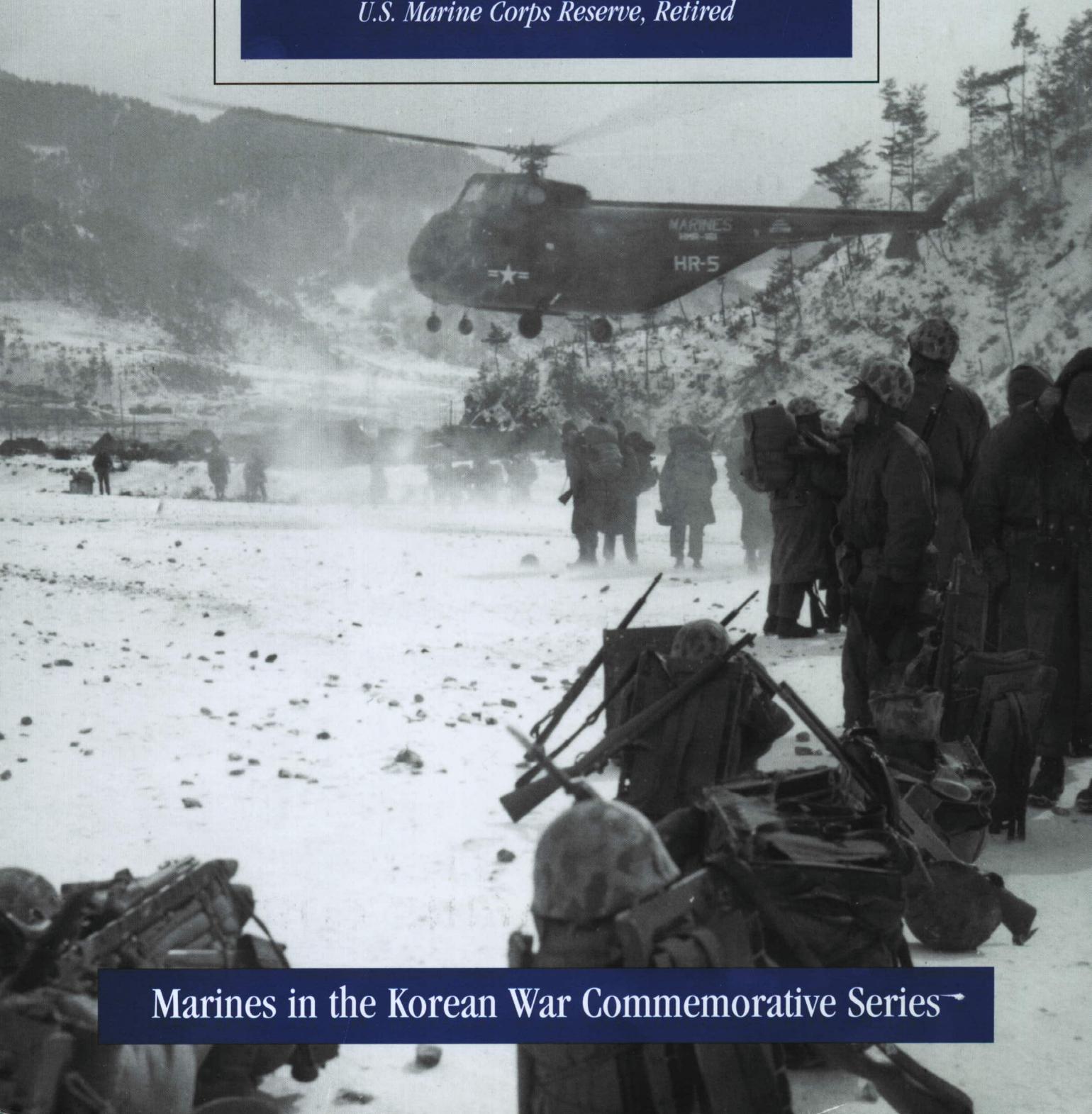


# WHIRLYBIRDS

## U.S. Marine Helicopters in Korea

*by Lieutenant Colonel Ronald J. Brown  
U.S. Marine Corps Reserve, Retired*



Marines in the Korean War Commemorative Series



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On Sunday, 25 June 1950, Communist North Korea unexpectedly invaded its southern neighbor, the American-backed Republic of Korea (ROK). The poorly equipped ROK Army was no match for the well prepared North Korean People's Army (NKPA) whose armored spearheads quickly thrust across the 38th Parallel. The stunned world helplessly looked on as the out-numbered and out-gunned South Koreans were quickly routed. With the fall of the capital city of Seoul imminent, President Harry S. Truman ordered General of the Army Douglas MacArthur, Commander in Chief, Far East, in Tokyo, to immediately pull all American nationals in South Korea out of harm's way. During the course of the resultant non-combatant evacuation operations an unmanned American transport plane was destroyed on the ground and a flight of U.S. Air Force aircraft were buzzed by a North Korean Air Force plane over the Yellow Sea without any shots being fired. On 27 July, an American combat air patrol

**ON THE COVER:** *A Sikorsky HRS-1 transport helicopter from HMR-161 sets down behind 1st Marine Division lines to pick up waiting Marines.*

Department of Defense Photo (USMC) A159970

**AT LEFT:** *Girded for battle, Marines ride a tense 18 miles by helicopter before the first "airphibious" landing in history successfully deposited them on a Korean hilltop.* Department of Defense Photo (USMC) A156716

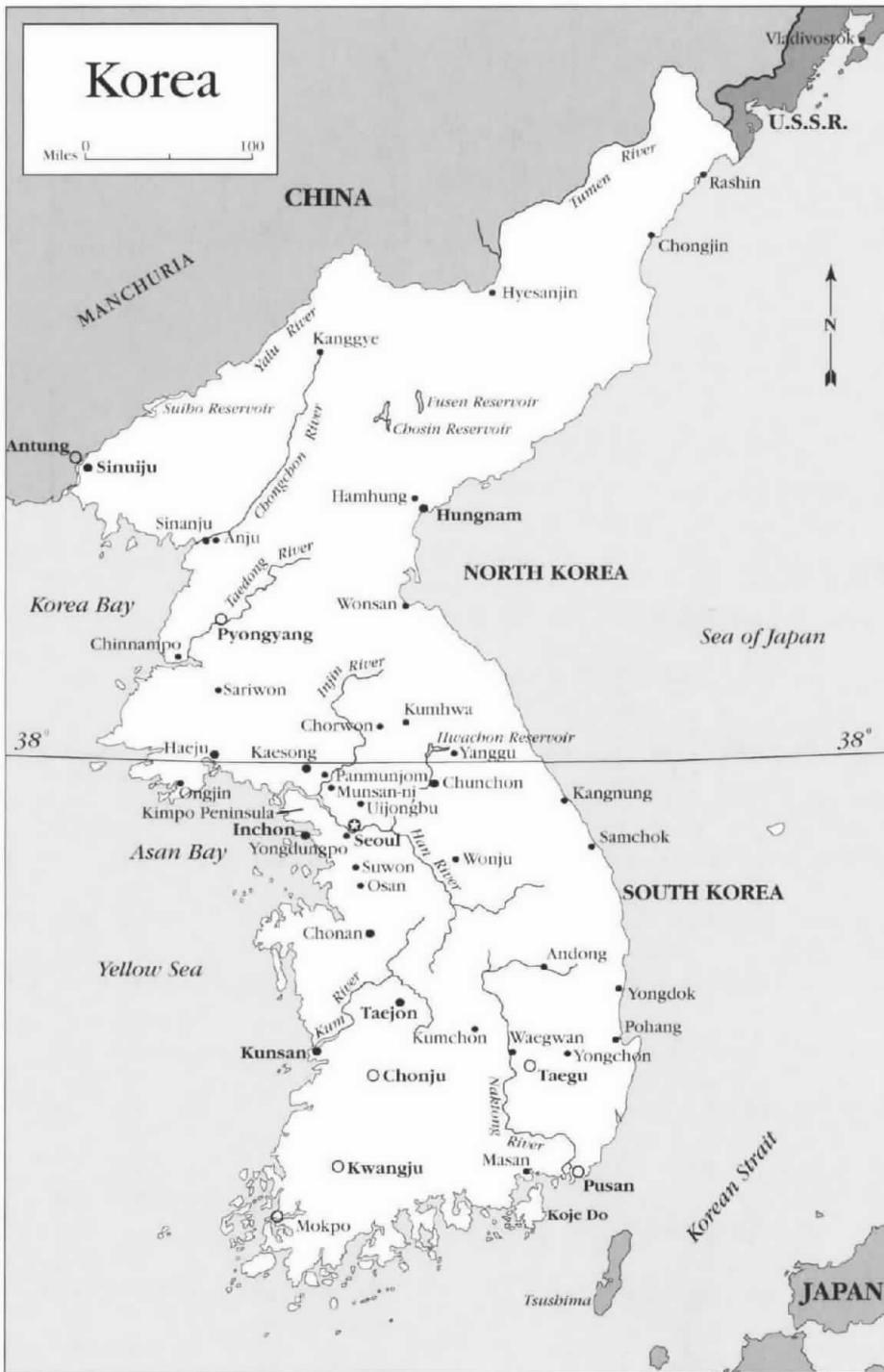
protecting Kimpo Airfield near the South Korean capital actively engaged menacing North Korean planes and promptly downed three of the five Soviet-built Yak fighters. Soon thereafter American military forces operating under the auspices of the United Nations Command (UNC) were committed to thwart a Communist takeover of South Korea. Thus, only four years and nine months after V-J Day marked the end of World War II, the United States was once again involved in a shooting war in Asia.

The United Nations issued a worldwide call to arms to halt Communist aggression in Korea, and America's armed forces began to mobilize. Marines were quick to respond. Within three weeks a hastily formed provisional Marine brigade departed California and headed for the embattled Far East. Among the aviation units on board the U.S. Navy task force steaming west was a helicopter detachment, the first rotary-wing aviation unit specifically formed for combat operations in the history of the Marine Corps. Although few realized it at the time, this small band of dedicated men and their primitive flying machines were about to radically change the face of military aviation. Arguably, the actions of these helicopter pilots in Korea made U.S. Marines the progenitors of vertical envelopment operations, as we know them today.

### Helicopters in the Marine Corps

There is great irony in the fact

that the Marine Corps was the last American military Service to receive helicopters, but was the first to formulate, test, and implement a doctrine for the use of rotary-wing aircraft as an integral element in air-ground combat operations. The concept of manned rotary-wing flight can be traced back to Leonardo da Vinci's Renaissance-era sketches, but more than four centuries passed before vertical takeoffs and landings by heavier-than-air craft became a reality. The Marines tested a rotary-wing aircraft in Nicaragua during the Banana Wars, but that experiment revealed the Pitcarin OP-1 autogiro was not ready for military use. Autogiros used rotary wings to remain aloft, but they did not use spinning blades to get airborne or to power the aircraft so autogiros were airplanes not helicopters. Some aviation enthusiasts, however, assert that the flight data accumulated and rotor technology developed for autogiros marked the beginning Marine Corps helicopter development. It was not until 1939 that the first practical American helicopter, aircraft designer Igor I. Sikorsky's VS-300, finally moved off the drawing board and into the air. The U.S. Army, Navy, and Coast Guard each acquired helicopters during World War II. The bulk of them were used for pilot training, but a few American-built helicopters participated in special combat operations in Burma and the Pacific. These early machines conducted noncombatant air-sea res-



ative).” This 52-page tome was the 31st school publication on amphibious operations, so it took the short title “*Phib-31.*” Concurrently, the Marine Corps formed a developmental helicopter squadron to test the practicality of *Phib-31*’s emerging theories. This formative unit, Colonel Edward C. Dyer’s Marine Helicopter Squadron 1 (HMX-1), stood up in December 1947 and was collocated with Marine Corps Schools. The new squadron’s primary missions were to develop techniques and tactics in conjunction with the ship-to-shore movement of assault troops in amphibious operations, and evaluate a small helicopter as replacement for fixed-wing observation airplanes. Among the officers assigned to HMX-1 was the Marine Corps’ first officially sanctioned helicopter pilot, Major Armond H. DeLalio, who learned to fly helicopters in 1944 and had overseen the training of the first Marine helicopter pilots as the operations officer of Navy Helicopter Development Squadron VX-3 at Lakehurst Naval Air Station, New Jersey.

In February 1948, the Marine Corps took delivery of its first helicopters when a pair of Sikorsky HO3S-1s arrived at Quantico. These four-seat aircraft featured a narrow “greenhouse” cabin, an overhead three-blade rotor system, and a long-tail housing that mounted a small vertical anti-torque rotor. This basic outline bore such an uncanny resemblance to the Anisoptera subspecies of flying insects that the British dubbed their newly purchased Sikorsky helicopters “dragonflies.” There was no Service or manufacturer’s authorized nickname for the HO3S-1, but the most common unofficial American appellations of the day were “whirlybirds,” “flying windmills,”

cue, medical evacuation, and humanitarian missions during the war as well.

In 1946, the Marine Corps formed a special board headed by Major General Lemuel C. Shepherd, Jr., to study the impact of nuclear weapons on amphibious operations. In accordance with the recommendations made by the Shepherd Board in early 1947,

Marine Corps Schools at Quantico, Virginia, began to formulate a new doctrine, eventually termed “vertical assault,” which relied upon rotary-wing aircraft as an alternative to ship-to-shore movement by surface craft. The following year, Marine Corps Schools issued a mimeographed pamphlet entitled, “Amphibious Operations—Employment of Helicopters (Tent-

## Pitcarin OP-1 Autogiro

The first rotary-winged aircraft used by naval aviation was not a helicopter. It was an autogiro, an airplane propelled by a normal front-mounted aircraft engine but kept aloft by rotating overhead wings, a phenomenon known as "autorotation." Although rather ungainly looking due their stubby upturned wings, large tails, and drooping rotors, autogiros took well to the air. Their ability to "land on a dime" made them favorites at air shows and an aggressive publicity campaign touted them as "flying autos, the transportation of the future." Autogiros, however, turned out to be neither a military nor a commercial success.

The aircraft itself was an odd compilation of a normal front-mounted aircraft engine used to generate thrust and three overhead free-spinning blades attached to a center-mounted tripod to provide lift. The fuselage included a pair of stubby wings that supported the landing gear and had a semi-standard elongated tail assembly. Typical of the day, it had an open cockpit.

Although a rotary-winged aircraft, the OP-1 was not a helicopter. The engine was used to start the rotors moving but was then disengaged and connected to the propeller to deliver thrust. A speed of about 30 miles per hour was needed to generate lift and maintained for controlled flight. The OP-1 could not hover, it required conventional engine power to take off and move forward in the air; the plane could, however, make a vertical landing. This unique feature made the OP-1 attractive to the military.

The specific autogiro model first tested by the Marine Corps was the OP-1 built by Harold F. Pitcarin, who would later found Eastern Airways. His company was a licensed subsidiary of a Spanish firm. All American autogiros were based upon designs formulated by Spanish nobleman Juan de la Cierva. His first successful flight was made near Madrid in 1923. More than 500 autogiros flew worldwide during the next decade. Although his air-

planes never lived up to his high expectations, de la Cierva did develop rotor technology and recorded aerodynamic data later applied by helicopter designers Igor Sikorsky and Frank Piasecki.

The Navy purchased three Pitcarin autogiros for extensive field-testing and evaluation in 1931. The only carrier tests were conducted on 23 September of that year, but the OP-1's performance was virtually identical to that of carrier-borne biplanes then in use. The Marines took one OP-1 to Nicaragua to test it under combat conditions. Again, its performance was disappointing. The pilots of VJ-6M noted it lacked both payload and range. The only practical use they found was evaluation of potential landing areas. This was not enough reason to incorporate the OP-1 into the Marine inventory. Overall, the OP-1 was described as "an exasperating contraption," not fit for military use. Further trials of a wingless autogiro in 1935 revealed no improvement, so director of aviation Major Roy S. Geiger recommended against adoption of that aircraft type.

In the barnstorming days between the World Wars, autogiros proved to be the ultimate novelty attraction. Aviator Charles A. Lindbergh often put on demonstrations, aviatrix Amelia Earhart set an altitude record in one, and Secretary of the Navy Charles Francis Adams flew in an autogiro to join President Herbert C. Hoover at an isolated fishing camp in Virginia. The Royal Air Force actually used autogiros for convoy escort and observation during World War II, and the Soviet Union developed its own autogiro.

Although the OP-1 never became a mainstream Marine aircraft and was not a true helicopter, some aviation enthusiasts assert that the technology and data developed by de la Cierva was crucial for rotary-winged flight. They, therefore, make the case that the OP-1 should be considered the progenitor of today's helicopters.

Department of Defense Photo (USMC) 528139



and “pinwheels.” The HO3S-1 had a cruising speed of less than 100 miles per hour, a range of about 80 miles, could lift about 1,000 pounds, and mounted simple instrumentation that limited the HO3S to clear weather and daylight operations. This very restrict-

ed flight envelope was acceptable because these first machines were to be used primarily for training and testing. They were, however, sometimes called upon for practical missions as well. In fact, the first operational use of a Marine helicopter occurred when a Quantico-

based HO3S led a salvage party to an amphibious jeep mired in a nearby swamp.

The first Marine helicopter operational deployment occurred in May 1948 when five HMX-1 “pinwheels” flying off the escort carrier *Palau* (CVE 122) conducted 35

## The Visionaries

The wake of the World War II, with its ominous specter of nuclear weapons, forced the Marine Corps to rethink existing amphibious doctrine. The conclusion was that previous methods of ship-to-shore movement were no longer sufficient to ensure a successful landing so alternative methods had to be developed. Several options looked promising, but the only one that stood the test of time and combat was vertical envelopment—the use of helicopters to move troops and supplies.

In 1946, Commandant Alexander A. Vandegrift—at the urging of Lieutenant General Roy S. Geiger, the “Gray Eagle” of Marine aviation who had just witnessed post-war nuclear tests—formed a special board culled from Marine Corps headquarters to study existing tactics and equipment then make recommendations for restructuring the Fleet Marine Force. Assistant Commandant Lemuel C. Shepherd, Jr., a graduate of Virginia Military Institute, who was arguably the Marines’ most innovative division commander in the Pacific, headed the board. Shepherd was an excellent choice because he was both a traditionalist and a visionary who would later become Commandant. Other members of the board included Major General Field Harris, the director of Marine aviation, and Brigadier General Oliver P. Smith, the head of plans and operations division. All three men would be reunited in Korea in 1950 where they would put into practice the revolutionary doctrines they set in motion; Shepherd as the commanding general of Fleet Marine Force, Pacific, Harris as commanding general of the 1st Marine Aircraft Wing, and Smith as commanding general of the 1st Marine Division. Two colonels assigned to the board secretariat were particularly influential, Edward C. Dyer and Merrill B. Twining. Dyer, a Naval Academy graduate and decorated combat pilot, was master of all things aeronautical while Merrill Twining, a highly regarded staff officer, handled operational theory. Neither a formal member of the board nor its secretariat but keeping close tabs on what transpired was Brigadier General Gerald C. Thomas, Vandegrift’s trusted chief of staff. Dyer eventually commanded the first Marine helicopter squadron and Thomas replaced Smith as 1st Marine Division commander in Korea.

Doctrinal development for vertical assault was done at

Marine Corps Schools located at Quantico, Virginia. First, a board headed by Lieutenant Colonel Robert E. Hogaboom laid out what was needed in a document titled “Military Requirements for Ship-to-Shore Movement of Troops and Cargo.” Even though no suitable aircraft were yet available, the thinkers at Quantico came up with new doctrine published as *Amphibious Training Manual 31*, “Amphibious Operations—Employment of Helicopters (Tentative).” One of the drivers of this project was Lieutenant Colonel Victor H. Krulak, a tough former paratrooper who had been wounded in the Pacific but was also known for his high intellect and an unsurpassed ability to get things done. He was a prolific writer and a demanding taskmaster who kept his finger on the pulse of several vital projects including helicopter development.

Despite the nearly unlimited future potential of helicopters for assault and support of landing forces, there was ingrained resistance to such a revolutionary concept. Most young pilots wanted to fly sleek jets and dogfight enemy aces, not manhandle temperamental aircraft to deliver troops and supplies; experienced fliers were comfortable with aircraft they already knew well and were reluctant to give up their trusted planes; and critics claimed helicopters were too slow and vulnerable. Twining took the lead in addressing these problems when he pointed out the Marine Corps had far more pilots than planes and noted that the wishes of the individual were always subservient to the needs of the Marine Corps. He also asserted that the speed and vulnerability of helicopters should not be properly compared to fixed-wing aircraft but to surface landing craft (helicopters were both faster and more agile than boats or amphibious tractors).

All early helicopter advocates were highly motivated and dedicated men. Their achievements and foresight kept the Marine Corps’ reputation for innovation alive despite severe budgetary constraints and concurrent inter-Service unification battles. In fact, many of the men also played key roles in the “Chowder Society,” whose behind-the-scenes work successfully protected Marine Corps interests during the bitter “unification battles” after the World War II.



National Archives Photo (USMC) 127-N-A130996  
*BGen Edward C. Dyer, here receiving the Legion of Merit for meritorious service as the 1st Marine Aircraft Wing's G-3 during the Inchon-Seoul campaign, was one of the most influential men involved in the adoption of the helicopter by the Marine Corps. A naval aviator, he helped to bring the concept to reality by formulating doctrine and then commanding HMX-1 at Quantico, Virginia.*

flights to land 66 men and several hundred pounds of communications equipment at Camp Lejeune, North Carolina's Onslow Beach during amphibious command post exercise Packard II. As the year progressed, HMX-1's aircraft complement increased by six when the Marine Corps took delivery of two new types of helicopters, one Bell HTL-2 and five Piasecki HRP-1s. The Bell HTL, often called the "eggbeater," was a side-by-side two-seat trainer that could fly at about 85 miles per hour. It had two distinctive features, a rounded Plexiglas "fishbowl" cockpit canopy and a single overhead two-bladed rotor. This model had four landing wheels and a fabric-covered tail assembly, although later versions of the HTL mounted skids and left the tail structure bare. The larger Piasecki HRP-1 was a 10-place troop transport whose tandem-mounted rotors could push it along at about 100 miles per hour.

The aircraft's unique bent fuselage (overlapping propeller radii meant the tail rotor had to be mounted higher than the forward rotor) gave it the nickname "Flying Banana." Unfortunately, it was a temperamental machine considered too fragile to be assigned to combat squadrons. The HRP-1 was instead relegated to use as a test bed and demonstration aircraft until a more capable transport helicopter could be procured.

During the next two years HMX-1 conducted numerous experiments, tests, exercises, demonstrations, and public appearances. Helicopters soon became crowd pleasers at air shows and were invariably the center of attention for dignitaries visiting Quantico. As a result of numerous tactical tests and performance evaluations, Colonel Dyer recommended that light helicopters should be added to Marine observation squadrons. Headquarters agreed, and it was

*One of five Sikorsky HO3S-1s from HMX-1 prepares to land on the Palau (CVE 122) during Operation Packard II in May 1948. This was the first test to determine the value of the heli-*

*copter in the movement of assault troops in an amphibious operation.*

Department of Defense Photo (USMC)





Department of Defense Photo (USMC) A55366

*Piasecki HRP-1 "Flying Bananas" in action during a Basic School pre-graduation field problem at Quantico, Virginia. The HRP was the first Marine Corps transport helicopter, but technical constraints limited it to demonstration and training use and no HRP's saw action in Korea.*

decided that an even mix of helicopters and airplanes should be adopted as soon as enough helicopters and trained personnel were available. Unfortunately, teething problems grounded each of the helicopter types at one time or another, and it was apparent more reliable aircraft with much greater lift capacity would be necessary to make vertical assault a true option in the future. Marine helicopter detachments participated in exercises Packard III (1949) and Packard IV (1950). This time period also featured many milestones. Among them were the first overseas deployment of a Marine helicopter pilot when Captain Wallace D. Blatt flew an HO3S-1 borrowed from the U.S. Navy during the

American withdrawal from China in February 1949; the first unit deployment in support of a fleet exercise occurred in February 1950; and the largest single helicopter formation to that time took place when six HRP's, six HO3Ss, and one HTL flew by Quantico's reviewing stand in June 1950. By that time, Lieutenant Colonel John F. Carey, a Navy Cross holder who a dozen years later would lead the first Marine aviation unit sent to Vietnam, commanded HMX-1. The squadron mustered 23 officers and 89 enlisted men; its equipment list showed nine HRP's, six HO3Ss, and three HTLs. Since its inception the Marine helicopter program had garnered many laurels, but several vital items

remained on the agenda—notably the creation of helicopter squadrons for service with the Fleet Marine Force and the procurement of a combat-ready transport helicopter. This was the status of the Marine Corps helicopter program when the North Korean unexpectedly burst across the 38th Parallel.

### Called to Action

The commitment of American combat troops to Korea on 30 June set off alarm bells throughout the Marine Corps. Although the official "word" had yet to be passed, within a few hours of the North Korean invasion most Marines surmised it would not be long before they would be on their way to war.

## Marine Helicopter Squadron 1

**M**arine Helicopter Squadron 1 (HMX-1) is unique in the Marine Corps because it has several distinct missions and at least three different chains-of-command providing guidance and tasking.

HMX-1 was the first Marine rotary-wing squadron. It "stood up" at Marine Corps Airfield Quantico in Virginia on 1 December 1947 and has been located there ever since. Its activation was the first operational move that started a revolution in Marine aviation and tactical doctrine.

One interesting insight into the Marines' most unique aircraft squadron is the frequent misunderstanding of its official designation. Although HMX-1 was initially tasked to develop techniques and tactics in connection with the movement of assault troops by helicopter and to evaluate a small helicopter as an observation aircraft, the "X" does not designate "experimental" as is often inferred. The "Nighthawks" of HMX-1 do perform some developmental tasks, but their primary missions are to provide helicopter transportation for the President of the United States and to support Marine Corps Schools.

The squadron, initially manned by seven officers and three enlisted men, quickly grew and mustered 18 pilots and 81 enlisted men when the first helicopters, Sikorsky HO3S-1s, arrived. These first primitive machines carried only the pilot and up to three lightly armed troops, but they formed the basis for testing helicopter doctrine described in Marine Corps Schools operational manual *Phib-31*. Eventually, HMX-1 received a mix of early model helicopters with the addition of Piasecki HRP transports and Bell HTL trainers to test doctrine before the Korean War.

On 8 May 1948, HMX-1 pilots flew from Quantico to Norfolk, Virginia, to board the escort carrier *Palau* (CVE 122). The fly-on operation was described by HMX-1 commanding officer Colonel Edward C. Dyer as a "complete shambles [with] sailors running all over the place in mortal danger of walking into tail rotors, and the Marines were totally disorganized as well. It was complete bedlam, there was no organization and no real system [in place]." By the next day, however, the Navy and Marine Corps were using the same basic ship-board flight operations procedures practiced today—circular lines delineated danger areas as well as personnel staging areas and

approach lanes. Five days later, the HO3S-1s delivered 66 men and several tons of equipment to Camp Lejeune, North Carolina's Onslow Beach during command post exercise Packard II.

The following year a similar exercise employed eight HRP, three HO3Ss, and a single HTL. During Exercise Packard III, the HRP "Flying Banana" troop transports were carrier borne, the HTL was loaded on an LST for command and control, and the HO3Ss stayed ashore as rescue aircraft. The HRP brought 230 troops and 14,000 pounds of cargo ashore even though choppy seas swamped several landing craft and seriously disrupted operational maneuvers. Many consider this superb performance to be the key factor in the acceptance of the helicopter as a viable ship-to-shore method, thus paving the way for the integration of rotary-wing aircraft into Marine aviation.

In 1957, HMX-1 acquired an unexpected mission—transporting the President of the United States. Helicopters were only considered for emergency situations until President Dwight D. Eisenhower used an HMX-1 Sikorsky HUS Sea Horse helicopter for transportation from his summer home on Narragansett Bay. After that, Marine helicopters were routinely used to move the President from the White House lawn to Andrews Air Force Base, the home of presidential plane "Air Force One." That transport mission became a permanent tasking in 1976 and continues to this day.

Currently mustering more than 700 personnel, HMX-1 is the largest Marine Corps helicopter squadron. It is divided into two sections. The "White" side flies two unique helicopters—both specially configured Sikorsky executive transports, the VH-3D Sea King and the VH-60N Seahawk. The "Green" side provides basic helicopter indoctrination training for ground troops, tests new concepts and equipment, and assists the Marine air weapons and tactics squadron. Unlike any other Marine squadron, HMX-1 answers to three distinct chains-of-command: the Marine Corps deputy chief of staff for air at Headquarters Marine Corps; the White House military office; and the operational test and evaluation force commander at Norfolk. Marine Helicopter Squadron 1 was not only the first such Marine unit, it also currently holds a unique place in naval aviation.

General MacArthur's formal request for a Marine regimental combat team and supporting aviation finally filtered through official channels on 2 July, and five days later the 1st Provisional Marine Brigade was activated. Brigadier General Edward A. Craig's 6,534-

man unit included the 5th Marines as its ground combat element and the 1st Marine Aircraft Wing (Forward Echelon) as its aviation combat element.

Brigadier General Thomas J. Cushman, a veteran aviator who had commanded an aircraft wing

in the Pacific during World War II, was "dual-hatted" as both the brigade deputy commander and the commander of the aviation component. The 1st Brigade's 1,358-man aviation element was built around Marine Aircraft Group 33 (MAG-33), which included three

squadrons of propeller-driven Vought F4U Corsairs, two day fighter squadrons (VMF-214 and -323) and one night fighter squadron (VMF[N]-513). The remaining aviation units included headquarters, ground support, and air control personnel in addition to an observation squadron.

The observation squadron assigned to the 1st Marine Brigade was Marine Observation Squadron 6 (VMO-6) commanded by Major Vincent J. Gottschalk. Its mission was to conduct "tactical air recon-

naissance, artillery spotting, and other flight operations within the capabilities of assigned aircraft in support of ground units." This last statement became a well-exercised elastic clause under the innovative guidance of Major Gottschalk, an engineering graduate of the University of Michigan who saw several years sea duty in the Pacific before earning his wings. In action, Gottschalk saw to it that practically any flying task in support of ground units, no matter how difficult or outrageous it initially

seemed, fell within the capabilities of VMO-6 aircraft. He took command of VMO-6 on 3 July and was ordered to be ready for overseas deployment only four days later.

Marine observation squadrons had been serving as indispensable components of Marine air-ground combat teams since the Banana Wars. Marine Observation Squadron 6 (then called VO-6M) was specifically formed for expeditionary duty in Nicaragua in 1928, but it was administratively transferred back to Quantico for duty as a training unit about six months later. Marine observation squadrons went by the wayside in 1933 and did not re-emerge until operations moved to the Western Pacific during World War II. There, flying small, nimble, high-wing, two-seat, single-engined Piper OE "Grasshoppers" and similar Stinson OY-1 "Sentinels" (often called Grasshoppers as well), VMOs provided aerial reconnaissance and artillery-naval gunfire spotting as well as performing assorted utility duties while attached to various Marine divisions. Marine Observation Squadron 6 was reactivated in 1943, saw combat action on Okinawa in 1945, and participated in the post-war occupation of North China. Upon its return to the United States in 1947, the squadron flew in support of the 1st Marine Division located at Camp Pendleton, California. The aircraft of VMO-6 did occasional artillery spotting and sometimes supported ground maneuvers or performed administrative duties, but the main mission at Camp Pendleton was a practical one—spraying aerial insecticide. In early June 1950, VMO-6 was assigned to the 1st Marine Aircraft Wing stationed at nearby Marine Corps Air Station El Toro.

With the arrival of the first warning orders, both Camp Pendleton

*Capt Victor A. Armstrong, at the controls of a Sikorsky HO3S-1 helicopter, was the officer-in-charge of the VMO-6 helicopter section, the first Marine helicopter unit formed for combat duty. Holder of the Distinguished Flying Cross for actions in the Pacific during World War II, he would attain the rank of major general and serve as the deputy chief of staff for air.*

Department of Defense Photo (USMC) A130162





Department of Defense Photo (USMC) A1280

*A Sikorsky HO3S-1 helicopter transports a passenger from one ship to another while the convoy carrying the VMO-6 helicopter section is enroute to Korea. Marine "Whirlybirds" flying off the carrier Badoeng Strait (CVE 116) were routinely used to deliver messages and personnel between ships.*

and Marine Corps Air Station El Toro became scenes of bedlam as people raced around to gather materials and units speedily absorbed new personnel. "Moth-balled" weapons and equipment were hurriedly broken out of storage and readied for use. Trains and planes brought in personnel culled from posts and stations across the United States at all hours of the day and night. Arrivals were welcomed on board and sent to their new units as soon as the handshakes finished. Space was at a premium, as was time. Round-the-clock work schedules were instituted, and the unofficial order of the day became "sleep on the boat!"

Major Gottschalk was originally told to form a four-plane, four-officer, and 10-enlisted man detachment to accompany the 1st Brigade to Korea. Although this detachment was far smaller than a war-strength squadron, just finding enough airplanes was not an easy task. Gottschalk decided to take eight well-worn OYs to ensure that four of them would be flyable—the rest would become "hangar queens" until replacement parts or new aircraft were in the supply pipeline. While the search for planes and equipment got under way, Gottschalk's orders were modified on 7 July. The entire squadron would now be going and, in accord with earlier

recommendations, the squadron aircraft mix would also include helicopters.

Eight officers and 30 enlisted men were pulled out of HMX-1 at Quantico, Virginia, with orders to move to the West Coast immediately. Captain (later Major General) Victor A. Armstrong was the officer-in-charge of the helicopter detachment. The other pilots included Captains George B. Farish and Eugene J. Pope, and First Lieutenants Arthur R. Bancroft, Lloyd J. Engelhardt, Robert A. Longstaff, Max N. Nebergall, and Gustave F. Lueddeke, Jr. The detachment's claim to historical fame was that this was the first permanent assignment of a Marine helicopter unit to the Fleet Marine Force. Contrary to some assertions, this detachment was neither the first Marine combat helicopter squadron nor was it the first U.S. helicopter detachment to see combat service—a helicopter element (later designated Flight F) from the U.S. Air Force 3d Air Rescue Squadron and carrier-based U.S. Navy helicopters assigned to Utility Helicopter Squadron 1 (HU-1) were already in action in Korea by the time VMO-6 arrived.

Armstrong's detachment made its way from Quantico to El Toro, California, leaving on 8 July and reporting for duty on the 10th. Upon arrival, helicopter detachment personnel were integrated into VMO-6, and Captain Armstrong was named that squadron's executive officer. Because only the personnel of the helicopter detachment transferred from HMX-1, aircraft had to be found. Six HO3S-1 helicopters were obtained from U.S. Navy sources (two each from Inyokern and Point Mugu, California, and two more from the overhaul and maintenance facility at San Diego). Only two days after reporting in, the helicopter detach-



Department of Defense Photo (USMC) A131099

## Sikorsky HO3S-1

**T**he Sikorsky HO3S-1 was the first helicopter assigned to the U.S. Marine Corps. The HO3S was the naval variant of Sikorsky's model S-51 commercial helicopter. Despite its observation designation, the HO3S was actually a utility aircraft used for a variety of roles. Among the 46 conceptual uses initially listed by Marine Corps Schools were the ones most used in Korea: search and rescue; aerial reconnaissance; medical evacuation; and liaison. The U.S. Air Force flew the same aircraft as a search and rescue helicopter designated H-5F.

The HO3S was the lineal descendent of earlier Sikorsky designs, the initial HNS trainer and the first designated military observation helicopter (alternately known as the HO2S in naval service and the R-5A to the Army). The HO3S featured a more powerful engine that gave it added lift and an increased payload. During the immediate pre-war period, the HO3S proved to be an outstanding rescue craft that often utilized its winch to pull downed pilots out of the water. Likewise, the HO3S was an excellent observation platform for artillery spotting.

In Korea, its primary uses were as a liaison aircraft and as an aerial ambulance. A first-rate liaison aircraft with good range, the HO3S had a dependable engine, and was rugged enough that it required relatively little maintenance when compared to other rotary-wing aircraft of the day.

Even though the HO3S performed yeoman service at

the Pusan Perimeter, it had significant shortfalls as a combat aircraft. The tricycle landing gear and its high center of gravity made the HO3S unstable on all but flat solid terrain; the aircraft could not accommodate interior stretcher loads; its lack of back-lit instrumentation precluded extended night and bad weather operations; and the high engine location made aircraft maintenance difficult. Another major drawback was that it required a great deal of strength and endurance to handle such a heavy aircraft for an extended period without servo-controls. In addition, the single main rotor and long tail assembly combined with a centrally located engine mount often required field expedient ballast adjustments to maintain in-flight stability, so it was not unusual for pilots to keep several sand bags or a seabag filled with rocks in the cabin.

### Aircraft Data

**Manufacturer:** Sikorsky Division of United Aircraft Corporation

**Power Plant:** Pratt and Whitney R-985 AN-7 Wasp Jr., 9 cylinder, 450 horsepower, radial engine

**Dimensions:** Length, 57' 1/2"; height, 12' 11"; rotor, 48' composite construction blade

**Performance:** Cruising speed, 85 mph; range, 260 miles

**Lift:** Pilot plus two passengers or about 500 pounds of cargo (excluding fuel)

ment moved to San Diego to board ship.

The crowded escort carrier *Badoeng Strait* (CVE 116) carrying 60 Corsairs, 8 OY Sentinels, and 6 Marine helicopters along with their aircrews sailed for the Far East on 14 July. Enroute helicopters were used for inter-ship supply delivery, mail runs, and personnel transfers. The 1st Marine Brigade was originally slated for a temporary lay-over in Japan where cargo could be sorted out then combat loaded and some rudimentary amphibious training would be conducted before the Marines entered the combat zone. That was the plan until the situation in Korea became so grave that the 5th Marines was ordered to go directly to the beleaguered South Korean port city of Pusan. The aviation element was still slated to land in Japan, however, so the ships carrying the aviation component split off and headed for the Japanese port city of Kobe.

As the ships of Navy Task Group 53.7 plowed through the Pacific, Brigadier General Craig and his operations officer Lieutenant Colonel Joseph L. Stewart flew to Korea to attend a series of command conferences. On 30 July, they learned that upon landing the Marines would be attached to a U.S. Army task force assigned to shore up the crumbling southwest flank of the United Nations defense lines. Colonel Stewart called the aviation advance party command post in Japan to warn that combat action was imminent and requested that VMO-6 and Marine Tactical Air Control Squadron 2 (MTACS-2) be sent on to Korea as quickly as possible. This emergency phone call confirmed that the situation in Korea was desperate. Accordingly, when the *Badeong Strait* made landfall on the evening of 31 July

1950, Major Gottschalk received word to begin operations at first light the next morning.

Marine Observation Squadron 6's airplanes and helicopters went ashore on 1 August. The next day the Marine air elements scattered to the four winds. The day fighter squadrons boarded a pair of escort carriers and then sailed for the combat zone; the night fighter squadron joined an Air Force all-weather squadron at Itazuke Air Base on Kyushu; VMO-6 ground crews and their equipment "trans-shipped" to a tank landing ship (LST) for transportation to Korea; and headquarters personnel moved to Itami Air Base near Osaka on the island of Honshu.

### Helicopters Enter Combat

From Kobe, the helicopters of VMO-6 proceeded to Itami where two helicopters were assigned to MAG-33 headquarters. They would be held in Japan to provide liaison services between the widely scattered aviation units and, at the same time, be available as emergency replacements if needed. The other four HO3S-1s proceeded to Korea. They made their way from Itami to Iwakuni Air Base where they stayed overnight. After a detailed situation brief and a hasty final maintenance inspection at Ashiya Air Base on northern Kyushu on the morning of 2 August, the helicopters made the hop across the Tsushima Straits. They landed at an airfield near Pusan, the logistics keystone of the United Nations defensive perimeter.

The outlook in Korea was not good when they arrived. The hard-pressed United Nations Command was struggling to hold onto a 60-by-90-mile area of southeast Korea known as the Pusan Perimeter. The North Korean drive south was

slowing, but the outcome of the battle for the Korean peninsula was far from certain when the 1st Provisional Marine Brigade was welcomed on board by Eighth Army commander Lieutenant General Walton H. Walker, USA.

At the Pusan Perimeter, the Marine brigade acquitted itself well and showcased the combat effectiveness of the Marine air-ground team. The Marines were used as a "fire brigade" moving from place to place to stamp out enemy threats. They spearheaded the first U.N. offensive in Korea, and then twice threw back NKPA penetrations of the U.N. defensive lines. Marine air hit the enemy when Corsairs swept out of the sky on the same day that the ground element was coming ashore at Pusan harbor. The brigade then consolidated at a temporary assembly area near Changwon before mounting the first sustained United Nations offensive of the war. The initial ground action occurred in the vicinity of Chindong-ni from 6 to 9 August. From there the Marines pressed south to Kosong before turning north to the Changchon Pass after wiping out an enemy motorized regiment during the Kosong "Turkey Shoot." On 13 August, as they neared Sachon, the Marines were abruptly ordered back to Masan to prepare to seal off an enemy penetration across the Naktong River. Hard fighting at Red Slash Hill and carefully coordinated supporting arms fires threw the North Koreans back. While recuperating at an area dubbed the Masan "Bean Patch," the Marines had to return to the Naktong bulge to repulse the enemy one more time. Finally, on 5 September, the Marines pulled out of the line and returned to Pusan so they could mount out to lead MacArthur's amphibious turn-

ing movement at Inchon. Throughout the campaign, the hard-working HO3S-1s of VMO-6 performed a wide variety of tasks and were so indispensable that Marine and Army commanders were soon demanding more helicopters.

Upon its arrival at Pusan on 2 August, the VMO-6's forward echelon was temporarily billeted in a South Korean schoolhouse located about 10 miles west of the port until the squadron support element caught up and a more permanent, and less crowded, site could be occupied. The rear party, which sailed from Kobe on board a Japanese-manned landing ship, actually arrived at Pusan on 4 August but could not move out for two more days due to the lack of transportation. Squadron supplies and equipment were laboriously loaded (there was no cargo handling machinery at hand) onto the dock then reloaded onto a train

for shipment west to Chinhae on 6 August. Chinhae was a South Korean naval base, as well as the future home of the Korean Marine Corps, located only a short hop across the bay from Masan. The site of a former Japanese ammunition depot with an airstrip, it was selected because it was close to the action, had a 2,600-foot grass and concrete runway (already being used by a combined US-ROK Air Force training squadron), and included a pair of completed hangars with a third under construction. There were enough Quonset huts to house the men, provide adequate office space, and warehouse supplies. This facility would be VMO-6's home field and base of operations until the 1st Provisional Marine Brigade was dissolved in early September.

In Korea, VMO-6 would be under the operational control of the brigade but under the administrative control of the wing. This

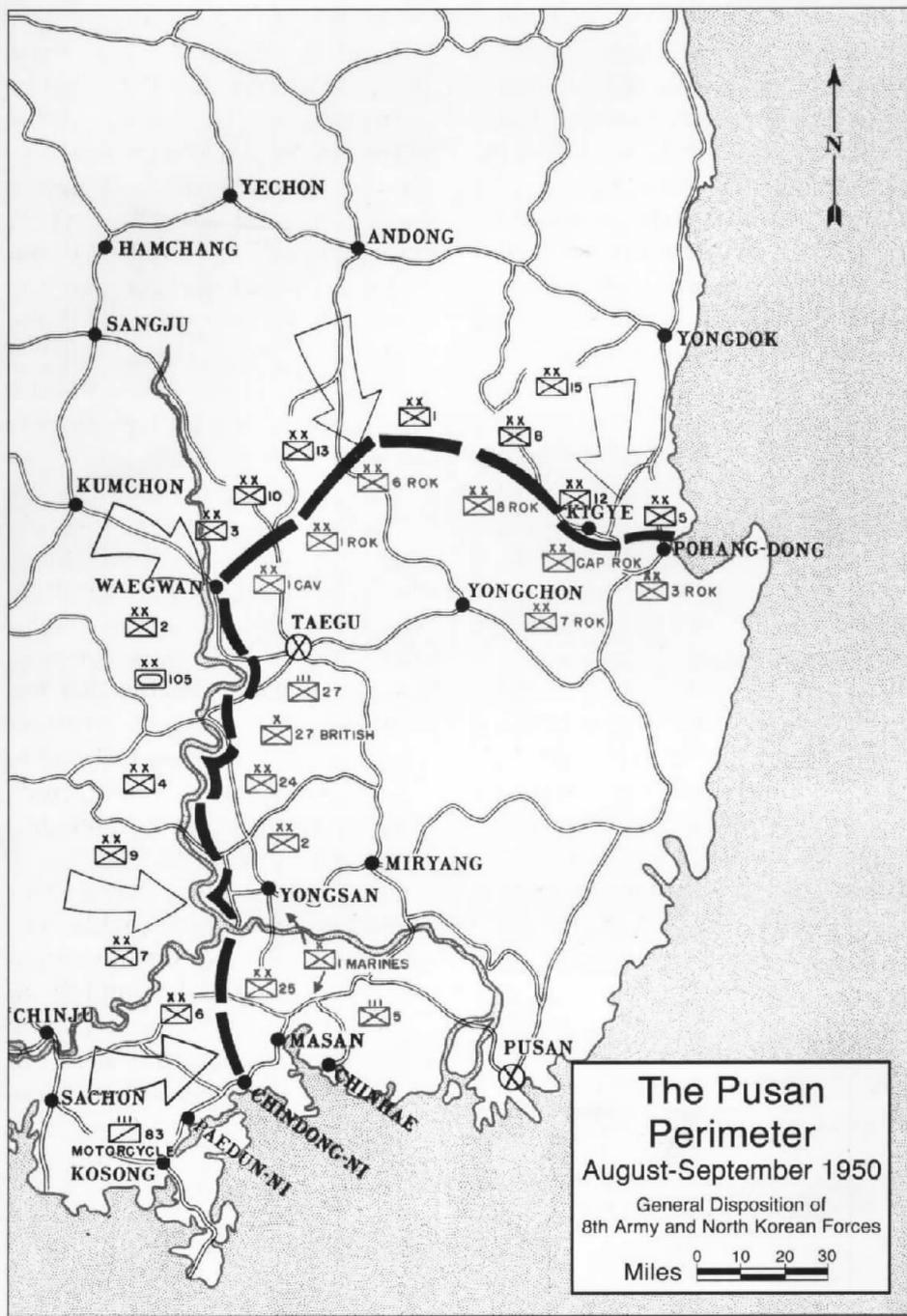
meant that the brigade, and later the division, commander through his air section would assign daily missions while the aircraft wing would provide supplies and personnel administration. Unfortunately, the helicopters, which belonged partially to both, but not fully to the ground or aviation commanders, seemed to be neither fish nor fowl. To use Major Gottschalk's words to describe this awkward command and control system: "Observation squadrons were the stepchildren of Marine aviation." This theoretical dichotomy, however, in no way diminished the practical use of helicopters. They soon proved their worth in combat and, in fact, became so indispensable that virtually every ground commander recommended additional helicopters be made immediately available by the time the Marines departed the Pusan Perimeter.

The hard-working Marine helicopters were used for a wide variety of missions that taxed them to the limit during the month of August 1950. The most common uses were for command and control, aerial reconnaissance, medical evacuation, and combat search and rescue; however, they also spotted artillery fire, dispensed emergency supplies, lifted individuals to remote outposts, and provided high-speed communications wire laying services as well. An operational pattern soon emerged. Each morning the two duty helicopter pilots would fly to General Craig's command post where they would report to Major James N. Cupp, the brigade's air officer, for tasking. At about noon, these two helicopters would be relieved on station by the other two. This aircraft rotation ensured adequate pilot rest and gave ground crews time for daily maintenance work. In addition, an ad

*The commanding officer of VMO-6 holds a pre-mission pilot brief during the early stages of the Korean War. From left to right are Capt George B. Farish, 1stLt Eugene P. Millette, Capt Victor A. Armstrong, 1stLt Lloyd J. Engelhardt, Maj Vincent J. Gottschalk, Capt Alfred F. McCaleb, Jr., 2dLt Edgar F. Gaudette, Jr., 1stLt Gustave F. Lueddeke, Jr., and enlisted pilot TSgt Robert A. Hill.*

Department of Defense Photo (USMC) A1991





hoc control system evolved whereby the helicopter pilots would check in and out with the MTACS-2 air control section on their way to and from assigned missions. As air traffic control squadron commander Major Elton Mueller explained:

We maintained the same positive radio contact with the helicopters that we did with all the other aircraft operat-

ing with us. The division air officer, however, controlled the helicopters. When they went out on a mission, they would fly by our operating site, give us a call—a radio check—on our reporting-in-and-out net. . . . In this manner [we] knew when [they] went out on a mission [and] they would tell us what type of mission they were going on, i.e. whether they were

going on a reconnaissance, whether they had any rank on board, whether they were carrying the commanding general out to one of the units, or whether they were going out on an evacuation mission. . . . Since we had communications facilities and the air officer [did not] we could. . . keep [him] abreast of the situation.

Korea was a difficult arena of operations due to its rugged terrain, weather extremes, and poorly developed infrastructure as aerial observer Second Lieutenant Patrick G. Sivert recalled: "It was hot and dusty, the road network was very poor, and the country very mountainous. There was no apparent pattern of any sort to the mountains. . . no particular ranges or draws, compartments, or corridors." The Marines were first greeted by sweltering heat and choking dust, but within a few months bitter cold and heavy snow brought south by the so-called "Siberian Express" would create vastly different operational challenges. The already difficult topography was exacerbated by the lack of modern hard surface roads as well as poor overland communications links. River valleys provided the only flat space suitable for roadways, but they were susceptible to flash flooding. The lack of reliable telephone communications was also a problem because the short-ranged infantry radios of the day did not function well when out of the line-of-sight. The cumulative result of these disparate problems made Korea an operational nightmare. Luckily, helicopters provided the ideal technological fix. They were unrestrained by the terrain, could act as radio relays or lay wire at high-speed, and easily flew over



Department of Defense Photo (USMC) A130163  
*On 3 August 1950, 1stLt Gustave F. Lueddeke, Jr., flew the first command liaison mission in Korea. In addition to ferrying commanders around, he also logged numerous medical evacuations and flew rescue missions behind enemy lines.*

traffic jams or roadless wilderness.

According to Major Gottschalk, the use of HO3S helicopters at Pusan for command liaison work had the greatest tactical value.

*A Korean rice paddy serves as a makeshift landing pad for a Marine HO3S-1 helicopter. The air panels laid out in the foreground mark the landing area and indicate wind direction.*

General Craig faced many unusual command circumstances due to the emergency situation in Korea. Hurried planning, reliance upon oral orders, incomplete intelligence, poor communications, and inadequate maps all plagued the brigade staff. Craig turned to the helicopter to help solve his problems. While stationed on Guam in 1949, he became acquainted with helicopters when he borrowed a carrier-based Navy HO3S-1 to make command visits and observe field training, and Craig immediately put this experience to use in Korea. On the morning of 3 August 1950, he and his operations officer, Colonel Stewart, climbed into First Lieutenant Gustave Lueddeke's waiting HO3S, beginning the first Marine helicopter flight in an active combat zone. Craig and Stewart were airborne almost all of that day. The initial leg took them from Pusan 30 miles west to the brigade staging area at Changwon. Along the way, Lueddeke set down amid some Korean huts to allow Craig to con-

Department of Defense Photo (USMC) A131089





National Archives Photo (USMC) 127-N-A1385

*The leaders of the 1st Provisional Marine Brigade, BGen Edward A. Craig, left, and his deputy, BGen Thomas J. Cushman, right, wait in the shade of a Sikorsky HO3S-1. The commanding officer of VMO-6 felt that command visits were missions of the most tactical value during the fighting at the Pusan Perimeter.*

opined: "A general and his staff could now make direct . . . contact with operations at the front as had never been possible before [and this] enabled a commander to keep in personal touch with his forward units since the helicopter could land virtually anywhere without asking favors of the terrain."

General Craig also said: "Time was always pressing. Fortunately . . . helicopters . . . were always available for observation, communications, and control. . . . Without them I do not believe we would have had the success we did."

In addition to command and control, a second valuable tactical use for helicopters was visual reconnaissance. A major problem during the attack toward Sachon was a scarcity of tactical maps, compounded by the fact that the

only maps readily available were inaccurate ones created by Japanese cartographers sometime before World War II. Villages were misnamed and misplaced, many roads were either not shown or were incorrectly plotted, there were no contour lines to accurately depict terrain features, and the complex grid system was too confusing to be of much value. Although no one at Quantico had predicted that helicopters might have to replace maps for navigation, this is exactly what happened in Korea. Small unit commanders often used helicopters to reconnoiter their routes of advance or to locate good ground for defensive positions. On the march helicopters shadowed ground movements and provided over-the-horizon flank security. In addition, HO3Ss were used to direct artillery fire, a task made difficult for

ground observers due to the poor maps and hilly terrain that frequently masked targets.

Another ground support duty, one that had received much play at Quantico, was aerial wire laying. A helicopter flying nap-of-the-earth could put down communications wire at the rate of about a mile per minute, far faster than a ground party could do it. The heavy and cumbersome spools presented no problem for a helicopter, whereas ground-based wire layers were severely limited as to how much wire they could carry and which terrain they could cross. An additional bonus was that by flying over tree lines or narrow defiles, helicopters could keep the wire overhead where it was not subject to destruction by tank treads or artillery bursts. Today, wire laying seems like a small thing but, in the days before needed two-way radio

reliability, land line communications was vital for command and control.

Two missions of marginal tactical value had a significant impact upon morale, aerial medical evacuations and airborne search and rescue. Helicopter evacuations, reported Major Gottschalk: "exert a very positive effect on ground troops since they know their chances of survival are tremendously increased. . . . A unit cut off by land [could still] have its wounded evacuated [and] it helped units by relieving them of the necessity of caring for them [thus] freeing more men for fighting. The use of helicopters for rescue of downed pilots [was] also impor-

tant in bolstering [air crew] morale."

On 4 August, Marine helicopters performed their first aerial medical evacuation when a Marine wounded by an accidental weapon discharge was flown from Changwon to the naval hospital train at Masan. The next day helicopters were called out to deliver water and rations to an infantry platoon sent to a nearby hilltop to check out reports of an enemy observation party located there. "Whirlybirds" were used because they could deliver the cargo in a matter of minutes where it would have taken a carrying party hours to bring up in the rugged terrain and intense heat. Five Marines suffering

severe heat exhaustion and in need of advanced medical attention were taken out by helicopter.

On 8 August, the squadron conducted a night helicopter evacuation—another first. This was a daring feat because the HO3S did not have proper instrumentation for night operations. Disregarding these limitations, Captain Armstrong flew off into the fading light to pick up a critically wounded man and the regimental surgeon of the 5th Marines. The nearly blind helicopter was guided back by the light of flares and came to earth amid the glow of headlights. This dramatic flight was the first of more than 1,000 night evacuations conducted in Korea.

*The first of many Marine helicopter medical evacuations occurred when VMO-6 helicopters lifted several severe heat casualties to safety. "Whirlybirds" were often used because*

*ground transportation could not traverse the rugged terrain and stretcher-bearer evacuation would take too long.*

Department of Defense Photo (USMC) A2855





National Archives Photo (USN) 80-G-420545

*The Sikorsky HO3S-1 was a civilian model helicopter acquired for use as an observation aircraft. Unfortunately, the aircraft was poorly configured for medical evacuations, which often required Marines and Navy Corpsmen to lift patients into the aircraft from odd angles.*

As helicopter pilot Captain Norman G. Ewers later recalled:

Normally, helicopter evacuation missions [were] performed on orders from the division air officer who relay[ed] the requests from the medical officers of the battalions or regiments. Helicopters [were] used to evacuate only those who [were] critically wounded and require[d] immediate hospital treatment. The helicopter [made] it possible not only to get the man to the hospital much more quickly, but it [provided] a much easier ride than travel by roads over rough terrain [and] this smoother ride . . . prevent[ed] hemorrhages.

Medical evacuations were flown without regard for difficult circumstances. The pilots took off in all

kinds of weather, without the benefit of proper instrumentation or homing devices, and often disregarded enemy fire in the landing zones. A tribute to the helicopter pilots of VMO-6 was rendered by a ground officer: "The flying of evacuation helicopters from jury rigged and inadequate landing sites was nothing short of miraculous. . . . The pilots of the observation squadron received far less credit than they deserved. They used to fly at night [into] frontline landing strips where I had trouble walking." Frontline medical officers likewise credited the flying skills and bravery of the medical evacuation pilots for saving many lives. The mortality rate in Korea fell to a new low of only two percent, less than half the rate of World War II and far below the nearly 50 percent rate prior to the American Civil War, due in large part to the rapid evacuation of

seriously wounded and the immediate availability of helicopter-provided whole blood at forward medical stations.

Unfortunately, the HO3S-1 was a civilian model aircraft adopted for use as a military machine; it was not designed to be a flying ambulance and, thus, poorly configured to be used as such. Marine ground crews in Korea quickly modified the HO3Ss to carry stretcher cases. The starboard observation window was removed and straps secured the stretcher in flight, but still a wounded man's legs protruded from the cabin. This was a minor annoyance that summer, but during cold-weather operations several cases of frostbitten feet and lower legs caused by the severe airborne wind chill were recorded. In addition, the wounded man most often had to be loaded into the helicopter from a position above the heads of the stretcher-bearers, a ponderous and awkward process. Inside the cabin, the pilot had to make quick ballast adjustments to ensure proper trim on the way home. Another problem was the HO3S-1's high profile and unstable tricycle landing gear; at least one HO3S tipped over while idling on rough ground. Although all agreed that the HO3S was invaluable in emergencies, there was room for mechanical improvement. This was handled in two ways. First, requests for immediate deployment of an off-the-shelf medical evacuation helicopter, the Bell HTL trainer, were sent up the chain-of-command. Second, Sikorsky Aircraft made design modifications to its newest observation helicopter, the developmental model S-52, which reached the fleet as the HO5S.

One mission of mercy for which the HO3S was perfectly suited was the rescue of downed pilots.

Helicopters were virtually the only means by which a downed pilot could be snatched from behind enemy lines and returned safely home within hours. The HO3S's side-mounted winch was an ideal tool for pulling an unfortunate aviator from the chilly waters off the Korean coast. The pilot or his crewman located the downed man and then the helicopter hovered overhead while the stricken man was lifted to safety. Lieutenant Lueddeke made the first of these rescues on 10 August while conducting a ground reconnaissance with the brigade commander on board. Second Lieutenant Doyle H. Cole's Corsair was struck by ground fire during a strafing run. Cole was unable to make it back to the *Badoeng Strait*, so his plane plunged into the water. Luckily, he was able get out and inflate his life raft before the plane sank. Lueddeke's helicopter quickly rushed toward the sinking plane to affect an airborne rescue.

*Marines refuel a VMO-6 helicopter in a rice paddy during the fighting in the Pusan Perimeter. When a helicopter could not make it back to base, 55-gallon drums of fuel and a supply of oil had to be trucked out to the makeshift landing pad.*

Marine Corps Historical Center Photo Collection



General Craig winched the soaked pilot up into the helicopter as Lueddeke hovered over the wreckage. Once safely inside the grinning pilot slapped his benefactor on the back with the words "Thanks, Mac" before he noticed the general's rank insignia and was able to render proper honors. The unperturbed senior officer simply replied: "Glad to be of service, Lieutenant."

Not every rescue had such a happy ending. Later that same day Lieutenant Lueddeke was sent to rescue another VMF-323 pilot. This time the downed flyer was Captain Vivian M. Moses whose plane had been hit by antiaircraft fire in enemy territory. Lueddeke skillfully negotiated a low-level approach behind enemy lines to pick up the stranded pilot and returned him to Chinhai for an overnight stay. The next morning, Moses returned to his ship where he promptly volunteered to fly another combat mission. Ironically, he

was shot down once again before the helicopter that delivered him returned to action. His plane crashed into a rice paddy and flipped over when it struck the dike. Captain Moses was knocked unconscious as he fell from the plane and drowned before helicopter pilot Captain Eugene J. Pope could save his life. Sadly, Vivian Moses became the first Marine pilot to die in combat in Korea.

On 7 August, the first Marine helicopter came under fire when the commanding general's HO3S-1 was caught in an enemy artillery barrage. Luckily, the plane emerged undamaged after dropping General Craig off. The first combat damage to a Marine helicopter occurred a week later when an HO3S-1 lost its windshield while evading enemy antiaircraft fire. No "whirlybirds" were lost to enemy fire during the 580 missions flown by the helicopter section of VMO-6 during the fighting at Pusan.

On 12 August, the Marine advance toward Sachon was abruptly halted due to a breakthrough that penetrated the U.N. lines near Miryang on the Nakdong River. The situation was so critical that a battalion of the 5th Marines was immediately ordered north to counterattack. Once again, the helicopter proved invaluable as a liaison vehicle. The battalion commander and the brigade operations officer mounted First Lieutenant Robert Longstaff's HO3S-1 to rendezvous with a U.S. Army representative. They flew to the appointed place but could not locate their man. Luckily, they were able to orbit the area until they found a reconnaissance unit, which was able to contact their division headquarters. The Marines were told that instead of joining the Army unit as planned they should instead "look the situation