The Marine portion of the assault would entail moving the three companies of the 22d Marine Amphibious Unit's ground combat element, Battalion Landing Team, 2d Battalion, 8th Marines, commanded by Lieutenant



Marine Corps

Boeing Vertol CH-46 Sea Knights and a Bell Helicopter AH-1T Cobra on board USS Guam, 1983.

Colonel Ray L. Smith, ashore to secure the key northern towns of Pearls and Grenville. Army battalions—there would be elements of six of them—bore the responsibility for the southern part of Grenada. A Navy SEAL team's inspection of the terrain around Pearls revealed its unsuitability for the Marines' amphibious tractors. The 22d Marine Amphibious Unit's aviation combat element, Reinforced Marine Medium Helicopter Squadron 261, commanded by Lieutenant Colonel Granville R. "Granny" Amos, bore the responsibility of getting two companies of Marines ashore in the initial assault.

Brief time was 0100; take off was at 0320. Despite the weather briefer's promise of a beautiful tropical day, a hard, wind-blown rain greeted the aircraft crews as they stepped upon the USS *Guam*'s flight deck. Assured it was only a squall, the Marine pilots launched all 22 aircraft. Mission commander Amos, flying a Boeing Vertol CH-46 Sea Knight, was startled as he watched the first Sea Knight take off from the *Guam*, clear the deck, and then drop below the deck. The pilot descended to clear the clouds and to affect a squadron-sized rendezvous. Amos recalled that this rendezvous, conducted in the dark and rain at less than 400 feet was the "hardest thing we did all day, get all 22 aircraft airborne without a mid-air . . . the kids sorted it out."

The unexpected squall had delayed the assault, nevertheless, it was still dark when the first helicopters approached landing zone "Buzzard" south of Pearls. Amos adjusted the landing site to avoid palm trees in the



Marine Corps

Members of the People's Revolutionary Army practiced night firing a quad mounted 12.7-millimeter antiaircraft weapon, encountered by U.S. forces during Operation Urgent Fury.

planned landing zone. The Sea Knights approached the landing zone and circled it “at an unbelievably steep bank,” thereby reducing their vulnerability to ground fire and giving the door gunners a better view of the landing zone. When the People's Revolutionary Army gunners arced streams of antiaircraft fire at the transports, Bell AH-1T Cobras rolled in and unleashed cannon fire and 2.75-inch rockets at them. The gunners fled, leaving the following helicopter assault waves unchallenged.

In the assault on Grenville, which followed an hour later, Amos again directed the assault. The terrain in the planned landing zone again caused him to adjust the landing site. He sent this wave of helicopters to a soccer field in the middle of town, dubbed landing zone “Oriole.” The citizenry were cheering and waving as the helicopters approached. By midmorning, the Marines had their two objectives firmly under control.

To the south in the Army zone, the situation was not so encouraging. Here three battalions of soldiers, 82nd Airborne and Rangers, had the difficult task of securing the sizeable urban area in and around Grenada's principle city, St. George's, where the Cuban-bolstered People's Revolutionary Army was putting up a fight. Although there were other aviation assets available, Joint Task Force Commander, Vice Admiral Joseph Metcalf III, decided to use the Cobras of Reinforced Marine Medium Helicopter Squadron 261 to provide air support for the Army. Captains John P. Giguere and Timothy B. Howard, with gunners First Lieutenant Jeffrey R. Scharver and Captain Jeb F. Seagle, respectively, were the first Marine aviators to respond. Because they could not establish communications with the Army units and were low on fuel, they returned to the *Guam*.

Captains Douglas J. Diehl and Gary Watson lifted off next with gunners First Lieutenants Harold R. Gielow and Rick S. Ryan, respectively. Watson finally established communications with an Army forward air controller, and Diehl passed the flight lead to him. A target was

identified as possibly a 90-millimeter cannon in a house, but without a common map, the pilots could not positively identify the target or the forward air controller's position. The forward air controller signaled his position using his pocket mirror. With the forward air controller's location pinpointed, the pilots knew the general location of the target, but still didn't have the exact identification of it. As they passed over a small house, the forward air controller shouted: “That's it! That's it! It's right under you!” Watson sharply turned left, while Diehl covered him, spewing 20-millimeter cannon shells at the house. The two pilots then returned for another attack. Watson hovered over a ridgeline, almost directly above the forward air controller, and fired a TOW (tube launched, optically tracked, wire guided) missile into the window of the house. It blew the roof off and flushed out three men who piled into a truck. Watson fired another missile and demolished the truck.

The Cobra pilots asked for another target and were told of antiaircraft positions at Fort Frederick, near the harbor of St. George's. The forward air controller had little information on the exact location of the antiaircraft position except to say that “we lost a Black Hawk up there.” Since there were no friendly troops close by who could direct an airstrike and “they did not have the fuel to go looking for targets,” Diehl and Watson headed back to the *Guam*. They passed Giguere and Howard's Cobras heading south.

Giguere and Howard did not have the fuel to look for a target, either, and after talking to the Army forward air controller, headed toward Fort Frederick. Metcalf ordered the Cobras to attack the fort. It was a hot position in “range of every type of weapon in the St. George's area.” On their fifth run, Howard's Cobra took antiaircraft hits, piercing both engines and ripping into the cockpit. He suffered serious wounds to his right arm and leg, and a chunk of shrapnel had lodged in his neck. He called for Seagle to take over the flying, but he did not

AH-1T Cobra of Marine Medium Helicopter Squadron 261.

Marine Corps





Marine Corps

Curious Grenadians inspected the crash site and remains of the Cobra helicopter, piloted by Captains Timothy B. Howard and Jeb F. Seagle.

respond. The blast had smashed his forehead into the gun site and rendered him unconscious. Howard continued to fly, seeking a landing site. He selected a sports field, called Tanteen, in the middle of St. George's. He had only one good arm and leg, and only seconds to get the aircraft under control.

I couldn't use the pedals, so I set the stick where I thought it would level the helicopter and propped my left foot around it. I then pulled the collective up with my left hand as we neared the ground to accomplish autorotation. As I pulled it toward me, the bird hit hard. I was sure the crash would kill us. It hit so hard the canopy removal systems must have activated because all the windows blew out. Even though the helicopter bounced very hard off the deck, it didn't flip over.

The crash landing awoke Seagle who promptly crawled out and yelled at Howard to get out who managed to unbuckle himself and then fell out of the helicopter. Seagle dragged Howard about 30 meters away from the burning aircraft. Enemy troops, located in the buildings around the sports field, peppered the scene with small-arms fire. Howard admonished Seagle to get away. However, Seagle ripped his radio cord off his helmet, wrapped it around Howard's right arm, and stayed. In an effort to draw attention away from Howard or possibly get assistance, Seagle finally left.

Alone, Howard suddenly felt the earth "start shaking." Giguere was blasting away with his 2.75-inch rockets and cannons at the Communists approaching the crash site. Giguere and Scharver made continuous attack runs and made radio calls for a medevac. Major Melvin J. DeMars and copilot First Lieutenant Lawrence M. King, flying a Sea Knight over the *Guam*, heard the radio calls for a rescue. Without waiting for clearance from the air boss, they responded and accelerated toward St. George's. As they neared Howard's position, Giguere briefed them on the

situation. Giguere volunteered to provide cover for the Sea Knight as it flew in to pick up the Marines. Impressed by Giguere's willingness to provide cover, DeMars stated that "it was a very unorthodox thing for him to do . . . he would have no one to cover him . . . he was going to expose himself to some pretty serious antiaircraft fire in order to cover me to come into that zone."

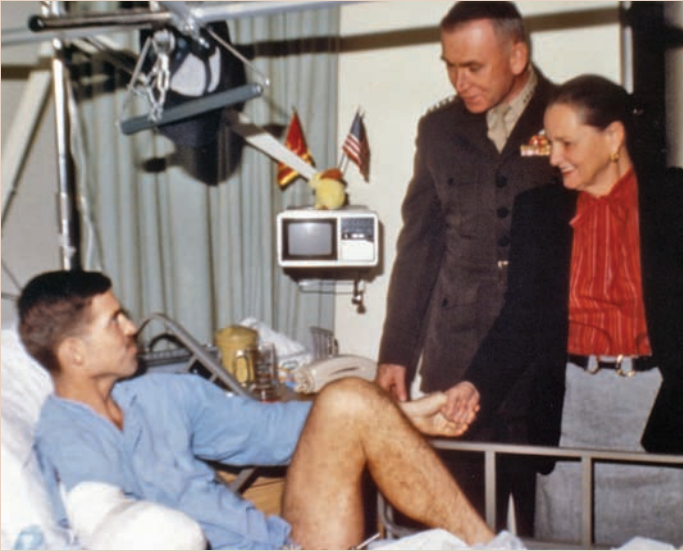
Despite Giguere's bold attacks, the Sea Knight was hardly out of danger. DeMars understood that he was flying into a hot zone where the enemy had been hitting American aircraft. "I just figured we were all dead men . . . but it was just something that we had to do." Flying low and fast over the bay and St. George's and approaching

the sports field, the door gunners, Gunnery Sergeant Kelly M. Neidigh and Corporal Simon D. Gore, hammered the enemy fighters with their .50-caliber door guns. DeMars planted his Sea Knight about 30 meters from Howard. Overhead, Giguere continued his attacks on the enemy, but the Sea Knight took some rounds. Neidigh jumped out of the Sea Knight, ran over to Howard, and carried him back to the helicopter.

Once Howard was on board, DeMars still did not leave, waiting for Seagle. Giguere and Scharver made another attack run on the antiaircraft site and enemy fighters. After a short delay, Giguere called DeMars and told him to get out. DeMars reluctantly flew out. Giguere made his final dummy-attack runs because he was totally out of ammunition. When DeMars cleared the town, Giguere followed him out over the bay. The enemy gunners then fired lethal rounds into the departing Cobra, and it plunged into the bay, killing both aviators. After leaving the crash site, Seagle was captured and shot by the enemy.

In order to secure the safety of the Governor-General, Sir Paul Scoon, a Marine amphibious and helicopter assault was planned for the southern coast across the island from Pearls and Grenville. The amphibious assault, composed of 13 amphibious tractors, tanks, jeeps, and a company of Marines, went ashore on the evening of 25 October. Predawn the next day, 14 helicopters of Reinforced Marine Medium Helicopter Squadron 261 delivered another company of Marines onto a patch of beach only large enough for two helicopters at once. The air-sea assault, under the cloak of darkness, gave a "psychological shock" to the revolutionaries who discarded their uniforms and fled their positions. Marines seized the Governor's mansion and liberated him while a SEAL team conquered other enemy positions in St. George's including the daunting Fort Frederick.

By the second day of the operation, the crews of



Col Timothy B. Howard

Capt Timothy B. Howard was visited in the hospital by Commandant, General P. X. Kelley and his wife shortly after Howard was severely wounded in Operation Urgent Fury.

Reinforced Marine Medium Helicopter Squadron 261 were on call or had flown for 36 hours with flight time for the squadron at 305 hours. The deck crews of the *Guam* were also hard pressed and worked incessantly keeping flight operations going. When Captain Carl R. Erie, USN, told Faulkner that the deck crews needed rest, he retorted that they could not stop. “We’re not going to stop, we’re going to keep going; your deck crews are going

to have to sleep on the deck between launches,” and they did.

In the afternoon of the second day, an unexpected mission arose: “Rescue American medical students.” There were about 200 students at an annex at Grand Anse Beach on Grenada’s southeast coast. Metcalf ordered the helicopters of the Reinforced Marine Medium Helicopter Squadron 261 to assist the 2d Ranger Battalion in a rescue operation. Under the protection of Navy attack jets, a Air Force gunship, and Marine Cobras, nine Sea Knight helicopters inserted the Rangers to rescue the students; four CH-53 Sea Stallions loaded up the students; and Sea Knights returned and picked up the Rangers. In all, 231 civilians, including Grenadians, students, and dependents were safely rescued.

By 31 October, Grenada was secure, and the Marines of the 22d Marine Amphibious Unit returned to the ships of Amphibious Squadron Four. Besides an assault on a small island north of Grenada called Carriacou where there was no resistance and no casualties, Operation Urgent Fury was over. Urgent Fury exhibited the capability of the Marine air-ground task force in conducting a complex-contingency operation involving the rescue of American citizens and the neutralization of extremist revolutionaries in the Caribbean, a strategically important area.

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CH-53 Super Stallion helicopters used to rescue 200 students at the Grand Anse Beach.

Marine Corps



Cobras Hit Back at al-Khafji

“First to Write” highlights History Division’s past work through excerpts from earlier publications.

During the Gulf War, 1990–91, the Iraqi Army attempted to goad Coalition forces into a premature invasion of Kuwait by attacking the Saudi border town of al-Khafji. Launched on 29 January 1991, this attack struck both the 1st Marine Expeditionary Force and the Joint Forces Command-East, composed primarily of Saudi Arabian forces responsible for defending the al-Khafji region. Marine and Saudi forces stopped the Iraqi advance, heavily supported by Marine aviators. Marine AH-1W Super Cobras were particularly instrumental in blunting the Iraqi advance.

This excerpt is from Paul W. Westermeyer, *U.S. Marines in Battle: Al-Khafji, 28 January–1 February 1991* (Washington DC: History Division, U.S. Marine Corps, 2008) 22–23. A PDF version is available from the History Division website (<http://www.history.usmc.mil>) under Publications.

At this point in the battle, some bitterness arose on the part of the Saudis concerning the amount of air support being allocated to Joint Forces Command-East forces. In the face of the Iraqi advance, Major General Sultan “repeatedly called on the U.S. Marine Corps for air strikes to stop them.” As General Khaled later recounted: “He was in close touch with the Marines because they shared a sector. They had trained together and an American liaison officer was attached to his headquarters. But in spite of his pleas, no air strikes had taken place. Coalition aircraft had

not moved.” The resentment can be attributed in part to poor communications. Shortly after midnight, Major General Sultan had called for airstrikes against the 15th *Mechanized Brigade* as it drove south to al-Khafji. He claimed “that there had been no air attack,” when in fact an attack had taken place against the Iraqi column. But primarily the Saudi impatience arose from differing priorities. The Americans viewed the Iraqi occupation of al-Khafji as a minor inconvenience that would soon be rectified, but for the Saudi kingdom it was an assault on their own sacred soil.

Saudi impatience could explain the perception of lack of air support, as well as inexperience in modern air-ground cooperation that the battle required. However, the Marines working alongside Joint Forces Command-East also supported the Saudi belief. As Captain Braden later wrote: “Little air support was available to the [Joint Forces Command-East] forces as the priority of effort was with the Marines to the west in repulsing the attack of the Iraqi 1st *Mechanized Division* and elements of the 3d *Armored Division*. The Marine fight had preceded the JFCE fight by a couple of hours and would remain the focus of effort throughout the night.”

The fight at Observation Post 4 attracted the attention of Coalition aircraft right away. A later Air Force study found: “Marine and Air Force CAS [Close Air Support] began to arrive in front of OP-4 by 2130 local time. By 2300, three AC-130 gunships, two F-15Es, two . . . F-16Cs, and four A-10s had joined the battle at OP-4.” Despite the rapid response to the fighting at Observation Post 4,

all sources agree that the tactical air control center did not respond promptly to the initial Iraqi attacks. By most accounts, it was not until Brigadier General Buster C. Glosson, the director of campaign plans, entered the center on a routine check of current operations that someone thought to wake up Lieutenant General Charles A. Horner, the Joint Force Air Component Commander. Prior to that time, although the 3d Marine Aircraft Wing had responded to Marine calls for air support with alacrity, the tactical air control center remained focused on the evening’s strikes into Iraq. Once awakened, General Horner realized that this was a major Iraqi offensive, and a wonderful opportunity to strike at Iraqi forces while they were on the move and vulnerable. He refocused the Coalition air effort into Kuwait accordingly.

Much of the Marine air support for al-Khafji fell on the Cobras of Marine Light Attack Helicopter Squadron 369, commanded by Lieutenant Colonel Michael M. Kurth, and Marine Light Attack Helicopter Squadron 367, commanded by Lieutenant Colonel Terry J. Frerker. Because the arrangement with Joint Forces Air Component Command left Marine helicopters totally in support of the Marine air-ground task force, the Cobras were able to respond rapidly to the Iraqi offensive. Eight AH-1W Cobras responded to initial calls from the air-naval gunfire liaison Marines, ensuring that the Iraqi advance into al-Khafji was not unopposed. Not long after 0100 on the 30th, a flight of four Cobras from Kurth’s squadron, led by Major Michael L. Steele, engaged in a gun duel with six



Marine Corps

Marines loaded Super Cobras of HMLA-369 with antitank missiles during a practice exercise. Cobras provided extensive close air support during the battles for al-Khafji and Observation Post 4

Iraqi armored personnel carriers on the coast road, reportedly pitting the helicopters' 20mm Gatling guns and 2.75mm rockets against the armored personnel carriers' 73mm main guns.

Two AH-1Ws from Frerker's squadron, led by Major Gary D. Shaw, had an even more hair-raising experience. Launching from al-Mishab to provide air support at Observation Post 4, they found themselves circling and waiting for a forward air controller to provide them with targets. Eager to support the Marines on the ground, they over stayed their fuel limits and attempted to reach the logistics base at Kibrit, only to find themselves flying over an Iraqi armored column which fired on them. They then attempted to divert back to al-Mishab, but their navigation equipment malfunctioned and they landed instead at the al-Khafji oil refinery. This was a stroke of luck. They refueled their aircraft from the refinery's supplies as the Iraqis marched into the city. The unidentified fuel

worked well and they were able to return to base.

Another flight of Cobras, led by Captain Randal W. Hammond, destroyed four T-62 tanks. When nine Iraqi soldiers waved white flags and indicated they wished to surrender, they used their helicopters to "round 'em up like cattle" until

Marines on the ground could secure the prisoners. Iraqi artillery fire forced the section to withdraw, but not before one Cobra destroyed a final T-62 with a wire-guided missile. The explosion caused "its turret to flip upside down and land on the open hole like a tiddlywinks," Captain Hammond later recalled.

The remains of two Iraqi T-62 tanks from the 6th Armored Brigade that were destroyed on the night of 29 January 1991 in front of Observation Post 4 near the Kuwaiti and Saudi Arabian border.

MGySgt Gregory L. Gillispie



Marines Rescue Embassy Staff at Mogadishu

By Dr. Fred H. Allison and Second Lieutenant Bryan C. Bergman

Operation Eastern Exit, the rescue of embassy staff in Somalia by a Marine air-ground task force has received relatively little attention. The *Washington Post* called the operation, “one of the riskiest rescues in American diplomatic history,” and rightly so. In late 1990, Mogadishu was a city brimming with armed gangs, looting, and indiscriminate killings—a caldron of corpses, stench, and anarchy.

As 1991 dawned, American Ambassador, James K. Bishop, realized that the situation was dire and called for an evacuation. The U.S. Central Command was alerted and planning began. Central Command created a contingency Marine air-ground task force with Colonel James J. Doyle Jr. as commander, using two amphibious ships, the USS *Trenton* and the helicopter-assault ship, USS *Guam*, from the 4th Marine Expeditionary Brigade. The task force left Oman’s waters at 2330 on 2 January and steamed toward Somalia about 1,500 miles distant. On board the *Guam* were two Boeing Vertol CH-46 Sea Knight squadrons, Marine Medium Helicopter Squadrons 263 and 365, and on board the *Trenton* was a detachment of two Sikorsky CH-53E Super Stallions from Marine Heavy Helicopter Squadron 461.

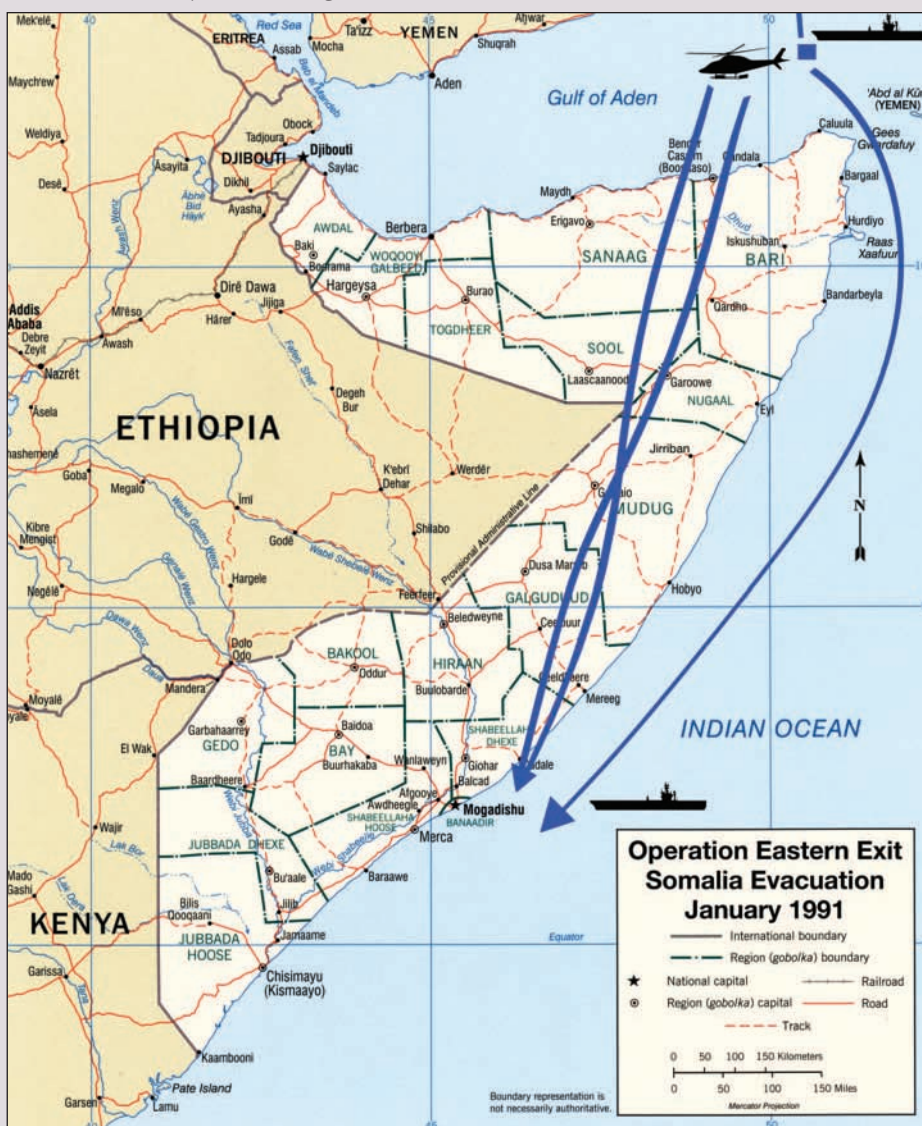
Major Daniel C. Schultz commanded Marine Heavy Helicopter Squadron 461, which was composed of 5 pilots and 15 crewmen. Initially, the Super Stallions were not central to the evacuation plan. The original plan called for the Sea Knights to fly into Mogadishu when in range—about 100 miles off the coast. However, the task force received

urgent messages from the embassy—the situation was grim. The embassy reported being fired upon by rocket-propelled grenades and machine guns. Somalis were thronging around the compound walls, which indicated a breach was imminent. Ambassador Bishop reported that “we are falling behind the power curve” and requested immediate assistance. Central Command responded that a rescue

force would arrive by 7 January. Bishop responded that “we won’t be here.”

Consequently, the Super Stallions, with their ability to fly extended distances with aerial refueling and enough room to carry armed Marines, meant the rescue could happen before 7 January. Schultz and his team went to work planning a “1,000 mile mission, flown at night, over water, to a place they had

Routes taken by Navy ships, USS Trenton and USS Guam, and Super Stallions in order to rescue the embassy staff at Mogadishu, Somalia.





Aerial view of the U.S. Embassy at Mogadishu.

TSgt Perry Heimer, USAF

never heard of, with maps from 1969.” The team developed a plan that required them to launch shortly after midnight that night, 4 January. The Super Stallions would require two refuelings on the flight into Somalia.

In order to refuel the Super Stallions, Lockheed Martin KC-130 Hercules would slow down and descend to the helicopters’ altitude at about 6,000 feet. As the helicopters approach the Hercules refueling basket (see p. 35) at the end of about 100 feet of hose, both the Super Stallions and Hercules create considerable turbulence due to their proximity to one another. As such, getting the probe into the basket in the dark is one of the most difficult aerial maneuvers. Furthermore, the refueling probes (see p. 34) of the Super Stallions were detached during transit on the *Trenton*. The probes were reattached, but no pressurization equipment was available to check their satisfactory operation.

Major Schultz with Captain Jeffery A. Bowden and Captain Brian C. Phillips with Captain Kevin D. Moon flew their Super Stallions from the *Trenton* to the *Guam*. Fifty-

one Marines from Battalion Landing Team, 1st Battalion, 2nd Marines, and “nine Navy special warfare personnel from Sea, Air, Land (SEAL) Team 8F” boarded the two helicopters. At 0347, the Super Stallions lifted off the *Guam* and turned southwest toward Somalia, 466 miles away. Almost immediately they encountered cloudy and rainy weather, turning the moonless night into a bottomless darkness. Climbing to about 6,500 feet, the pilots decreased the power on one of the three engines of the helicopters, thereby decreasing fuel consumption. Earlier the same evening at 0200, two Hercules from Marine Aerial Refueler Transport Squadron 352 took off from Thumrait, Oman, almost 1,000 miles northeast of the rendezvous point in the Indian Ocean where the Super Stallions were to link up with the Hercules.

About 50 miles into the flight, the Super Stallions navigation systems failed. Schultz chose to continue on. Flying without precision navigation would make finding the Hercules more difficult. As such, Bowden, took up dead-reckoning navigation (i.e., guesswork based on the heading

and distance to the projected refueling point). Nearing the first refueling point about 200 miles from their takeoff point, the pilots began radio calls to the Hercules. After about 10 minutes of repeated radio calls without a reply, Schultz heard: “This is Sunshine 41. I’m at the refueling point.” The Hercules pilot turned on the plane’s exterior lights, and the Super Stallion crews saw them.

Schultz maneuvered his Super Stallion refueling probe into the basket and started refueling. Almost immediately, Schultz and Bowden heard crew chief, Corporal Tom McKay, shout “Emergency break-away!” The fuel hose connectors inside the Super Stallion cargo bay were not properly seated. Fuel inundated SEALs and Marines seated nearby. While Schultz backed away from the Hercules, McKay grabbed the fuel lines, muscled them together, and Corporal Gerald Lovejoy tightened them down. Schultz replugged into the basket, and the Super Stallion gulped in 10,000 pounds of fuel without any leaks.

Due to the heavy turbulence, Captain Phillips was having difficulties getting his Super Stallion refuel-

ing probe into the basket and keeping it in. The clock was ticking, and the helicopters were 20 minutes past the no-go point. Schultz encouraged his wingman, "I know you can do it." Something happened, and "it clicked, and he popped it right in." With full fuel tanks, the Super Stallions turned toward Somalia.

The Hercules provided navigational information to the Super Stallions. As they neared Somalia, they refueled again, topping off their tanks for the flight into the embassy and the flight out. An Air Force Lockheed AC-130 Spectre gunship was to meet them and provide fire support when they reached Mogadishu. However, it didn't show up. Schultz had to choose between waiting for the Spectre or continuing on. Schultz, after receiving an endorsement from

his crew, decided that surprise and the cover of semi-darkness were more important. Besides, time was ticking for the embassy staff.

The pilots pushed their aircraft down and increased speed, wanting to be fast and low when crossing across Mogadishu to minimize their vulnerability to ground fire. With no visible horizon and a featureless sea below, Schultz found it difficult to descend below 500 feet, the water seemed "right in his face." When his electronic gear warned of radar from an anti-aircraft weapon, he went even lower.

The Super Stallions roared across the Somalia shoreline at 50 feet and 150 knots. Below they saw a group of Somali fighters in a pickup truck with a heavy machine gun mounted in the back. They leapt from the

pickup truck and scrambled for cover as the mammoth helicopters burst upon them. Although the Marine pilots crossed the shoreline where planned, they realized that their 1969 maps were useless in finding the embassy.

As the Super Stallions flew over a sprawling city composed of buildings that all looked alike, their helicopters were clearly visible and in range of anyone on the ground. Schultz recalled that this stage of the operation was the worst part of the whole mission: "Flying around like a bat out of hell at very, very low altitude, two huge helicopters in tight formation, with red and green tracers arcing toward us; completely lost." Bowden did some quick route planning and determined a heading and time from the airport that would put them in

The refueling probe is the long mechanism sticking out of the lower front, right side of the helicopter. The Hercules aircraft refueled the Super Stallions three times during Operation Eastern Exit.

Kristopher Wilson





SSgt Stacy L. Pearsall, USAF

The white round mechanism, seen in the lower middle of the photo, is the refueling basket into which the CH-53s inserted the refueling probes during the flight into and out of Mogadishu.

the vicinity of the embassy. Shortly after leaving the airport, the pilots spotted an American flag, the embassy, and crowds of Somalis all around it.

The Sea Stallions landed in the embassy yard, blowing dust clouds everywhere. Marines and SEALs scrambled out of the helicopters and established security. Karen Aguilar, a Foreign Service officer commented: "They looked about seven feet tall, and on every inch of their bodies they had this terrible paint. They looked ugly, they looked mean. They looked like swamp creatures." The Marines loaded 61 evacuees, including the ambassadors of Turkey, Nigeria, and United Arab Emirates, and the Omani Chargé d'Affaires. A Spectre gunship showed up, providing fire support for the evacuations.

About an hour later, the Super Stallions lifted off and flew toward the *Guam*. By steadily steaming southwest, the *Guam* had shaved off almost 100 miles return flight distance. Only one aerial refueling was

required. When Schultz plugged into the basket, a poor connection caused a leak, and fuel got sucked into one of the engines. Flames shot out the back of the engine and along the top of the aircraft. Schultz ignored the fire and stayed plugged into the basket. After both Sea Stallions were refueled, they flew toward the *Guam* and landed at 1040.

While Marines and the SEALs kept the embassy secure, the *Guam* continued toward Somalia. Shortly after midnight on 6 January, just off the coast, Marine Medium Helicopter Squadrons 263 and 365 crews, flying on night vision goggles, began phase two of Eastern Exit. In four waves of five Sea Knights, Marines and SEALs flew into the blacked-out compound and evacuated the remaining people including 61 U.S. citizens. No helicopters from the three Marine squadrons were lost during Operation Eastern Exit.

Before disembarking at Muscat, Oman, Ambassador Bishop

addressed the Marines and sailors on board the *Guam*.

Subsequent events made it clear that the Marines and SEALs came just in time, as looters came over the wall as the helicopters left. We were very impressed by the professionalism of Eastern Exit. The Marines and SEALs appeared at all times the master of the situation. The best indicator of their competence is the mission's success: the evacuation of 281 people from an embattled city without injury to either evacuees or military personnel. The actions of those protecting the Embassy and evacuating evacuees was indeed heroic. And the actions aboard *Guam* were indeed compassionate.

Few of us would have been alive today if we had been outside your reach. It was only due to your extraordinary efforts that we made it. We will take a part of each of you with us the rest of our lives.

Thunderbolts Rain Down on the Serbs During Operation Deny Flight

By Dr. Fred H. Allison

In the 1990s the world's attention was focused on Bosnia and Kosovo where multiple ethnic groups fought and butchered each other over power and territory. As part of a United Nations (UN) peacekeeping effort, beginning in late 1992, the North Atlantic Treaty Organization (NATO) began Operation Deny Flight. Deny Flight's goal was to enforce no fly zones over Bosnia, monitor ground activities, and give air support to the UN if needed.

As part of the NATO air coalition, Marine fighter and attack squadrons started supporting Deny Flight in 1993. McDonnell Douglas F/A-18 Hornet squadrons were either land based at Aviano, Italy, or with a carrier air wing; McDonnell Douglas AV-8B Harrier II squadrons were with a Marine air-ground task force. The first Hornet squadrons to support Deny Flight were Marine Fighter Attack Squadron 312, commanded by Lieutenant Colonel Randy W. Brickell, from the USS *Theodore Roosevelt*, and Marine Fighter Attack (All Weather) Squadron 533, commanded by Lieutenant Colonel David J. Rash, from Aviano, Italy. In January 1994, Marine Fighter Attack Squadron 251, Thunderbolts, commanded by Lieutenant Colonel Robert E. Schmidle, Jr., arrived in Aviano to replace Marine Fighter Attack (All Weather) Squadron 533. Up to this time no NATO aircraft had dropped ordnance in Bosnia, but that soon changed.

On 10 April 1994, Thunderbolt Hornets were flying over the eastern Bosnia town of Gorazde, a UN declared

“safe area.” Serbian military units, including armored vehicles, were moving into Gorazde. Major L. Ross Roberts and wingman Captain John P. Crook, received a close-air-support brief from the UN forward air controller. The pilots could clearly see where the Serbians had moved through town; houses were aflame. As the forward air controller spoke, gunfire could be heard in the background. Roberts and Crook flew down low and fast, minimizing their vulnerability to enemy ground fire and keeping their targets in sight. The UN didn't clear a strike (political sensitivities were such that a strike had to be cleared by none other than the UN Secretary-General, Boutros-Boutros Ghali). The pilots understood that the forward air controller was in a tough spot—he implored them, “Hey mate, I don't have clearance for you to drop yet but if you can just hang on five more minutes.” However, the pilots had burned their fuel reserves down to dangerous levels, and for safety, they had to head home. Nevertheless, a flight of Air Force General Dynamics F-16 Fighting Falcons were cleared to drop bombs on the Serbs. These were the first bombs dropped in Deny Flight; NATO had used ordnance only once before on 28 February 1994 when four Fighting Falcons shot down four Serbian fighter jets.

The next day the weather turned worse with rain and low clouds, minimizing fighter flights over Bosnia. Though the Air Force couldn't fly, Navy and Marine Corps aviators could. As such, Schmidle ordered his Hornets loaded with high-drag conventional 500-pound bombs because laser-guided bombs would be ineffectual in this type of weather. Schmidle and his wingman, Captain Bill H. Osborne took off at 0800 for an air-defense or close-air-support mission. Their mission was extended to five hours when their relief, a section of French fighters, had to return to base because of a fuel transfer problem. Their relief section of Hornets, led by Major Douglas P. Yurovich and Captain John E. Eans, took off and headed for the refueling aircraft, a Boeing KC-135 Stratotanker, over the eastern Adriatic before proceeding into Bosnia. At the same time, Schmidle and Osborne headed for the same refueling aircraft before heading home.

Schmidle and Osborne fueled first. The combat air operations center radioed that a British forward air controller in Gorazde asked for a fly-by as the Serbs were aggressively maneuvering in the town. Schmidle smelled a fight. When he contacted the combat air operations center, the commanding officer emphasized that he did not have to fly the mission; it was strictly voluntary. He

Thunderbolt Hornet on flight line at Marine Corps Air Station, Beaufort, South Carolina.

LtCol T. S. Clark





LtCol T. S. Clark

Hornets being refueled by a Boeing KC-135 Stratotanker.

said they would go “take a look” and assess whether they could assist the forward air controller.

Schmidle and Osborne flew on toward Gorazde, but finding the city was not easy in the overcast sky. About 10 miles north of the town, Schmidle spotted a hole in the clouds through which he could see the Drina River, which flowed through Gorazde. Schmidle and Osborne descended through the clouds. Flying through the valley between the mountains and below the clouds, they tracked the river to Gorazde.

Nearing Gorazde, Schmidle checked in with the forward air controller who briefed him on the situation. Since Schmidle and Osborne carried conventional 500-pound bombs, the forward air controller and Schmidle decided that the forward air controller would describe the targets until the pilots had visually acquire them. They flew fast and low over the town of Gorazde ever mindful of their vulnerability to anti-aircraft fire. Because of their concern for shoulder-fired, surface-to-air missiles, they deployed all their flares. Once they identified the targets, they got clearance to drop ordnance. Osborne dropped one of his 500-pound bombs, which knocked out a Serbian armored vehicle. Osborne couldn’t release his second bomb. Schmidle made a bombing run on another vehicle, releasing both bombs, but they failed to detonate. Not deterred by dud bombs, Schmidle made multiple strafing runs on the vehicles until he was low on fuel and out of 20-millimeter cannon rounds. He destroyed three

Serbian armored personnel carriers and a truck.

Schmidle and Osborne’s mission lasted in excess of seven hours. It was the only time during the squadron’s four month deployment that they dropped ordnance, and the first time since 1918 that Marine aviators had fired on hostiles in Europe. As they began their approach to Aviano, Schmidle stated that his aircraft needed to be rearmed with bombs and 20-millimeter cannon—“all the Marines in the maintenance area burst into spontaneous cheering and yelling.”

A subsequent damage assessment by UN observers described the air strikes and overhead presence that day as “an outstanding display of military technology.” Two days after their airstrikes of 11 April, the Thunderbolts flew their last mission of the deployment.

The news of the Gorazde mission received world-wide attention. At the Pentagon, Air Force Chief of Staff, General Merrill A. McPeak, praised the aviators to Marine Commandant, General Carl E. Mundy Jr. With a big grin McPeak said, “Hey, your guys gunned ‘em. That’s good, that’s good!” Mundy highlighted the Gorazde action before the Senate while testifying about Marine Corps capabilities. He remarked that “those just happened to be Marine airplanes that were on station that day. The day before they were indeed Air Force F-16s, but I make a point to emphasize that those were aircraft that were requested by a CinC [commander in chief of European Command] to come over because of their special focus [and how it relates] to what we are doing—close air support [for peacekeepers].”

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LtCol Robert E. Schmidle Jr. is in middle row with his hand on squadron shield. Maj Douglas P. Yurovich is in middle row, second from left. Capt Bill H. Osborne is standing on the right, next to truck, and Capt John E. Eans is on Schmidle’s left.

Col Douglas P. Yurovich



“Break! Break! Flares!”

By Paul W. Westermeyer

In 1990 Saddam Hussein ordered Iraq's military to invade Kuwait, sparking the first major post-Cold War international crisis. An American-led Coalition responded to the invasion and liberated Kuwait following an air campaign that lasted just over a month. The Gulf War became known as the video game war due to the Coalition's overwhelming air superiority, but it was not a game but a conflict with deadly dangers on both sides. Marine aviators were engaged against the Iraqis from the first day of the air war until the cease fire was declared. To those observing the war from afar, it might have appeared that the Marine aviators were penetrating Iraqi air defenses with ease, but in fact they were engaging a dangerous enemy. Most often the Marine aviators were successful; sadly this was not always the case.

On 18 January, the first Marine aircraft of the conflict was shot down. Lieutenant Colonel Clifford M. Acree, squadron commander of Marine Observation Squadron 2, and his aerial observer, Chief Warrant Officer-4 Guy L. Hunter, were flying their second combat mission of the war in a North American OV-10 Bronco over

Kuwait looking for Iraqi artillery when they spotted a rocket launcher battery. As they banked above the Iraqis, Acree saw “a horrifying sight: glinting metal followed by an incredibly fast gray-white vapor trail snaking toward us. A heat-seeking surface-to-air missile had locked on to our aircraft and was tracking us. The missile, pointed right at my face, was coming fast to blow us out of the sky. With less than 6,000 feet of altitude, I had no more than a second warning to dodge the missile streaking towards us. . . . It's the same feeling you get in a car crash when you've hit the brakes hard and so has the other guy. You know the impact is coming all the same.”

Colonel John R. Bioty Jr. said of the incident: “We did not know that they were alive until we saw them on TV . . . [The aircraft going down] was really a shocker and that squadron took a real significant hard swallow, . . . because there was a lot of leadership and experience in that airplane and here it got hit on the second day of the war.” Captured by the Iraqis, Acree and Hunter were the first of five Marines eventually taken prisoner. Like the others they would be beaten, mistreat-

ed, and used as human shields until after the war.

On 28 January, 3d Marine Aircraft Wing lost its second aircraft from Marine Attack Squadron 311. Struck by a surface-to-air missile, Captain Michael C. Berryman's McDonnell Douglas AV-8B Harrier II went down. He ejected safely but was captured by the Iraqis. He was the third Marine aviator captured in the war. Also, mistreated by the Iraqis, they did not publically acknowledge that he was their prisoner until after the war. He was originally listed as missing in action and was presumed killed.

On 9 February, an McDonnell Douglas F/A-18 Hornet from Marine Fighter Attack Squadron 451 was the first Marine Hornet to suffer combat damage. While attacking an Iraqi SA-2 surface-to-air missile site, an apparent SA-16 surface-to-air missile struck the aircraft. The missile hit one of the aircraft's fuselage-mounted AIM-7 Sparrow missiles, causing it to burst into flames. The pilot jettisoned the damaged missile over the Persian Gulf before landing at Shaikk Isa. After repairs, the aircraft flew the next day.

A more serious incident occurred that afternoon. An surface-to-air missile hit Captain Russell A. C. Sanborn's Harrier of Marine Attack Squadron 231. A forward air controller spotted his parachute, and the Iraqis captured him. Sanborn was the fourth Marine aviator captured by the Iraqis. Like the others, he was beaten, refused medical care, and otherwise harassed until his release after the war.

Lieutenant Colonel William R. Jones, Sanborn's squadron commander, later recalled:

He was a very popular, respected officer. He worked in Maintenance at the time that I

An OV-10 Bronco assigned to the VMO-2 (Fixed-wing Marine Observation Squadron) is tied down at the King Abdul Aziz Stadium parking area during Operation Desert Shield.

Department of Defense





Col H. Avery Chenoweth
Marine AV-8B Harriers provided close air support during the breaching of the Iraqi fortifications during Operation Desert Storm.

recall. His call sign was 'Bart' as in Bart Simpson on TV. That was his name, Bart. I was pre-flight-ing an airplane; he'd been only shot down like three or four days. On the side of an AV-8 by the exhaust nozzle—it's always kind of dark and greasy from the exhaust—one of the plane captains had written with his finger, 'Bring home the Bartman,' . . . It really got to some of the officers who were real close to him. . . . I

did write a letter—I didn't keep a copy of it—to both Linda as well as Russell's parents trying to be as upbeat as I could without claiming false hope. I just said that I thought he'd be ok. That's the only one that we had, the only aircraft we lost.

On 12 February, Iraqi antiaircraft fire damaged a Marine Attack Squadron 542 Harrier, but it returned to its field safely. The same day, 3d Marine Aircraft Wing aircraft struck

and destroyed two Iraqi airliners, believed to be transportation for high-level-Iraqi meetings in Kuwait, at Kuwait International Airport.

Iraqi defenses damaged four Marine aircraft on 21 February. Antiaircraft fire struck a Grumman A-6E Intruder of Marine Attack Squadron 224, and surface-to-air missiles struck two Hornets from Marine Fighter Attack Squadrons 314 and 333. All three aircraft returned safely to their respective airfields. The fourth aircraft was a Hornet from Marine All Weather Fighter Attack Squadron 121. Flying below 5,000 feet, a surface-to-air missile hit the Hornet in the right-engine exhaust. The weapon systems operator, Captain John Scanlan, later said that "it felt like hitting an unexpected pot-hole in the road." The pilot shut down the engine as a precaution, and both aviators returned safely to Shaikh Isa on the remaining engine.

On the final day of air operations, before the land assault, Iraqi forces damaged two and destroyed one aircraft. Iraqi antiaircraft fire hit a Harrier from Marine Attack Squadron 311, and a surface-to-air missile struck a Hornet from Marine Fighter Attack Squadron 451. Both aircraft and aviators survived. However, Captain James N. Wilburn of Marine Attack Squadron 542 was not so fortunate. A surface-to-air missile hit his Harrier while bombing targets in central Kuwait. Third Marine Aircraft Wing lost their first pilot during the Gulf War.

When the liberation of Kuwait began on 24 February, 3d Marine Aircraft Wing Harriers, Hornets, and Bell Textron AH-1 Cobras provided close air support to the 1st and 2d Marine Divisions. First Marine Division commander, General James M. Myatt, explained after the war that between 0600 and 1400 on that first day, we had 42 instances of incoming artillery . . . we were

able to use our artillery to attack 24 of the 42 targets. The remainder were attacked by Marine AV-8B aircraft within a few minutes of the artillery fire being detected. I am very proud of that air-ground coordination.

Even with the close-air-support calls, most Marine aircraft flew air-interdiction missions during the busy first day of the ground assault. Major Robert M. Knutzen and First Lieutenant Scott M. Quinlan of Marine Fighter Attack Squadron 314 had attacked targets west of Kuwait City before Iraqi surface-to-air missiles hit both Hornets. Although each aircraft lost one engine, both aviators returned safely to base.

On 25 February, hampered by the weather and the smoke from the burning oil fields, the 3d Marine Aircraft Wing nonetheless delivered air support for the Marines on the ground, losing two aircraft to Iraqi fire. One of those lost was a Harrier, piloted by Captain John S. Walsh of Marine Attack Squadron 542. A surface-to-air missile blasted his Harrier's right jet engine. "It was a big bang. All my warning lights came on, and the airplane began burning pretty good," he recalled later. He flew to al-Jaber airfield to try an emergency landing, but his controls froze, and the aircraft rolled. He ejected success-



Victor G. Archer

Based at Lemoore, California, a Marine Corps F/A-18C Hornet from the VFA-125 Rough Riders made a few high-speed passes before landing.

fully. Discovered by advancing Marine ground forces, he rejoined his squadron that evening.

The other aircraft loss was less fortunate. A surface-to-air missile struck the Bronco that Major Joseph J. Small III and Captain David M. Spellacy of Marine Observation Squadron 1 were flying. The impact killed Spellacy; the Iraqis captured Small. The Iraqis believed the capture of Small was a major intelligence coup. Major General Salah Aboud Mahmoud of the Iraqi III Corps later recalled that "we downed an enemy helicopter that had two pilots. One of them died inside the chopper and the other one was brought [to us] at the airport. The surviving pilot was carrying on him the

[American] plan of the attack." The Iraqis beat Small and sent him to Baghdad. The "plan of attack" was apparently the aircraft's flight map. Small later recalled that his ruse was "the biggest, grandest lie I think I've ever told in my entire life."

Early on 27 February, the last Marine aircraft, downed by enemy fire in the Gulf War, was a Harrier from Marine Attack Squadron 331, flying from the USS *Nassau*. Hit by a surface-to-air missile as he flew an air-interdiction mission against Iraqi forces retreating north along the Highway of Death (Highway 80 between Kuwait City and the border of Iraq where Coalition forces devastated hundreds of retreating Iraqi vehicles and occupants), Captain Reginald C. "Woody" Underwood crashed and died.

Major Ben D. Hancock described how Underwood was lost in an article written after the war:

We were at 8,000 feet, doing over 480 knots, and I started a hard left turn away from the highway as I strained to keep my eyes on the target. We rolled out heading southeast, and I was about to roll in when Mystic yelled 'Break! Break! Flares!' It was every man for himself as there was no time to ask questions. I strained under the G forces and looked around frantically as multiple SAMs were in

An F/A-18C Hornet of VMFA-232 taxied on the runway before takeoff during Operation Desert Storm. Though several were hit and damaged by Iraqi fire, no Marine Hornets were lost to enemy fire during the Gulf War.

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Marine AV-8B Harriers of VMA-513 flew in formation during the Gulf War.

the air. At least two were streaking toward Woody, and one hit him in the left exhaust nozzle of his jet engine, right below the wing. He yelled 'I'm hit! I'm hit!' and pulled up into the clouds trailing black smoke. The missiles had been launched from our 7 o'clock and were on us in seconds. Mystic had one SAM chasing him as he disappeared from sight into the clouds. I reversed my turn and came back

trying to find Woody. The heat-seeking missile chasing Mystic couldn't track him through the clouds, and he radioed to Woody to turn his jet to the southeast. Woody's last transmission was, 'I can't control it!' For what seemed like an eternity but was probably only about 20 seconds, Peewee and I were looking northwest when we saw Woody's jet impact the ground in one huge, orange fireball. It was like

watching a slow motion movie, only this was the real thing. We never saw a parachute.

Despite the losses to Iraqi anti-aircraft defenses, Marines aviators provided excellent support to the Marines attacking the Iraqi forces on the ground and helped liberate Kuwait. An Iraqi officer of the IV Corps recalled that "the enemy never stopped bothering us day and night by all types of aircraft . . . high speed jets, slow flying jets, precision bombers, and [other] combat jets. The weapons that really frustrated us and harmed us were the slow-flying aircraft and the Marine types. Sometimes they spent the whole day suspended over our heads to the extent that our ears had gotten used to their buzzing sounds."

The Gulf War destroyed six Marine aircraft; enemy fire damaged ten more. Iraqis captured five Marine aviators and killed three. In return, Marine aviators inflicted crippling losses on the enemy and enabled the Marine ground forces to help liberate Kuwait.

Aircraft losses due to enemy action in the 1990-91 Gulf War

Dates: 1991	Aircraft type	Squadron	Cause	Result
18 January	OV-10	VMO-2	surface-to-air missile	aircraft lost, pilot and observer captured
28 January	AV-8B	VMA-311	surface-to-air missile	aircraft lost, pilot captured
9 February	F/A-18	VMFA-451	surface-to-air missile	aircraft damaged
9 February	AV-8B	VMA-231	surface-to-air missile	aircraft lost, pilot captured
12 February	AV-8B	VMA-542	antiaircraft artillery	aircraft damaged
21 February	F/A-18	VMFA-314	surface-to-air missile	aircraft damaged
21 February	F/A-18	VMFA-121	surface-to-air missile	aircraft damaged
21 February	A-6E	VMA-224	antiaircraft artillery	aircraft damaged
21 February	F/A-18	VMFA-333	surface-to-air missile	aircraft damaged
23 February	F/A-18	VMFA-451	surface-to-air missile	aircraft damaged
23 February	AV-8B	VMA-542	surface-to-air missile	aircraft lost, pilot killed in action
23 February	AV-8B	VMA-311	antiaircraft artillery	aircraft damaged
24 February	F/A-18	VMFA-314	surface-to-air missile	aircraft damaged
24 February	F/A-18	VMFA-314	surface-to-air missile	aircraft damaged
25 February	OV-10	VMO-1	surface-to-air missile	aircraft lost, pilot captured, observer killed in action
25 February	AV-8B	VMA-542	surface-to-air missile	aircraft lost, pilot parachuted to friendly hands
27 February	AV-8B	VMA-331	surface-to-air missile	aircraft lost, pilot killed in action



National Museum of the Marine Corps

Boeing Vertol CH-46 Sea Knight

By Ben Kristy, Aviation Curator

Lovingly known as the “Phrog,” the long career of the Boeing Vertol CH-46 Sea Knight with the Marine Corps is finally coming to a close. Introduced with HMM-265 in June 1964, the CH-46 was the first helicopter which fully met the Corps assault helicopter requirements set forth in the late 1940s. The CH-46A entered combat in Vietnam in March 1966, and it is difficult to understate the impact that the CH-46 (along with the UH-34D, UH-1, and CH-53A/D) had on Marine operations. In 1968, Marine helicopters transported more than 50,000 men and more than 6,000 tons of



Peter M. Gish

Pulling the Rotor Head of a CH-46



LCpl Preston Brown

The physical environment of South Vietnam was a constant challenge for Marine helicopter pilots, but for Marine units operating in enemy-held territory, resupply via helicopter was crucial. This HMM-165 CH-46A is seen resupplying the 3rd Battalion, 7th Marines, in April 1967. The helicopter was brought down by heavy machine gun fire in June 1969; three members of the flight crew and a Boeing Vertol technical representative were lost.

cargo per month throughout the former South Vietnam. Thanks to numerous production standards (the CH-46D and CH-46F) and upgrade programs (the CH-46E, starting in 1975), the CH-46 has remained in front-line service ever since. The National Museum of the Marine Corps holds two CH-46s, which are connected to remarkable missions during the Vietnam War.

**National Museum
of the Marine Corps**

18900 Jefferson Davis Hwy
Triangle, Virginia
Open 9am to 5pm
Every day except Christmas
www.usmcmuseum.org

Hawker Siddeley AV-8A Harrier

In 1957, General Randolph McCall Pate, Commandant of the Marine Corps, committed the Marine Corps to field a fleet of V/STOL (vertical and/or short takeoff and landing) aircraft because this type of aircraft was vital to future Marine Corps amphibious operations in the age of atomic weapons. American aircraft companies spent many years and millions of dollars in the pursuit of developing V/STOL aircraft, but it was an English company, Hawker Siddeley, which first fielded a viable V/STOL tactical attack aircraft—the GR Mk 1 Harrier. Then Colonel Thomas H. Miller, Jr., head of the Air Weapons Requirement Branch, recognized



Leonard H. Dermott

Harriers—A Pair

In the winter of 1976–77, AV-8As from VMA-231 deployed on board the USS Roosevelt to test the ability of a V/STOL aircraft to operate as part of a full carrier air wing. The tests showed that the Harrier was fully capable of operating alongside non-V/STOL carrier aircraft.

National Archives and Records Administration



that the unique capabilities of the Harrier matched the requirements laid out by General Pate a decade earlier. Colonel Miller and his superior, General Keith McCutcheon, Deputy Chief of Staff, Air, displayed a remarkable degree of political prowess in convincing both the U.S. Navy and Congress to purchase the Harrier, which entered service with the Marine Corps in 1971 as the AV-8A. Since that time, the Marine Corps has been the sole American operator of V/STOL tactical aircraft. As the improved AV-8B Harrier II awaits replacement by the F-35B Lightning II, the Corps need for V/STOL aircraft remains as strong as it was in 1957. The National Museum of the Marine Corps recently received one of the few remaining Hawker Siddeley AV-8A Harriers.

