

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 recom-

mendations, 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-



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Sikorsky HO3S-1

The 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 Nakdong 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 Nakdong 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

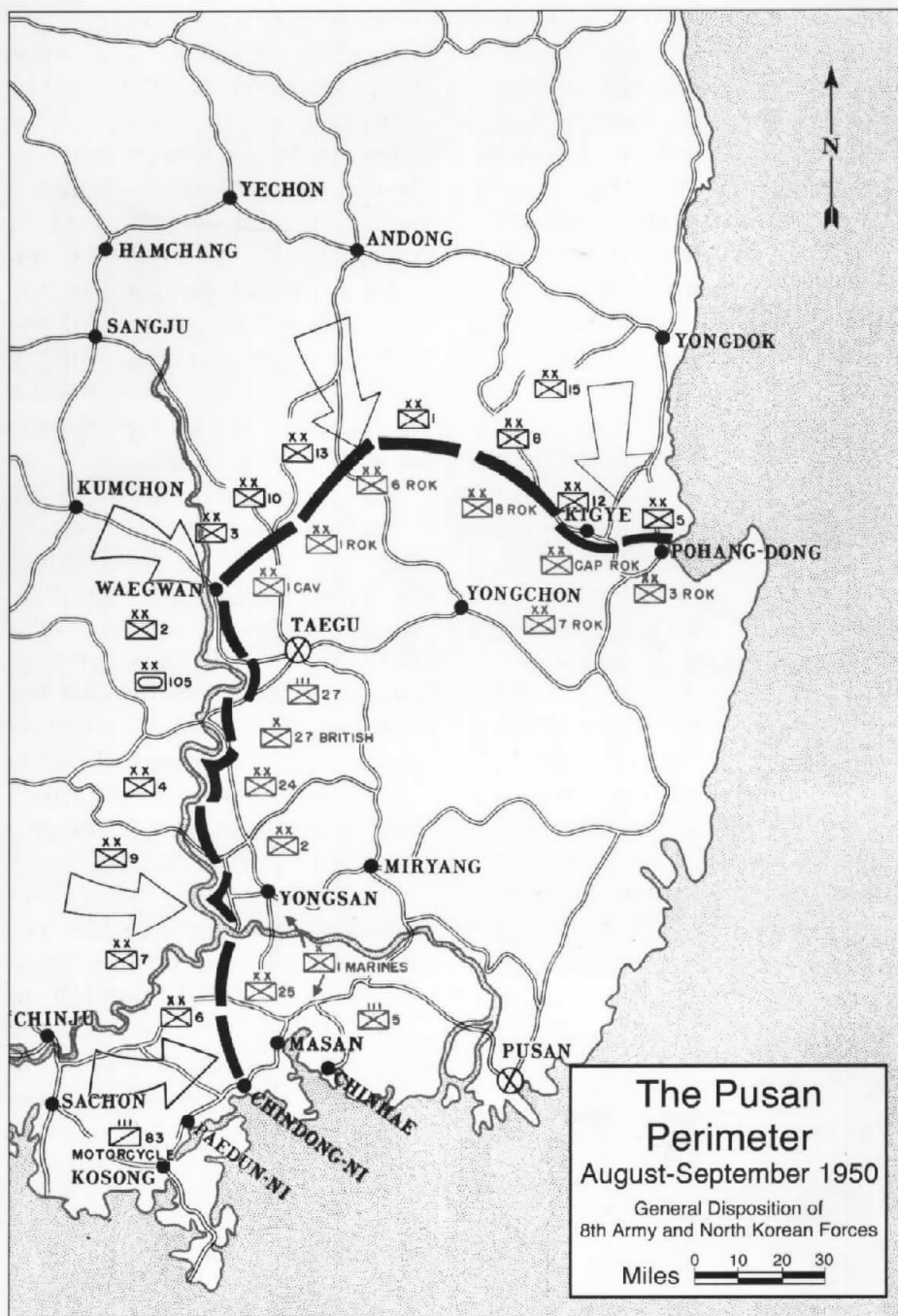
meant that the brigade, and later the division, commander through his air section would assign daily missions while the aircraft wing would provide supplies and personnel administration. Unfortunately, the helicopters, which belonged partially to both, but not fully to the ground or aviation commanders, 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





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

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



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.

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 Gus-tave 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 confer with a battal-

ion commander leading the convoy to its new assembly area. After a few minutes on the ground, Craig continued his journey to the actual site selected to become his forward command post. Next, he flew back to Masan to meet with the Eighth Army commander and the commanding general of the U.S. Army task force slated to carry out the first United Nations offensive in Korea. On the way home, Craig stopped three times to inform small unit troop leaders about the upcoming operation. Although this trip seems routine by modern standards, that was certainly not true in 1950. Marine Corps historian Lynn Montross noted the uniqueness of this feat and its impact on the future: "Only a helicopter could have made this itinerary possible in a period of a few hours. A fixed-wing plane could not have landed in such unlikely spots, and a jeep could not have covered the same route before nightfall over narrow, twisting roads choked with Army and Marine vehicles." He further

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.

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

important 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 suf-

fering 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 circum-

stances. 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. 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 anti-aircraft fire in enemy territory. Lueddeke skillfully negotiated a low-level approach behind enemy lines to pick up the stranded pilot and returned him to Chinhae 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 anti-aircraft 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 Naktong 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

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 make-shift landing pad.

Marine Corps Historical Center Photo Collection



Early Naval Helicopters

The first U.S. Navy experience with rotary-wing aircraft was not a good one. The Pitcarin OP-1 autogiro, an airplane not a true helicopter, had been tested and found wanting during the era between the World Wars. It was not until Igor Sikorsky introduced his VS-316 model helicopter on 13 January 1942 that vertical takeoff and landing aircraft became feasible. Sikorsky had earlier flown the first practical American helicopter, the VS-300, but that machine was only a test bed. The follow-on VS-316, designated the XR-4 by the U.S. Army, had a two-seat side-by-side enclosed cabin. A 200 horsepower Warner R-550-3 engine that ran a single overhead main rotor and a smaller anti-torque rotor on the tail powered the aircraft. The XR-4 prototype could hit a top speed of around 85 miles per hour, cruised at about 70 miles per hour, and had a range of about 130. In July 1942, the Navy tested its first one; an R-4 transferred from the Army and then promptly redesignated HNS-1 by the Bureau of Aeronautics. Two more were requisitioned from Army stocks in March 1943. The new helicopter was a success, and 22 more were procured for use as trainers beginning on 16 October 1943. The HNS-1 served as the primary naval aviation helicopter trainer until the Bell HTL-series replaced it.

Several other early helicopters (the Platt LePage R-1 and the Kellet R-2 and R-3) produced by other manufacturers were considered but not selected. All was not lost, however, because a bright young Kellet engineer, Frank Piasecki, would later develop tandem-rotor helicopters that would become a mainstay of naval aviation. The Bell Aircraft Company was too busy turning out jets to enter the initial helicopter competition, but that corporation's mathematician and engineer Arthur M. Young would soon revolutionize light helicopter design.

Sikorsky Aircraft produced 133 HNS helicopters; the Navy accepted 23, the Army kept 58, and the British Royal Air Force got 52. The first shipboard helicopter trials were conducted by America's first certified military

helicopter pilot, Army Captain Hollingworth "Frank" Gregory. He put his HNS through its paces by repeatedly landing and taking off from the tanker *Bunker Hill* operating in Long Island Sound on 7 May 1943. Coast Guard Lieutenant Commander Frank A. Erickson flew the initial naval service helicopter mercy mission when he delivered two cases of blood plasma to a hospital at Sandy Hook on the New Jersey shore. Doctors credited Erickson's timely arrival with saving several lives. Other rescue missions aiding both civilian and military personnel in the New York area soon followed. The U.S. Army and the Office of Strategic Services both used helicopters for special combat missions in Asia during World War II.

The Navy was satisfied enough with the HNS to order an additional 150 helicopters from Sikorsky, 100 HOS-1s (designated R-6A by the USAAF) and 50 HO2S-1s (Army designation R-5A) before the end of the war. The HOS-1 was more compact, more powerful, and more maneuverable than its HNS predecessor. It mounted a single overhead main rotor, and was powered by a 240 hp Franklin O-405-9 engine. Three XHOS-1s were requested for testing from Army R-6A stocks in late 1942 and were accepted by the U.S. Coast Guard, which was by then running Navy helicopter training at New York's Floyd Bennett Field in March 1944. After the war a second batch of 36 HOS-1s were assigned to the Navy helicopter development squadron (VX-3) after passing acceptance tests. The Navy also took two HO2S-1 (Army R-5A) test models in December 1945, but opted to place an order for slightly modified S-51 commercial models (designated HO3S-1) which became the standard Navy, Marine, and Coast Guard light utility helicopters in 1947.

When the Coast Guard returned to the Treasury Department from the Navy Department on 28 December 1945, the U.S. Navy took over helicopter training and development. Marine helicopter pilots learned their trade with VX-3 before moving on to HMX-1 at Quantico, Virginia, prior to the Korean War.

over and do what [they] thought proper [to] ensure the safety of the 159th Field Artillery." The Marines had neither detailed maps of the area nor locating coordinates, so they took to the air to conduct a visual reconnaissance and, hopefully, find the lost Army artillerymen. This was done, and the Marines returned to meet the rescue convoy on the road. After giving an estimate of the situation and further instructions, the two

Marines returned to the Army position to prepare for the rescue column's arrival. Concurrently, a helicopter piloted by Lieutenant Lueddeke carrying the artillery regimental commander and his operations officer located several survivors of an overrun artillery battery. They dropped a note of encouragement then led a relief party to the spot. During this excursion, Lueddeke's HO3S-1 came under small arms fire and

had to "buck and jerk" its way out of the area using maneuvers not found in the pilot's manual. Only helicopters could have provided such assistance. Ground transportation would have been unable to find the misplaced units in a timely manner, while a light observation plane could not have moved back and forth between the supported and supporting units with such speed and efficiency. The helicopters of VMO-6 saved the day.



National Archives Photo (USMC) 127-N-A1990

Air-sea rescue was an important mission flown by VMO-6 with the first such rescue made in August. Here, Capt Eugene J. Pope, at the controls of his HO3S-1 helicopter, is congratulated by his still-wet fellow VMO-6 observation pilot Capt Alfred F. McCaleb, Jr.

Two HO3S-1 helicopters, two pilots, and five mechanics assigned to headquarters squadron in Japan were released from that duty and joined VMO-6 at Chinhae on 15 August, just in time for one of the biggest battles for the Pusan Perimeter. The 5th Marines had been pulled back from Sachon, hurriedly replenished, and then marched north to seal off the NKPA penetration near Miryang. Helicopters were used for visual reconnaissance of the battle area, conducted liaison visits, scouted the routes of advance, screened the flanks, spotted artillery fires,

brought in supplies, and evacuated casualties as the Marines were twice called on to throw the North Koreans back across the Nakdong River. During that time the helicopter pilots began to perfect evasive maneuvers that allowed them to dodge enemy ground fire. It also became obvious that the frail looking helicopters were tougher than previously thought. Several were hit by enemy small arms fire but kept on flying, and others survived some very hard landings in rough country. As General Lemuel Shepherd later noted about the toughness of helicopters: "I saw

[them] come in with a dozen bullet holes [but] unless they are hit in a vital part, they continue to fly." Still, the helicopters carried no armor or weapons so they were used in supporting roles except for emergency evacuations or deep search and rescue missions. The best tactic for those risky missions was to get in and out as quickly as possible while flying nap-of-the-earth using terrain to mask ingress and egress routes.

The Marine defense of the Pusan Perimeter ended with the arrival of other elements of the 1st Marine Division and the remainder

Airfield Designations

United Nations Command airfields in Korea used letter-number designators: the letter "K" indicated a major air base; the letter "X" indicated an auxiliary landing strip; and the letter "A" indicated that the airfield adjoined a U.S. Army base or headquarters. During the Korean War, Marine helicopter squadrons operated from the following locations:

Marine Observation Squadron 6	Sonjong-ni (unnamed)
Chinhae (K-10)	Sohung-ni (X-77)
Kimpo (K-14)	Sinchon (X-83)
Wonsan (K-25)	Tonggo-ri (A-9)
Yonpo (K-27)	Marine Transport Squadron 161
Masan (unnamed)	Pusan (K-1)
Pohang (K-3)	Kangnung (K-18)
Wonju (K-38)	Chodo-ri (X-83)
Hongchon (K-47)	Yongpo-ni (A-17)
Kwandae-ri (unnamed)	Taejong-ni (A-33)

of Major General Field Harris' 1st Marine Aircraft Wing from California in preparation for the landing at Inchon. By late August, the helicopter detachment had logged 580 sorties and 348 flight hours, conducted 35 medical evacuations, and flew 85 aerial recon-

naissance missions. Throughout that time helicopter availability was 100 percent. In his final report Major Gottschalk attributed this remarkable accomplishment to two factors: the excellent facilities at Chinhae and the ground support crew's professionalism, skill, and

willingness to put in long hours. This was no small achievement because helicopters required a great deal more effort; more spare parts, more man-hours, and more sophisticated tools and work spaces than did the OY Sentinels. On the other hand, Gottschalk also noted that larger transport helicopters could have provided much needed services such as troop lifts, resupply, and command liaison, which were beyond the capabilities of the HO3S-1.

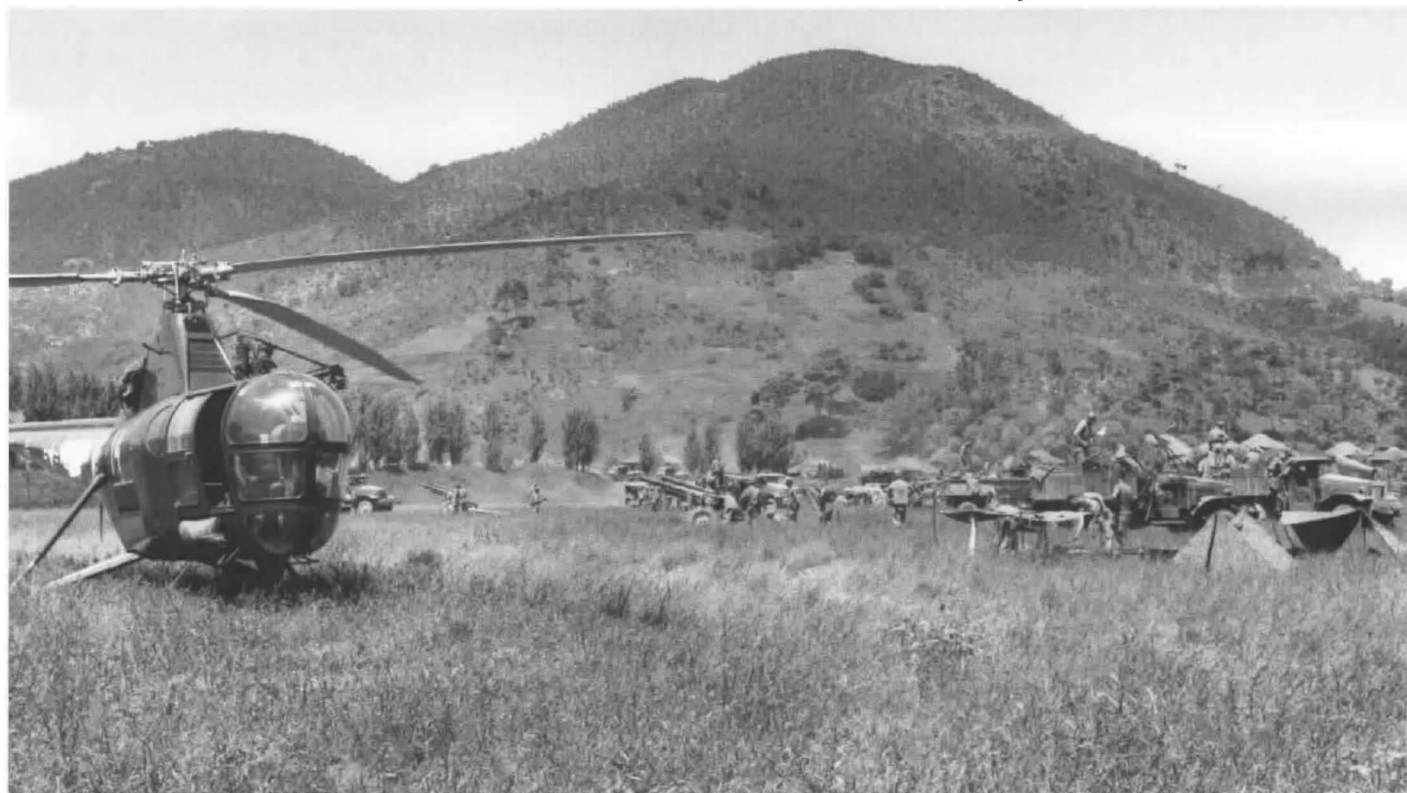
General Craig, the first Marine commander to use a helicopter as a command and control aircraft later wrote:

Helicopters are a godsend. . . . The mountainous terrain of Korea presents a difficult problem for security. . . . [Transport] helicopters would be ideal to [quickly] post patrols and outguards on high, dominating terrain which would [normally]

A VMO-6 helicopter lands near the artillery positions of the 1st Battalion, 11th Marines, along the Nakdong River. The

HO3S was designated as an "observation" platform but was actually used as a light utility aircraft in Korea.

Department of Defense Photo (USMC) A2204





National Archives Photo (USMC) 127-N-A130052

MajGen Field Harris, left, commanding general of the 1st Marine Aircraft Wing, MajGen Oliver P. Smith, commanding the 1st Marine Division, and BGen Thomas J. Cushman, assistant wing commander, meet in Tokyo, Japan, a week before the landing at Inchon.

take hours to climb. . . . [More helicopters] would . . . insure the earlier defeat of the enemy. They should be made available for use at the earliest possible date.

He also noted other Service interest in rotary-wing aircraft by stating: "The Army is enthusiastic over our ideas of employment of this type of aircraft and is going ahead with the idea of employing them on a large scale." Like Major

Gottschalk, Craig also recommended that a transport helicopter squadron be formed and sent to Korea as quickly as possible. The Director of Marine Corps Aviation, Brigadier General Clayton C. Jerome, made the case for additional helicopters in a memorandum to the Deputy Chief of Naval Operations (Air):

There are no superlatives adequate to describe the general reaction to the helicopter.

Almost any individual questioned could offer some personal story to emphasize the valuable part played by [the] HO3S planes. . . . There is no doubt the enthusiasm voiced . . . is entirely warranted. . . . No effort should be spared to get helicopters—larger than the HO3S if possible—to the theater at once, and on a priority higher than any other weapon. [We need] helicopters, more helicopters, and more helicopters.

The Inchon-Seoul Campaign

On 9 September, VMO-6 was placed under the operational control of the 1st Marine Division, commanded by Major General Oliver P. "O. P." Smith, and under the administrative control of the 1st Marine Aircraft Wing. The Marines' next mission was destined to become a military classic—the amphibious assault at Inchon, a battle that dramatically reversed the course of the Korean conflict. U.S. Army X Corps, spearheaded by the 1st Marine Division, launched a difficult daylong amphibious landing then rapidly moved inland to secure the supply depot at Ascom City and Kimpo Airfield. The campaign culminated with the retaking of the South Korean capital of Seoul. This seizure cut the enemy's main supply routes and left the NKPA forces in the south isolated. By the time the lead elements of X Corps in the north and Eighth Army coming up from the Pusan Perimeter linked up the NKPA was in full flight. That once awesome fighting force had been completely routed and was headed for the dubious safety of North Korea.

To prepare for the Inchon landing, Major Gottschalk divided his squadron into forward and rear

echelons. The forward echelon, 10 officers, 48 enlisted men, and 8 helicopters, loaded on board Japanese-manned LST Q079 at Chinhae. During the voyage, the Marines and Japanese crew shared mess facilities. Luckily, detachment commander Captain Victor Armstrong spoke fluent Japanese—he had resided in Japan for 15 years before the outbreak of World War II. Four officers and 43 enlisted men remained behind to safeguard squadron property at Chinhae.

Once ashore the Marine helicopter detachment picked up right where it left off, but on a much larger scale. The main missions remained command and liaison, aerial evacuation of seriously wounded, combat search and rescue of downed fliers, and visual reconnaissance. Although the number of HO3S helicopters had doubled since August, the demands for their time continued to increase.

Major General Smith, the 1st Marine Division commander and a former member of the Shepherd Board in 1946, quickly became a helicopter advocate. “The helicopter was of inestimable value to the division commander and his staff in keeping personal contact with subordinate units in a minimum of transit time,” he asserted. Generals Smith and Craig, now assistant division commander, depended upon helicopters to visit the front on a daily basis and unit commanders scouted proposed routes of advance, although emergency medical evacuations were given priority over liaison and reconnaissance. With as few as only four helicopters operational, however, command and liaison visits were often interrupted when the commander’s helicopter was diverted for emergency missions. When critically wounded men

needed a ride the generals and colonels either used alternative transportation or waited until their “chopper” returned. The list of dignitaries using helicopter transport during September 1950 included Fleet Marine Force, Pacific, commander Lieutenant General Lemuel Shepherd, Commandant Clifton B. Cates, and X Corps commander, U.S. Army Major General Edward M. Almond. At Inchon, just as at Pusan, the most often heard complaint about helicopters was that there were not enough of them.

Although Marine helicopters played no combat role on the first day at Inchon, Navy helicopters did spot naval gunfire during the preliminary bombardment. On 16 September (D+1), Marine helicopters entered the fray flying 14 missions. The landing ship-based Marine “whirlybirds” flew reconnaissance and artillery spotting missions over Wolmi-do Island, and First Lieutenant Max Nebergall pulled a Navy pilot out of the drink. On the afternoon of 17 September, ground Marines captured Kimpo Airfield, the largest

“Whirlybird” pilots in Korea were famous for their daring feats while rescuing downed flyers and evacuating seriously wounded men; among the very best were 1stLts Robert A. Longstaff and Gustave F. Lueddeke, Jr. of VMO-6. Tragically, the Marine Corps lost two of its most promising pioneer helicopter pilots when Longstaff was killed in action at the Chosin Reservoir and Lueddeke succumbed to poliomyelitis not long after returning from Korea.

National Archives Photo (USMC) 127-N-A130403



airfield in Korea, virtually intact. The first U.S. aircraft to land there was Captain Armstrong's HO3S, which arrived at mid-morning on 18 September as Marines searched for the remnants of the previous night's NKPA counterattack force. Armstrong carried two early proponents of Marine helicopter operations, Lieutenant General Shepherd and his operations officer Colonel Victor H. Krulak.

On 19 September, the 1st Marine Division moved its command post from Inchon to Oeoso-ri. The next day VMO-6 moved to nearby Kimpo, which thereafter served as the squadron's base of operations until the subsequent move north. The final phase of the Inchon turning movement—the recapture of Seoul—was about to begin, and helicopters proved to be particularly valuable when terrain obstacles separated elements of the division during the drive to retake the capital. The general operational pattern was for one helicopter to be earmarked for each regimental commander in addition to one each for the division commander and his assistant commander. The regimental helicopters were primarily used for reconnaissance and medical evacuations, the division commander's for liaison, and the assistant division commander's for reconnaissance; any unassigned helicopters underwent maintenance while standing by for emergency evacuations or combat search and rescue.

The major obstacle on the way to Seoul was the Han River. Brigadier General Craig used his helicopter to locate a suitable crossing area, scout key terrain, and survey the road approaches to the South Korean capital. Although few enemy soldiers actually showed themselves, Captain Armstrong, Craig's pilot, had to dodge scattered small arms fire along the



Department of Defense Photo (USMC) A130249

Capt Victor A. Armstrong, right, proudly displays the cake sent from the carrier Philippine Sea (CV 47) as Maj Vincent J. Gottschalk, VMO-6's commanding officer, looks on. Capt Armstrong made a daring behind-the-lines rescue of a Navy pilot shot down near Seoul and the cake was sent ashore as a mark of appreciation.

way. As a result of his aerial reconnaissance, Craig recommended that the 5th Marines move across the Han at an abandoned ferry site near Haengju and then seize the high ground overlooking Seoul.

Just as before, combat search and rescue was an important additional duty for the helicopters of VMO-6. On 21 September 1950, the squadron received word that a pilot had gone down behind enemy lines and was jammed inside his cockpit. Anticipating a

difficult extraction, First Lieutenant Arthur R. Bancroft loaded his plane captain on board then took off to make the rescue. The area was "hot," so friendly planes maintained a rescue combat air patrol to strafe any enemy who showed their heads. Bancroft set his HO3S down and remained at the controls while the helicopter idled with its rotor blades slowly turning. The crew chief could not free the encased pilot alone, so Bancroft had to leave the aircraft to assist.

Who was the First Marine Helicopter Pilot?

There is some dispute about who the first Marine Corps helicopter pilot actually was. According to Marine lore that honor goes to fighter ace and famed test pilot Marion E. Carl, but the official records of the naval service identify Major Armond H. DeLalio as Marine helicopter pilot number one, and Marion Carl himself proclaimed that Desmond E. Canavan was probably the first Marine to fly a helicopter.

According to the Marine Corps' official history, *Marines and Helicopters, 1962-1973*, "Major General Marion E. Carl is generally credited with being the first Marine to learn how to fly a helicopter in July 1945 [but] it was not until some years later that he was officially designated [as such]." In his autobiography, *Pushing The Envelope* (Annapolis, MD: Naval Institute Press, 1994), Carl relates that he learned how to fly a Sikorsky HNS (R-4) while a test pilot stationed at the Naval Air Test Center, Patuxent River, Maryland. He was given about three hours of instruction before he soloed. In that same memoir, however, he states that fellow Marine Desmond Canavan was flying helicopters in late 1944. Carl's claim that he was helicopter pilot number one rests upon the fact that he was the first Marine to log the 40 hours required for certification even though he never applied for such certification. Neither Carl nor Canavan appear on the naval service helicopter pilot certification list prior to June 1950.

Marine Corps Historian Lynn Montross, the recognized authority on early Marine helicopter operations, lists Navy Cross holder Armond DeLalio as having flown U.S. Navy helicopters at New York's Floyd Bennett Field then under the auspices of the U.S. Coast Guard in 1944. He is officially recognized as the first Marine certified as a helicopter pilot, achieving that honor on 8 August 1946. DeLalio was the operations officer for Navy helicopter squadron VX-3 at that time. He was killed during a test flight in 1952 when a rocket-assisted takeoff pod malfunctioned causing his HRS helicopter to catch fire and then crash.

The Navy register of early helicopter pilots lists 250 qualifiers prior to the onset of the Korean War in June 1950; 33 are Marines, including three enlisted naval aviation pilots (the famous "Flying Sergeants" of the Marine Corps).

While who should be recognized as the true "Gray Eagle" of Marine helicopter aviation remains murky, there is little doubt about the specific incident that started the Marine Corps helicopter program. That event occurred at Quantico, Virginia, in 1946 and was described by helicopter pioneer Edward C. Dyer:

One day Marion Carl, a test pilot at Patuxent, flew a helicopter to Marine Corps Schools to demonstrate it to the students. . . . He hoisted [Lieutenant Colonel



Marine Corps Historical Center Photo Collection
LtCol Armond H. DeLalio, recipient of the Navy Cross for heroism as a pilot with Marine Scout-Bomber Squadron 241 during the battle of Midway and a Marine Corps helicopter pioneer, was honored in 1965 when an elementary school at Camp Lejeune, North Carolina, was dedicated in his name.

Victor H.] Brute Krulak . . . about 15 feet [off the ground] and pulled him into the cockpit. [Lieutenant Colonel Merrill B.] Twining and I were standing by the window and watching and I said 'Bill, let's . . . quit fooling around.' He said 'OK! . . . He wrote the theory . . . principles . . . background . . . reasoning . . . and I wrote [an implementation] program.'

Marion Carl recalled that he specifically selected Lieutenant Colonel Krulak because his small stature and lightweight could be accommodated by the limited room and lift capability of his HOS-1 helicopter. Krulak thereafter became a helicopter devotee.

While the two Marines busily freed the trapped pilot, the helicopter's collective friction device worked loose and the plane tipped on its side where the beating rotors destroyed the aircraft. Luckily, Lieutenant Robert Longstaff was able to pick up the grounded trio although his overloaded HO3S staggered under the excessive weight until it reached friendly lines. Bancroft then promptly mounted another helicopter to rescue a second Navy flier before the day ended.

Two days later, Captain Armstrong recorded the longest search and rescue operation yet by a VMO-6 helicopter when he flew nearly 100 miles behind enemy lines to rescue a downed Navy pilot. On the return flight, he ran out fuel over friendly territory, temporarily put down, refueled, and then landed at Kimpo after dark using a flashlight to illuminate his control panel. The rescued pilot turned out to be a squadron commander from the carrier *Philippine Sea* (CV 47). The next day, VMO-6 received a large layer cake, compliments of the U.S. Navy as a reward for Armstrong's fine work. Conversely, Lieutenant Longstaff flew the shortest rescue mission of the war picking up a pair of Marines from a Grumman F7F Tigercat that crashed after taking off from Kimpo. That mission on the 25th took less than six minutes. The pilot was Lieutenant Colonel Max J. Volcansek, Jr., of Marine Night Fighter Squadron 542, one of three squadron commanders to go down that day.

A more dramatic rescue also occurred on 25 September. A Navy helicopter "on loan" to the Marines suffered battle damage during a deep rescue mission and was forced to put down near the Han River. Word that an American air-

crew was down in enemy territory did not reach the division air officer until about 2100—after sunset. Captain Armstrong took off despite the fact that the HO3S had neither proper instrumentation nor landing lights for limited visibility flying. Armstrong needed both arms and both feet to control the helicopter, so he held a flashlight between his knees to illuminate the unlit instrument panel. He spotted the downed aircraft in the glow of light cast from the burning city of Seoul and set down on a nearby sandbar. The crew, a Navy pilot and a Marine enlisted man, swam to Armstrong's waiting helicopter for a safe ride home. He once again had to rely upon makeshift lights upon arrival at the landing zone.

Thus far in Korea, VMO-6 had lost helicopters to operational incidents but had suffered no fatalities. Tragically, this string of luck came to an end on 29 September. A VMO-6 Sentinel was shot down about five miles north of Seoul. Reports indicated the aerial observer was killed in the crash, but the pilot was able get out. First Lieutenants Lloyd Engelhardt and Arthur Bancroft, both of who previously had logged deep search and rescue missions, were at the division command post when the call for help came in. Both immediately volunteered to go, but Major James Cupp, the division air officer, ordered them to wait until more detailed information became available. A few minutes later they learned that the OY went down beyond the Marine frontlines near Uijongbu, an unsecured area teeming with enemy and known to be infested with anti-aircraft guns. Bancroft, who won a coin flip to decide who would make the rescue, took the lead with Engelhardt trailing by about a half mile. They found the crash site,

but as Bancroft's helicopter began to settle it was hit by enemy fire and disintegrated in a fireball. Engelhardt called for fighter planes to survey the area. They reported Bancroft had been killed, and there was no sign of the downed pilot. First Lieutenant Arthur R. Bancroft thus became the first Marine helicopter pilot to die in action.

Helicopters became crucial for command liaison. The rugged terrain, a major river, and wide dispersal of fighting units made control difficult. Helicopter mobility made it possible for commanders to scout approach routes, identify key terrain, attend conferences in the rear, and then quickly thereafter meet subordinate commanders face-to-face. On 28 September, Major General Smith coordinated the defense of Seoul as he visited each of his three regimental command posts: the 1st Marines at Seoul's Duk Soo Palace; the 5th Marines at the Seoul Women's University; and the recently arrived 7th Marines on the city's western outskirts. The 1st and 5th Marines were to defend in place while the 7th attacked toward Uijongbu. On 3 October, Armstrong flew Commandant Cates on an aerial survey of the Inchon-Seoul area and a frontline inspection tour highlighted by observation of an attack by the 7th Marines on the 4th. This was the final ground combat action of the campaign, although Marine helicopters continued to fly deep rescue and medical evacuation missions from Kimpo throughout the rest of October. Lieutenant Engelhardt rescued a Marine pilot near Chunchon on 3 October and then plucked an Air Force pilot up at Sibyon-ni on the 5th.

When the Inchon-Seoul campaign was officially declared over at noon on 7 October 1950, VMO-

U.S. Naval Aviation Designations

During the Korean conflict, the Navy Bureau of Aeronautics used designation systems that conveyed a lot of information about its squadrons and aircraft in a concise manner.

Squadron Designations:

The Bureau recognized three aircraft squadron types: lighter than air (Z); heavier than air (V); and helicopter (H). In addition, Marine aircraft squadrons were identified by the insertion of the letter "M" between the aircraft type and the squadron function. In general, a three letter prefix followed by up to three numbers was used to identify individual Marine aircraft squadrons. The first letter (a "V" or "H") identified the primary aircraft type used by the squadron, the second letter ("M") identified it as a Marine aviation unit, and the third ("O" indicating observation and "R" for transportation) identified the squadron's primary mission; the numbers in the suffix sometimes identified the squadron's unit affiliation and always noted its precedence order.

Thus, VMO-6 was the sixth heavier-than-air Marine observation squadron formed. The single digit indicated that the squadron was not specifically affiliated with a particular aircraft wing (observation squadrons were attached to ground units). On the other hand, HMR-161 was the first Marine helicopter transport squadron assigned to the 1st Marine Aircraft Wing (the first "1" indicating initial assignment to the wing, numbers above "6" were used for non-fixed wing aircraft, and the last "1" signifying it was the first squadron formed).

Aircraft Designations

Individual aircraft designations used a similar identification system. The Bureau of Aeronautics gave each naval aircraft a mixed letter and number designation.

Except for experimental or prototype helicopters, the first letter was an "H" indicating rotary-wing status; the second letter indicated its primary purpose ("O" for observation, "R" for transport, or "T" for trainer); a number (except in the case of the first model) indicated the manufacturer's sequence for producing that specific aircraft type; the next letter identified the manufacturer ("L" for Bell, "P" for Piasecki, or "S" for Sikorsky); and the number following a dash indicated a sequential modification of that aircraft model.

Thus, the HO3S-1 was Sikorsky Aircraft's third model observation helicopter with one modification; the HRP was Piasecki's first transport helicopter; the HTL-4 was the fourth modification to Bell Aircraft's original trainer helicopter; the HO5S was Sikorsky's fifth observation model; and the HRS-1 was Sikorsky's first transport helicopter.

The Bureau's system was a good one that remained in use for four decades, but there were a few problems. First, aircraft were often used for roles other than those assigned. For example, the HO3S-1 was actually a utility aircraft that during field service performed many tasks other than observation, a task that actually became a seldom-used secondary mission in Korea. Second, the proliferation of missions and manufacturers as time passed led to confusing duplication of letters ("T" was variously used to indicate torpedo, trainer, and transport aircraft). Third, lack of inter-Service consistency produced confusion (the Navy HO3S-1 was an H-5F to the Air Force and Army). The naval aircraft designation system was replaced by a joint aircraft designation system in 1962, but the Bureau's squadron designation system remains in effect.

6 helicopters had flown 643 missions, evacuated 139 seriously wounded men, and rescued 12 airmen from behind enemy lines or out of the water.

The success of VMO-6's fledgling helicopter detachment had wide-ranging effects that spread well beyond the theater of operations and impacted more than just the Marine Corps. In the United States, military dogmatists and civilian pundits complained long and loud about lack of inter-Service unity in Korea. However, in the words of Major General John P. Condon, an expert in joint operations and an experienced air

group commander in Korea: "The farther from Washington, the less inter-Service differences came into play." This dictate was borne out by Marine helicopter operations in late October. On the 21st, Captain Gene W. Morrison made a series of flights to evacuate eight seriously wounded Army paratroopers from Sukchon to Pyongyang in his HO3S. Three days later, Captain Wallace D. Blatt, who had provided helicopter coverage for the withdrawal of U.S. forces from China, and First Lieutenant Charles C. Ward flew deep into enemy territory to rescue a pair of Air Force pilots down near Koto-ri, more

than 100 miles inland from their temporary base at Wonsan Harbor. These were only a few of many times Marine helicopters rescued or aided other American servicemen in Korea. Although both the U.S. Navy and Air Force were flying helicopters in Korea, the Marine success with rotary-wing operations at Pusan and Inchon prodded the Air Force to attach helicopter units specifically earmarked for medical evacuation to Army field hospitals. Likewise, a clamor for organic transport and observation helicopters arose from U.S. Army commanders. The utility and practicality of helicopters in

combat zones had been firmly established by the Marines of VMO-6 in less than three months.

The Chosin Reservoir

General MacArthur's successful turning movement at Inchon drastically changed the course of the Korean War. Thereafter, the NKPA was a broken machine with its scattered remnants headed for the protection of North Korea's hinterlands or a safe haven inside China. MacArthur, sensing a chance to end the conflict by trapping the remaining North Korean forces, sent his United Nations Command speeding north beyond the 38th Parallel in a race for the Yalu River despite warnings not to do so.

MacArthur split his forces to hasten the pursuit. He ordered the Eighth Army forward in the west and opted to use X Corps, including the 1st Marine Division, for an amphibious landing at Wonsan in northeast Korea. Once again, VMO-6 split into forward and rear elements. The advance party (4 officers and 70 enlisted men known as the "surface" echelon) embarked on board LST 1123 and then sailed for Wonsan on 13 October. Most pilots, all VMO-6 aircraft, and a skeleton ground-support crew remained at Kimpo. Fifth Air Force specifically tasked the Marine helicopters with supporting a U.S. Army parachute drop near Pyongyang, but the Marines also would conduct combat search and rescue as needed. This "flight" echelon was composed of 17 officers and 19 enlisted men with Captain Armstrong as officer-in-charge. The stay-behind element was to continue operations from Kimpo until ramp space at Wonsan became available. Included in the helicopter flight echelon were several newly arrived pilots and replacement air-

craft ferried in from the United States on board the aircraft carrier *Leyte* (CV 32). The new aircraft were welcome additions that made nine Marine HO3S helicopters available.

United Nations ground forces pressed forward against only token resistance. A South Korean division occupied Wonsan in early October, but the amphibious task force carrying VMO-6 had to mark time sailing up and down the east coast until the harbor could be cleared of mines. Consequently, members of VMO-6's stay-behind echelon actually set down in North Korea before the advance party. On 23 October, Captain Blatt and Lieutenant Ward flew north from Kimpo to Wonsan. The airfield served as the squadron's home

Capt Wallace D. Blatt, a helicopter pilot assigned to VMO-6 in Korea, had been a Marine multi-engined transport pilot at Guam and Okinawa during World War II. He learned to fly helicopters immediately after the war and was the first Marine helicopter pilot deployed overseas when he flew a borrowed Navy HO3S-1 during the occupation of North China.

National Archives Photo (USMC) A130580



base from then until VMO-6 moved to Yonpo on 3 November. The embarked surface echelon finally got ashore on the 25th, and the flight echelon completed its movement to Wonsan three days later.

Immediately after landing, the 1st Marine Division began operations. One regiment occupied Wonsan and manned two battalion-sized outposts (Majon-ni to the west and Kojo to the south) while two regiments proceeded about 50 miles north to the port of Hungnam and the railway junction at Hamhung before moving out toward the Chosin Reservoir some 78 miles farther inland. Although intelligence estimates indicated there would be little resistance and X Corps commander, Major General Edward M. Almond, wanted a rapid inland movement, the enemy had other ideas. A night attack at Kojo caught the Americans by surprise and cut the main supply route while unexpectedly strong NKPA forces encircled the Majon-ni outpost. With no overland routes open, helicopters became the only reliable link with both outposts.

The 1st Marine Division was alerted that the Kojo garrison was under attack in the early morning hours of 28 October. Emergency requests for medical assistance, specifically aerial evacuation helicopters and a hospital receiving ship in addition to ground reinforcements, were quickly acted upon. Six HO3S helicopters were dispatched. As Captain Gene Morrison later recalled, the situation was desperate enough that he never shut his engine down after arriving at Wonsan on his ferry flight from Kimpo. Instead, he received a hurried cockpit brief and was on his way to Kojo without ever leaving the aircraft. Captains Blatt and Morrison, and



Department of Defense Photo (USMC) A134641

The hospital ship Repose (AH 17) at anchor in Incheon Harbor. Note the helicopter-landing pad mounted on the ship's stern; this configuration became standard on all hospital ships during the course of the Korean War.

Lieutenants Engelhardt, Lueddeke, and Ward, collectively flew 17 seriously wounded men from Kojo to the hospital ship *Repose* (AH 17) at Wonsan Harbor. Captain George B. Farish provided airborne search and rescue. During a search on 29 October, he spotted the word "HELP" spelled out in straw about a mile northeast of Tongchon. As Farish trolled the area, a lone figure emerged from cover and then began waving. Farish shouted: "Hey Mac, looking for a ride?" He then plucked up the first of several lost Marines he brought in that day. During several of the rescues Farish left his helicopter to assist badly wounded men to the idling aircraft. Unfortunately, his daring attempt to rescue a Navy pilot under fire late in the day came to naught when it was discovered the man was already dead.

Helicopters played an important role at Majon-ni, a vital road junction located in a Y-shaped valley about 25 miles west of Wonsan.

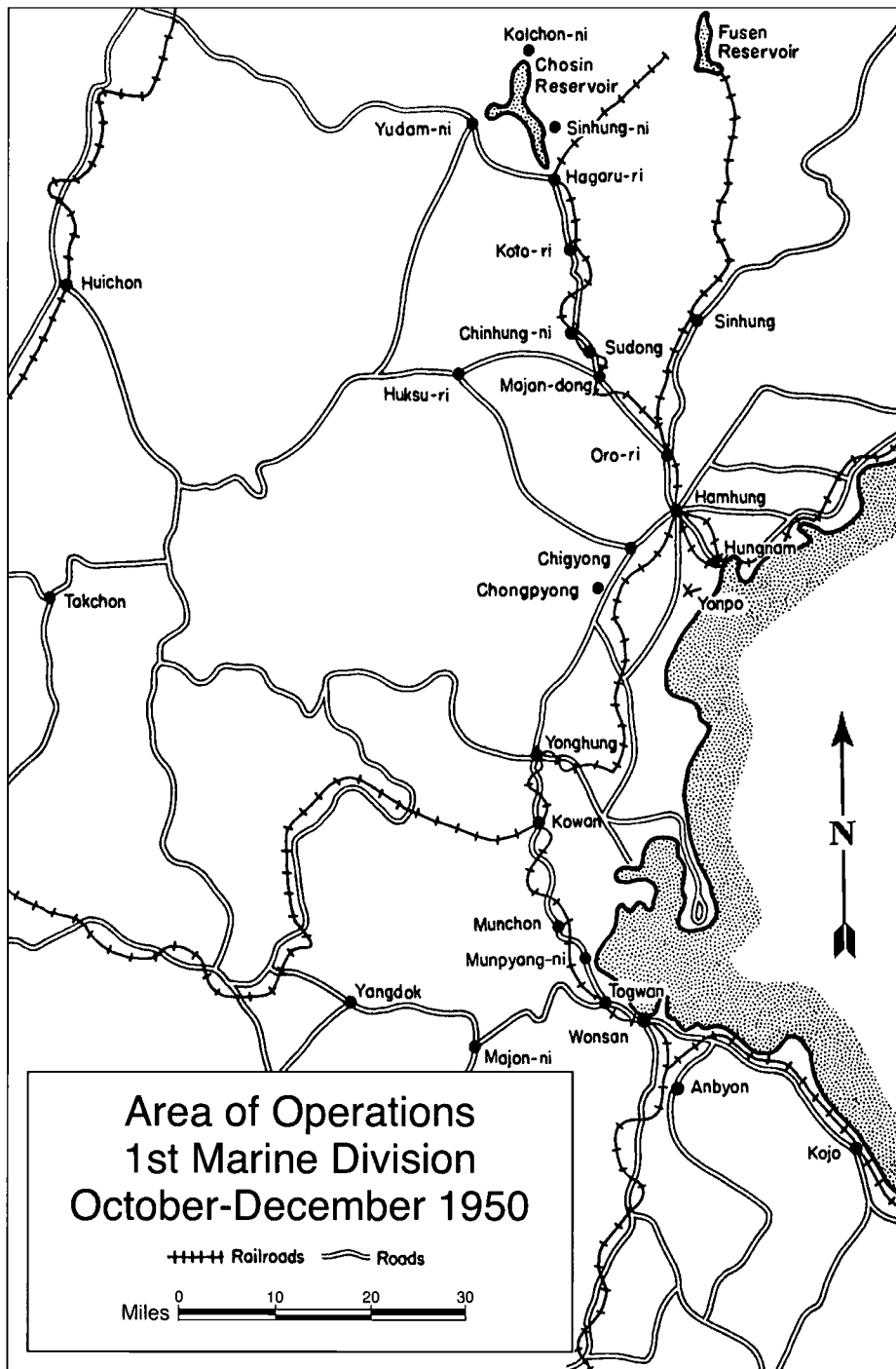
Capt Gene W. Morrison, a helicopter pilot with VMO-6, was one of the first Marine "Whirlybirds" to arrive in northern Korea from Kimpo Airfield to support the Chosin Reservoir campaign. At Yonpo Airfield, he was immediately diverted to help evacuate serious wounded Marines from Kojo to the hospital ship Repose (AH 17) in Wonsan Harbor.

National Archives Photo (USMC) 127-N-A130604



The village was occupied without resistance on 28 October, but within a week the garrison was completely surrounded and the vulnerable main supply route became known as "Ambush Alley." Radio communications between Majon-ni and Wonsan was uncertain because intervening high ground and intermittent atmospheric interference allowed an open window of only a few hours each day, so the only reliable communications links were messages carried in and out by helicopter or OY pilots. For the most part, the Majon-ni strong point was supplied by airdrop and casualty evacuation was by helicopter from 2 November until the siege lifted.

The Chosin Reservoir campaign tested the endurance of the "whirlybirds" and the skill of their pilots and the fortitude of their ground crews like no other period before Chinese anti-aircraft fire began to light up the clouded skies of northeast Korea. The via-



bility of extended helicopter operations at high altitude and in difficult weather conditions was at that time still conjectural. It was believed that helicopters might not be able to operate safely at any point beyond Chinhung-ni at the mouth of the Fencilin Pass, about two-thirds of the way to the Chosin Reservoir, due to the thin air at that altitude. The effect of prolonged cold weather on helicopter opera-

tions was also a source of concern. This issue came to the fore when Captain Eugene Pope had to return his HO3S after only four minutes aloft because the collective and cyclic controls were too stiff to adequately control flight. Ground crews subsequently switched to light weight lubricants and tried to either hangar or cover all aircraft when not in use. These measures compensated for, but did not com-

pletely alleviate, cold weather-induced problems. Reduced lift in low temperatures at high altitude and flight in windy conditions made flying in the mountainous terrain hazardous, but there was no choice when emergencies occurred. It also became apparent that ground-effect hovers would not be possible in the foreseeable future. An additional problem was the ungainly configuration of the HO3S-1, which required stretcher cases to extend outside the cabin. Sub-freezing temperatures and extreme airborne wind chill factors put already wounded men at risk for frostbite while enroute to safety. Thus, the already limited flight envelope of the HO3S-1 was further restricted by terrain and weather.

On 2 November, the 1st Marine Division began its ascent toward the reservoir following a helicopter reconnaissance of the Sudong Valley. No enemy troops were located from the sky, but ground units were soon mixing it up with the first Chinese Communist units yet encountered. General Smith ignored the advice of the X Corps commander to speed it up and instead moved his division steadily ahead along a single-lane road, keeping all units tied in and establishing strong points along the way. His foresight and prudence likely saved the 1st Marine Division from annihilation when the Chinese sprang their trap a few weeks later.

Helicopters scouted hill-masked flanks, reconnoitered the roadway, laid communications wire, provided radio relays, and brought in crucial small items in addition to their by-then normal jobs of command liaison and medical evacuation. Despite increasingly poor weather, First Lieutenant Ward flew 115 miles from Yonpo to Songjin to rescue an Air Force airborne for-



Department of Defense Photo (USMC) A4912

Aerial evacuation of wounded and severely frostbitten Marines and soldiers from Hagaru-ri saved numerous lives. From late November to mid-December, Maj Vincent J. Gottschalk's squadron conducted a total of 191 helicopter evacuations out of a total of 1,544 flights.

ward air controller whose plane had gone down near the Chosin Reservoir on 5 November. The HO3S was badly buffeted by crosswinds and strained to bite into the chilly thin air. Three days later, Captain Pope's helicopter was blown out of the sky by turbulent winds while on a resupply run. The helicopter was a wreck, but Pope escaped without serious injury. Lieutenant Ward arrived to take him out but was beset by a temperamental starter, so both pilots spent the night at a ground command post.

By 26 November, the 1st Marine Division was dangerously spread out. Little active resistance had yet been encountered, but veteran commanders were leery that things might be going too well. The Marines had moved upward

through the snow-covered Funchilin Pass over the main supply route, a treacherous, icy, winding, narrow, dirt road. General Smith wisely established a series of outposts along the way; a regimental supply base at Koto-ri just north of the Funchilin Pass, an airstrip and division headquarters at Hagaru-ri on the southern tip of the reservoir, a company-sized outpost guarded the Toktong Pass from Fox Hill, and a jump off point manned by two regiments at Yudam-ni on the western tip of the reservoir.

Conditions were terrible. Swirling snow and sub-zero temperatures were the result of the winds, which blew down from Manchuria. It would be hard to imagine more difficult flying conditions for helicopter operations. The bit-

terly cold, short days and lack of repair facilities hampered helicopter maintenance. It was under these dire circumstances that the mettle of VMO-6's helicopter section was truly tested.

Beginning on the night of 27 November, the advance elements of the 1st Marine Division became heavily engaged at Yudam-ni and Hagaru-ri. The fierce fighting at the Chosin Reservoir required an all-hands effort by VMO-6 when more than six Chinese divisions tried to overrun two Marine regiments and cut the main supply route at several points. Helicopter pilots Blatt and Morrison both reported enemy roadblocks between Koto-ri and Hagaru-ri, the first official confirmation that the 1st Marine Division was surrounded. The Marines' abortive advance was about to

become a breakout an epic of modern warfare during which the Marines “attacked in a different direction” bringing out most of their equipment and all of their wounded.

Several helicopters moved forward to Hagaru-ri to save flight time on 28 November, and all available aircraft flew from dawn until dusk each day for the next week-and-a-half. General Smith often used helicopters to visit his scattered units during that time. The helicopters of VMO-6 logged 40 sorties (1 reconnaissance, 16 transport, and 23 medical evacuations) in 73.7 flight hours on the 29th. Fifty seriously injured men were flown out and numerous vital supplies (particularly radio batteries and medicine) were brought in; General Smith visited the forward command posts, and a large group of enemy was spotted by helicopter that day. Captain Farish’s HO3S was hit several times as he delivered supplies

to an isolated rifle company perched atop Fox Hill. As he later related: “They ran me off.” Farish limped back to Hagaru-ri and safely landed under covering fire by the Marines in the perimeter, but his aircraft was operationally grounded due to damage to the main rotor transmission. The next day, Lieutenant Engelhardt’s HO3S was hit while delivering vital radio batteries to Fox Hill. A bullet just missed the pilot, and the helicopter was so damaged that it had to return to base for emergency repairs after carrying out one wounded Marine. Forty-three other casualties were successfully brought out that day as well by the HO3S-1s of VMO-6. Helicopters carried out 50 wounded and brought in medical supplies, gasoline, radio batteries, and tank parts in almost 60 hours of flight time on 30 November.

The Marines consolidated at Hagaru-ri, broke out of the Chinese trap at Koto-ri, and moved

Although operating at the extreme edge of their performance envelope, the Marine HO3S-1s of VMO-6 provided reliable service at the Chosin Reservoir. During the most critical period the squadron’s helicopters and OYs provided the only physical contact between units separated by enemy action.

National Archives Photo (USMC) 127-N-A5398



National Archives Photo (USN) 80-G-420288
Helicopter pilot 1stLt Robert A. Longstaff poses in front of his HO3S-1 helicopter decked out in flight gear after delivering a downed Navy airman to the Sicily (CVE 118). Longstaff was the second Marine helicopter pilot killed in action when his aircraft was hit by antiaircraft fire at the Chosin Reservoir.

back toward the sea by way of an air dropped Treadway portable bridge that spanned the Funchilin Pass. Throughout the ordeal at the reservoir, helicopters were the only dependable means of physical contact between scattered units. They provided liaison, reconnaissance, and medical evacuation; whenever a “whirlybird” flew a medical supply mission, ammunition and radio batteries were part of the incoming load. These operations were not without cost. On 3 December, First Lieutenant Longstaff was killed at Toktong Pass when his helicopter was brought down by enemy fire while trying to rescue a critically wounded man. Captain Blatt played a role in a daring but ultimately tragic event. After several frustrating hours trying to start his frozen helicopter, Blatt was finally able to get his aircraft to crank up just as an emergency rescue mission came in. Blatt took off but then returned when the covering air patrol told him an ax and fire extinguisher

would be needed to free the trapped pilot, Ensign Jesse L. Brown, USN. Arriving at the scene, Blatt joined Navy Lieutenant Junior Grade Thomas J. Hudner, Jr., who had purposely crash-landed his plane in order to assist Brown. Despite their best efforts, they could not extract the mortally wounded man before he died. The saddened men had to return empty handed, but Hudner later received the Medal of Honor for his unselfish actions to rescue the United States Navy's first African-American combat pilot.

After the 1st Marine Division departed Koto-ri for Hungnam on 6 December, VMO-6 moved back to Yonpo. During the ensuing voyage from Hungnam some of the squadron's helicopters were earmarked to conduct emergency rescues during carrier-borne air operations. On 12 December, the first elements of the squadron (including two helicopters) began to back load on board LST Q082 for immediate transportation to Hungnam, which would then be followed by a seaborne redeployment to Pusan. Seven helicopters remained behind until additional ship spaces could be found. On 17 December, three HO3Ss flew from their temporary home on the beach at Wonsan to the battleship *Missouri* (BB 63) and then each trans-shipped to three different carriers (the *Leyte* [CV 32], *Princeton* [CV 37], and *Philippine Sea* [CV 47]) for duty as standby plane guards, a fourth HO3S served the heavy cruiser *St. Paul* (CA 73). Three additional helicopters embarked on board the *Missouri* late in the day. Enroute, Lieutenant Colonel Richard W. Wyczawski, commander of Marine Fighter Squadron 212, was charged with overseeing the movement of VMO-6's "lost sheep" during the voyage to Pusan. They were successively

located on board their various ships and then gathered together on board the light carrier *Bataan* (CVL 29) as the convoy sailed south. Unfortunately, three helicopters were damaged enroute by high winds and heavy seas. The four operable "whirlybirds" flew off their host carriers to Masan on 26 December 1950. The others were off loaded at Pusan Harbor and underwent repairs.

The return to Masan closed the books on the Chosin Reservoir campaign. During the movement north and the ensuing breakout between 28 October and 15 December, Marine helicopters flew 64 reconnaissance, 421 transport, 191 medical evacuation, 60 utility, and 11 search and rescue missions; more than 200 wounded men were flown out, most of whom would have died without speedy medical assistance. All of this, of course, could not have been possible without the outstanding support of the tireless ground crews aided by Mr. Harold Nachlin, the much-respected civilian technical representative from Sikorsky Aircraft. As impressive as these achievements were, however, the Chosin campaign once again pointed out the inadequacy of the HO3S as a military aircraft. A more effective medical evacuation platform was desperately needed, as was a viable transport helicopter. Fortunately, each of these was in the pipeline and would soon see combat service.

Pohang to the Punchbowl

The unexpected Communist Winter Offensive initiated the longest retreat in American military history. While X Corps pulled back from northeast Korea, the Eighth Army fell back more than 600 miles before halting south of Seoul. During the next eight

months the U.S. Marines would rest and rebuild at Masan, chase elusive North Korean guerrillas near Pohang, lead the United Nations Command drive up central Korea from Wonju to the Hwachon Reservoir, survive the last major Chinese offensive of the war, then once again claw their way north to a rugged mountain area just north of the 38th Parallel where the U.N. lines would remain until the end of the war. Throughout those U.N. counteroffensives the helicopters of VMO-6 continued to provide outstanding support.

While the Marines in Korea were slogging their way back from Chosin, several Bell HTL helicopters arrived in Japan. The HTL was a two-seat, single-engine aircraft that was already familiar to every helicopter pilot because they had learned to fly helicopters using Bell-made trainers at Lakehurst and Quantico. These small "fishbowls" (so called due to their prominent plexiglass bubble canopies) mounted two evacuation pods, one on each side of the fuselage. This handy configuration made the Bells much better adapted for medical evacuation than the venerable Sikorskys. Unfortunately, their relatively underpowered engines were unsuited for high-altitude, cold-weather operations, so they were kept in reserve until the Marines returned to Pusan. Most of the older HTL-3s were assigned to headquarters or maintenance squadrons while all of the newer HTL-4s went to VMO-6. The plan was to gradually replace the HO3S-1s as HTL-4s became available. On 28 December 1950, three HTL-4s, two HTL-3s, and another HO3S-1 joined the ranks of VMO-6. First Lieutenant John L. Scott flew the first operational mission with an HTL-4 on 2 January 1951. As the New Year dawned, VMO-6 mustered 13 helicopters and nine



VMO-6 Historical Diary Photo Supplement, Nov52

Bell HTL

Thanks to the opening credits of the long-running television series "M*A*S*H," a helicopter delivering wounded men to a field hospital remains one of the most enduring images of the Korean conflict. The aircraft featured on that show was a Bell Model-47, the same type flown by the Marines under the designation HTL and by the Army and Air Force as the H-13.

The Model-47 first flew in 1946, was granted the first ever U.S. commercial helicopter license in 1947, and remained in production for almost 30 years. Military versions saw extensive service in both Korea and Vietnam, and several generations of naval aviation helicopter pilots learned to fly using HTLs. Early model HTL-2 trainers used at Lakehurst Naval Air Station, New Jersey, mounted wheels instead of skids and were covered in fabric when the first Marine trainees learned to fly rotary-wing aircraft. The Chief of Naval Operations designated the HTL as the prospective observation helicopter in 1949. The press of combat operations in Korea, particularly the need for a more suitable aerial medical evacuation platform than the HO3S, led to a massive influx of HTL-4s to Marine Observation Squadron 6 at the end of 1950.

The unique technical feature of all Bell helicopters was a two-bladed rotor and stabilizer system that reduced flying weight without harming performance, and the unique visual feature of the HTL was its clear

Plexiglas "goldfish bowl" cabin canopy that allowed all-round vision. The HTL-4's squat configuration and skids allowed it to land in rough terrain while the inclusion of two exterior stretcher pods made it the preferred aircraft for field evacuations of seriously wounded men. Unfortunately, it had an unreliable engine and a notoriously weak electrical system that together required inordinate maintenance time while its limited fuel supply severely reduced the helicopter's combat radius.

Several generations of naval aviators learned to fly using HTL trainers, and the Bureau of Aeronautics eventually purchased more than 200 HTLs, the last of which were still regularly flying more than two decades after the first one took to the air. Advanced versions of the HTL developed into the UH-1 Huey and AH-1 Cobra, the utility and attack helicopters that arm today's Fleet Marine Forces.

Aircraft Data

Manufacturer: Bell Aircraft Company

Power Plant: 200 hp Franklin O-335-5

Dimensions: Length, 41'5"; height, 9' 2"; rotor, 35' two blade with stabilizer

Performance: Cruising speed, 60 mph; ceiling, range, 150 miles

Lift: Pilot plus two passengers or two externally mounted stretchers



National Archives Photo (USMC) 127-N-A130600
Capt George B. Farish, a helicopter pilot with VMO-6, stands by his Bell HTL. Farish, by late 1950, had participated in more than 100 combat missions and was responsible for the evacuation of more than 55 seriously wounded United Nations troops.

OY observation aircraft. An influx of fresh faces was a welcome sight as well because, according to Captain Gene Morrison, "the old hands . . . were . . . pretty tired" after six-months of grueling combat duty. Just as with the ground units, a significant personnel change was underway. The Regulars were giving way to recalled reservists. By the end of January 1951, the number of Reserve pilots in VMO-6 equaled the number of Regulars.

The 1st Marine Division spent a month recuperating throughout the uneventful respite at the Masan Bean Patch. During that time, VMO-6 operated from an airstrip near the waterfront. A maintenance detachment including four officers and 11 enlisted men moved from Korea to Itami Air Base in Japan to prepare the growing fleet of arriving helicopters for combat service. Most helicopter missions at Masan were utility and liaison flights, although occasional aerial reconnaissance and familiarization flights were also made.

Concurrently, plans were being formulated for the Marines to move about 70 miles northeast to secure the X Corps eastern flank by conducting antiguerrilla operations near the coastal village of Pohang.

Helicopters proved invaluable for liaison work even before the 1st Marine Division moved to Pohang. Unfortunately, poor weather often hampered flying conditions. General Smith had several hair-raising encounters en-route to planning conferences, but he always arrived on time. Two HO3S-1s were tossed about by high winds as they carried General Smith's forward command group

to meet with the new Eighth Army commander, Lieutenant General Matthew B. Ridgway, USA, on 30 December 1950 at Kyongju. They made it on time despite the harrowing flight conditions. On 8 January 1951, General Smith was summoned to a commander's conference at Taegu. Dense fog grounded all fixed-wing aircraft, so Smith boarded Lieutenant Lueddeke's HO3S for the flight. Lueddeke followed some dimly visible railroad tracks at about 400 feet, twice having to suddenly swerve to avoid mountainsides along the way. Once, the visibility was so reduced that Lueddeke had to put the plane down in a rice

One of the little noted, but important missions performed by VMO-6 helicopters was laying telephone wire between frontline positions. Here, a squadron ground crewman loads wire spools onto a HTL-4 flown by Capt James R. O'Moore.

Department of Defense Photo (USMC) A131086



paddy; Smith lit his pipe and made small talk while waiting to resume his journey. Not long thereafter, the pair took to the air once again; this time using roadside telephone posts to guide them.

In early 1951, the 1st Marine Division rooted out remnants of a North Korean division that had infiltrated the region surrounding Pohang and threatened X Corps headquarters at Taegu. Dubbed the "Pohang Guerrilla Hunt," the campaign sought to secure this area as it held the only usable port on Korea's southeastern coast, the main supply route for east-central Korea, and three vital airfields.

The VMO-6 ground support elements moved from Masan to Pohang by air, truck convoy, and ship beginning on 13 January 1951. The move was complete by 16 February. Pohang's mountainous and forested terrain hid the enemy who quickly broke up into small groups when the Marines arrived. The solution was saturation patrolling. The Marines sent out fire-team and squad-sized patrols operating from platoon- and company-bases to flush out enemy stragglers. Helicopters were used for observation, reconnaissance, laying wire, command and control, medical evacuations, re-supply of isolated small units, and transportation of fire teams to remote hilltops. The guerrillas were driven underground by relentless Marine pressure, but not decisively defeated. In the words of the official history: "In retrospect, had [a full] squadron of helicopters been available . . . its quick lift . . . increased mobility and surveillance would have made quite a difference in the conduct of action." Unrealized at the time, the use of helicopters at Pohang was actually a foretaste of the methods that would be used by the U.S. Marines and Army on a much larger scale



National Archives Photo (USMC) 127-N-A131826
Capt Clarence W. Parkins points out the spot where he was forced to crash land his helicopter in the water during a test flight. Parkins later became VMO-6's acting commander.

in Vietnam more than a decade later.

The most notable helicopter incident of the guerrilla hunt occurred when First Lieutenant John Scott flew the first night medical evacuation by a Bell helicopter. There were several other nerve-wracking experiences as well. On 27 January, for example, an HTL-4 flown by Captain Harold G. McRay caught a skid on a low-strung cable and crashed while attempting to takeoff from Andong. The aircraft was wrecked but neither the pilot nor his passenger, Brigadier General Lewis B. "Chesty" Puller, who had been "frocked" to this rank the night before, were injured.

The helicopters of VMO-6 evacuated 59 men, most from the 7th Marines at Topyong-dong, between 25 and 31 January. Helicopter evacuations directly to hospital ships became routine operations. The advantages of this time-saving and life-saving method were enumerated by Captain John

W. McElroy, USNR, the commander of the hospital ship *Consolation* (AH 15): "tests . . . conclusively proved the superiority of [helicopters for] embarking and evacuating patients to and from the ship. There was less handling in that patients were moved directly from airstrip to ship in one short hop, thereby eliminating . . . long and rough stages by boat and ambulance [and] 'choppers' [could] operate when seas were too rough for boat handling." When the *Consolation* returned stateside for an overhaul in July, a helicopter-landing platform designed by Marine Major Stanley V. Titterud was added and Marine pilots instructed the ship's company in proper landing procedures. Upon return her to Korean waters, a pair of Sikorsky H-19 (U.S. Air Force designation for the HRS) search and rescue helicopters were stationed permanently on board the *Consolation* to carry out medical evacuation flights. U.S. Army aircraft eventually replaced these Air Force helicopters. Operations became so smooth that it was not unusual for a litter case to be off the helicopter and on the way to the emergency room within a minute or less. Eventually, all hospital ships were similarly outfitted with landing platforms. There is no definitive tally as to how many seriously wounded men were saved due to the swift treatment afforded by the helicopters of all Services, but most estimates reach well into the hundreds.

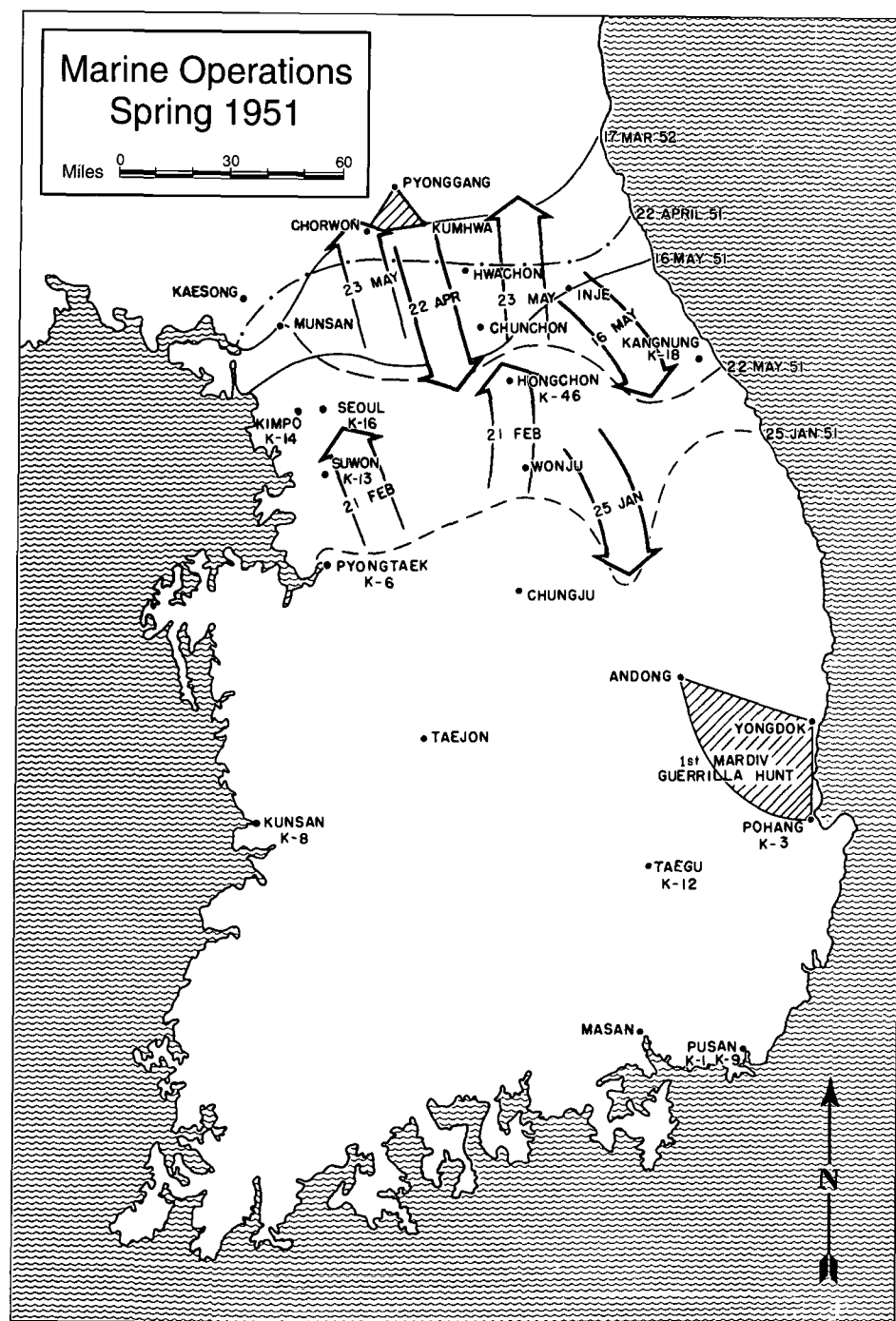
On 1 February, Captain Gene Morrison made a daring night landing on the deck of the *Consolation*. The next day a similar evacuation flight to the *Consolation* almost ended in tragedy when a delirious patient became so violent that Captain Clarence W. Parkins had to make an unscheduled landing so he and the corps-

From Pohang, the Marines were tapped to lead IX Corps up the center of the peninsula during a series of limited objective attacks, Operations Killer, Ripper, and Rugged, collectively called the "Ridgway Offensives." These successive attacks, which began in late February and continued throughout March and April, gradually pushed the Communists out of the Som River Valley and back above the Hwachon Reservoir. During that time, VMO-6 followed in trail of the advance, successively moving forward from Pohang to Chung-ju, Wonju, Hongchon, and Chungchon, only to move back again when the Chinese mounted their spring offensives.

Three days later, Marine General Smith was hurriedly summoned to the IX Corps advanced command post to take command after the commanding general died of a heart attack. This battlefield promotion, however, was only temporary until a more senior Army general arrived. Smith com-

Just as before, although not an official task for observation squadrons, combat search and rescue missions remained a high priority. Captain Morrison picked up a Marine fighter pilot downed near Song-gol on 12 March. On 27

March, two Marine helicopters flown by Captain Norman C. Ewers and First Lieutenant Robert A. Strong were called out to conduct a search and rescue mission for an Air Force C-119 Flying Boxcar that had gone down behind enemy lines. They found the site, set down, picked up three injured crewmen, and recovered the body of a fourth airman. The impact of helicopters on operations in Korea was such that by that time this dar-



ing mission that would once have garnered stateside headlines, had become routine.

Between 1 January and 30 March, VMO-6 evacuated 539 wounded Marines (60 in January, 99 in February, and 370 in March). The helicopter section was extremely fortunate; it lost only two aircraft (General Puller's HTL-4 and an HO3S-1 lost to a takeoff incident on 12 March) and suffered no one killed in action. Unfortunately, the month of April was a tough one; three helicopters would be lost during heavy fighting.

April began with a command

change for VMO-6. Major Gottschalk departed on the last day of March and the officer-in-charge helicopter section, Captain Clarence W. Parkins, became the acting squadron commander until the arrival of Major David W. McFarland who would command the squadron for the next six months. The squadron at that time numbered 28 officers and 125 enlisted men with nine OY observation aircraft, five HO3S-1s, and six HTL-4s.

The 13th of April was a busy day for helicopter search and rescue. First, Captain James R. O'Moore and Technical Sergeant Philip K.

Mackert took off to search for a lost aircraft with the help of a flight of Marine Corsairs. They were unable to locate that pilot and one of the Corsair escorts was shot down. O'Moore set his HO3S down, then he and Mackert rushed over to try to save the pilot but it was too late. Later that day, Captain Valdemar Schmidt, Jr.'s HO3S-1 was brought down by enemy fire during a rescue mission about 20 miles behind enemy lines. Several hits from small arms fire caused a loss of power and control as the helicopter made its final approach. He crash landed in hilly terrain and his

As commanding officer of VMO-6, Maj David W. McFarland initiated night aerial observation flights by OY planes. Instead of the intended improvement in Marine

artillery accuracy, the mere presence of an OY overhead would often silence enemy artillery.

National Archives Photo (USMC) 127-N-A131464



aircraft rolled over upon impact. Schmidt suffered only minor injuries, but his passenger, Corporal Robert Sarvia wrenched his leg, cut his hand, and went into shock. American aircraft circling above kept the enemy at bay with strafing runs until helicopter pilot Captain Frank E. Wilson arrived on the scene. Wilson picked up the two Marines in addition to the Air Force pilot they had came after and then made his precarious way back in the dark, flying an overloaded helicopter without navigational aids. Jeeps, trucks, and flares lit the field for Wilson's returning aircraft.

Not every mission had a happy ending. Sometimes, despite great effort on the part of helicopter pilots, a rescue could not be made. On 14 April, Captain Gene Morrison made three attempts to pick up a downed pilot, but his HO3S was turned away by enemy fire each time. Captain Norman Ewers then tried, but he took so many hits he had to return to base empty handed as well. Plans were made to rig a stretcher to lift the pilot out the next morning, but inclement weather intervened. When OY aircraft flying over the target area could not locate the man, the helicopter rescue was scrubbed.

On the night of 22 April, the Chinese mounted their long expected Fifth Phase Offensive. When a South Korean unit on the Marines' left flank broke and ran, the 1st Marine Division pulled back and formed a semi-circle on the high ground to defend several vital river crossings. The bitter fighting, collectively known as the battle of Horseshoe Ridge, was marked by fierce hand-to-hand combat and several last ditch defensive stands by isolated units that equaled the combat intensity at the Naktong bulge or the Chosin

Reservoir. The division suffered about 500 casualties in three days of fighting.

The last days of April found the helicopters of VMO-6 busily evacuating wounded men from dawn until dusk in an all-hands effort until the Marines reached the No Name Line. At about 0600 on the 23d, all helicopters were airborne and most continued operations throughout the day with 36 individual flights made (15 by HO3S-1s and 21 by HTL-4s). Fifty wounded Marines were evacuated. Captain Dwain L. Redalen logged 18 evacuations in almost 10 hours

of flying; First Lieutenant George A. Eaton was a close second with 16 men brought out. The next day an HTL-4 was lost to enemy fire when First Lieutenant Robert E. Mathewson was shot out of the sky as he attempted a medical evacuation. Enemy fire hit the engine, instrument pedestal, and tail sections rendering Mathewson's aircraft uncontrollable as he hovered over the air panels set out to mark the landing zone. Mathewson crash-landed but was uninjured. Lieutenant John Scott, who set a record with 18 evacuations in one day, tried to fly

Capt Norman G. Ewers receives word that a helicopter is needed in the forward area for a reconnaissance mission. During daylight hours VMO-6 pilots stood by with elements of the 1st Marine Division, maintaining constant contact with tactical air controllers by field telephone.

National Archives Photo (USMC) 127-N-A131065





National Archives Photo (USMC) 127-N-A132015

1stLt Joseph C. Gardiner, left, an HO3S-1 pilot with VMO-6, is awarded a Navy Commendation Ribbon and a pair of gold stars denoting second and third awards of the Air Medal for combat actions during the Inchon-Seoul campaign. Marine helicopters played an important role in the drive inland by providing transportation, medical evacuation, and visual reconnaissance for the 1st Marine Division.

in despite the danger, but was waved off by Mathewson who then picked up a rifle and temporarily joined the infantry. His crippled aircraft was destroyed by demolitions before the Marines departed. Thirty-two helicopter missions were flown, and about another 50 seriously wounded were evacuated by Mathewson's fellow pilots.

The United Nations Command briefly regrouped behind the No Name Line, repelled a second Communist offensive, then once again set off north—this time heading the Kansas Line along the 38th Parallel. Non-stop fighting had exhausted the enemy and his forces were seriously depleted after suffering grievous losses in the recently concluded spring offensive. The desperation of the enemy was evident as unprecedented numbers of them began to surrender. This time it was the

Communists who were “bugging out.” By the end of June, the United Nations Command was once again about to enter North Korea. At that point, the Communists called for a cessation of offensive actions as a prelude to peace talks. The United Nations accepted this condition, and the fighting forces of both sides temporarily settled down along a line not far from the original pre-war border between the two Koreas.

During August, VMO-6 operated from Songjong until the 28th, then moved to Sohung. The month saw several rescue missions. First Lieutenant Joseph C. Gardiner, Jr., picked up a downed Marine fighter pilot on 12 August. On 28 August, Major Kenneth C. Smedley used his HTL-4 to pull two communications men stranded on a small island in the middle of a rapidly rising river out of harm's way. That same day, Captain

Frank E. Wilson lost control of his HTL-4 when a crewman jumped out of the hovering aircraft during an attempted rescue. Captain Frank G. Parks was credited with saving several lives by delivering whole blood in darkness on 29 August despite the fact his helicopter had no lit instrumentation, no landing lights, and no homing locator.

When peace talks broke down in September, Lieutenant General James A. Van Fleet, USA, commander of the Eighth Army since mid-April, mounted a series of limited attacks intended as much to pressure the Communists back to the peace table as to secure dominating terrain just north of the Kansas Line. The Marine sector featured a volcanic depression known as the Punchbowl. Its capture was a bloody three-week slugfest fought over nearly impassable roadless mountain terrain, so helicopters were much in demand. Marine pilots were at risk as they courageously defied enemy fire on their missions of mercy. The HO3 and HTL helicopters delivered small loads of medicine, ammunition, and radio batteries to the front and then brought out 541 severely wounded men. Another frequent mission was the delivery of whole blood to forward-deployed Medical Companies A and E of the 1st Medical Battalion.

On 16 September the light helicopters of VMO-6 evacuated 85 men. First Lieutenant Joseph Gardiner led the pack with 17 medical evacuations. Major Edward L. Barker's HTL was hit by enemy artillery as he tried to lift out a pair of wounded Marines. He escaped without injury, but one of his passengers succumbed to his wounds before reaching medical sanctuary. The following day, Captain William G. Carter's HTL-4 crashed while conducting

an emergency medical evacuation. Ground personnel attempting to assist the landing on rough terrain grabbed the helicopter's skids but inadvertently tipped the aircraft causing it to crash. The aircraft was lost and the pilot suffered non-threatening injuries. Captain Gilbert R. Templeton's HO3S-1 was hit by enemy fire during a resupply mission on 21 September; Templeton was able to return to base for repairs, but the mission had to be scrubbed. Major Kenneth C. Smedley, the squadron's executive officer, crashed when his HO3S-1 lost hover and set down hard on uneven ground. When the plane began to slip over the steep cliff, Smedley had to intentionally roll the helicopter on its side to stop its descent. Neither he nor his passenger was injured, but the helicopter was wrecked.

The fighting for the Punchbowl lasted until late September. After that, both sides settled down and began to dig in. The capture of the Punchbowl marked the last major offensive action by the Marines in Korea.

As the first year of the Korean War came to a close there could be little doubt that the helicopter was the most important tactical innovation to date. The plucky little aircraft had proven themselves adaptable, versatile, and survivable. The ability of the helicopter to traverse difficult terrain, to land in tight spots, and to rapidly scout unfamiliar territory made it the preferred mode of transportation for generals and colonels; downed pilots could look forward to being hoisted out of the freezing water or grabbed up from behind enemy lines with a certainty never before experienced; and almost 2,000 men had been lifted to hospitals within a few hours of being wounded, a factor that greatly increased survival rates. There was

little doubt the helicopter was here to stay, but thus far in the war the "whirlybirds" had not yet been used for their proposed main missions and original *raison d'être*: vertical envelopment and assault support. This was due to the inadequate lift of the machines currently available, but that was about to change as the war entered its second year.

Arrival of HMR-161

Marine Transport Helicopter Squadron 161 (HMR-161) was the first transport helicopter squadron in history. It was also the first full helicopter squadron committed to combat. Mounted in brand new Sikorsky HRS-1 helicopters, HMR-161 arrived in Korea in early September 1951 and was soon testing new operational methods under actual combat conditions, a little more than one year after Brigadier General Edward Craig's original recommendation that such a squadron be sent into combat. The squadron's arrival at that particular juncture in the war was fortuitous because the 1st Marine Division, then slogging its way north against stubborn Communist resistance in the mountains of east-central Korea, was led by two early and very influential proponents of helicopters—division commander Major General Gerald C. Thomas and his chief of staff Colonel Victor H. Krulak. Both Marines were plank holders in the helicopter program; from Washington, D.C., and Quantico, Virginia, they pushed for adoption of rotary-winged aircraft and created a test-bed squadron immediately after the war. Krulak helped write initial helicopter doctrine and drew up many of the first operational plans used by HMX-1, while Thomas pushed for expanded helicopter development at Headquarters

Marine Corps in the immediate post-war period, then gained practical experience in their use at Quantico after his return from China in the late 1940s. Both men were known throughout the Corps as innovators and visionaries, but they also garnered reputations for thorough planning and meticulous execution of those plans. In retrospect, it was clear that HMR-161 and the 1st Marine Division formed a perfect match.

Plans to create transport helicopter squadrons had been on the board well before the outbreak of the Korean War. In fact, early post-war planners envisioned a Marine helicopter aircraft wing comprising 10 squadrons with 24 helicopters each. The proposed machines should be able to carry 15-20 men or 4,000 pounds of cargo. This was no small order because that number of aircraft just about equaled the entire American helicopter production to that time and no existing helicopter could come close to lifting the specified number of troops or amount cargo. The main sticking points were lack of funds, a ceiling on aircraft procurement, and—most importantly—lack of a suitable aircraft. The demands of the Korean War loosened up funding and virtually eliminated aircraft procurement restrictions. Thus, the only remaining roadblock became the machines themselves.

Long-range plans in the late 1940s called for the creation of up to six transport helicopter squadrons by the mid-1950s. This leisurely pace was driven as much by technology as by anything else. The Marines wanted a reliable, high-performance, heavy-lift helicopter to carry cohesive tactical units ashore from escort carriers and then rapidly build up supplies within the beachhead. The problem was the machines of the day were too limited in range, lift, and



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Sikorsky HRS-1

The HRS transport helicopter was the military version of the Sikorsky S-55 commercial aircraft. It featured the familiar Sikorsky design signatures, a single overhead main rotor and a small anti-torque rotor on the tail boom. Although many of its components were simply enlarged versions of similar ones found in the HO3S, the HRS did not look much like the Marines' earliest observation helicopter. It was much larger, its cargo space included seats for eight passengers, the two-seat cockpit was located high on the fuselage and set farther back than the HO3S, and the engine was mounted low on the front of the aircraft rather than high amidships. Although initially selected as only an interim model until a larger heavy-lift helicopter became available, the Navy Department eventually purchased 235 variants of the S-55. The U.S. Army and Air Force flew similar models as H-19s, and the Coast Guard variant was the HO4S-3G.

The Marine Corps turned to the Sikorsky S-55 after its first choice, the Piasecki H-16, outgrew the ability to operate from small escort carriers—foreseen as the transport helicopter's primary mission. The Navy was already looking at one version of the S-55; an antisubmarine variant designated the HO4S. There was no obvious external difference between the HRS and the HO4S. This was because the main difference was each respective aircraft's mission. The Marine transport helicopter did away with mine detection equipment but mounted troop seats and had self-sealing fuel tanks. The most innovative feature of the S-55 was its engine placement. It was set low in the helicopter's nose. A drive shaft ran up through the back of the cockpit to provide power to the three-bladed overhead main rotor. The engine placement made it easy to reach, cutting maintenance time. That configuration also eliminated critical center-of-gravity problems that plagued both the HO3S and the HTL. The HRS also mounted a drop hook to carry external loads under the

cabin. The main shortfalls of the HRS were that the machine was underpowered and mechanical failures required them to be grounded on several occasions. No Marine HRSs were lost to enemy fire, but several crashed while hovering and at least two went down in mid-air due to engine failure.

The HRS was a great step forward, but it was not the transport helicopter Marine planners envisioned. They wanted an aircraft that could carry 15 or more men to ensure unit integrity during assaults and generating enough lift to carry most division equipment. The main problem with the HRS was lifting power. Although rated for eight passengers, in the harsh reality of the Korean mountains the HRS could only carry about six men—only four if they were fully combat loaded. Both Igor Sikorsky and Frank Piasecki worked feverishly to deliver a more capable aircraft, but that advance would have to wait until the development of a practical turbine helicopter engine.

The first batch of Marine HRS-1s included 60 machines and the second order of HRS-2s mustered 91, the final version (HRS-3) included 89 more. Only the first two variants saw action in Korea, but some HRS-3s were still in the Marine inventory when their designation was changed to the CH-19E in accordance with the Department of Defense unified designation system in 1962.

Aircraft Data

Manufacturer: Sikorsky Aircraft Division of United Aircraft Corporation

Type: Transport helicopter

Accommodation: Ten-places (two crew and eight passengers)

Power Plant: One 600 hp Pratt & Whitney R-1340-57

Cruising speed: 80 mph

Payload: 1,050 pounds

avionics. Frank Piasecki's tandem rotor helicopters seemed to offer the best potential. However, the development of an improved version of the Flying Banana was taking too long, and its projected size was not compatible with escort carrier deck space. The Marines, therefore, reluctantly opted to go with an interim transport helicopter until a more capable aircraft became a reality. The machine they chose was a variant of the Sikorsky model S-55, which was already in naval service as the HO4S. The HO4S featured the standard Sikorsky frame: a single overhead rotor with a tail-mounted anti-torque rotor. Many of its components were little more than larger versions of those of the HO3S, but a front-mounted engine greatly enhanced ease of maintenance and in-flight stability. Luckily, the antisubmarine warfare HO4S helicopter required only minor modifications to meet Marine Corps

requirements. A Marine assault transport helicopter, designated the HRS, was created by eliminating the antisubmarine warfare suites and then adding self-sealing fuel tanks and placing troop seats in the cargo bay. An initial order for 40 HRS-1s was sent to Sikorsky Aircraft in July 1950. The "interim" tag, however, may have been premature. Every U.S. Armed Service and many of our allies eventually used the S-55 (designated H-19 by the Army and Air Force), and 235 HO4S/HRS variants entered naval service over the next decade.

On 15 January 1951, the first Marine transport squadron was formed at Marine Corps Air Station El Toro. The unit tentatively was designated HMR-1 ("H" for helicopter, "M" for Marine, "R" for transport, and "1" for first), but that name was changed before the squadron became operational. The new squadron was given the prefix "1" because it would be

assigned to the 1st Marine Aircraft Wing; the middle number "6" was adopted because the highest fixed-wing designator to that time had been "5"; and the last "1" indicated it was the first squadron formed, thus the new squadron became HMR-161. The commanding officer was Lieutenant Colonel George W. Herring, the former executive officer of HMX-1. A mix of regulars and reservists populated the new transport helicopter squadron. Most of the pilots, like the squadron's executive officer Major William P. Mitchell, had been fixed-wing pilots in the Pacific. Lieutenant Colonel Herring, however, had received the Navy Cross as a Marine raider before receiving his wings. While the mix of regular and reserve pilots was about equal, most of the squadron's enlisted personnel were reservists. The squadron trained at the Navy's former lighter-than-air base located at

In July 1951, Marine Helicopter Transport Squadron 161 staged a helicopter demonstration for the press at Camp Pendleton, California. Its purpose was to show how heli-

copters would be used in modern warfare as envisioned by the Marine Corps.

Marine Corps Historical Center Photo Collection





Marine Corps Historical Center Photo Collection

A Marine Sikorsky HRS-1 transport helicopter is loaded on board the escort carrier Sitkoh Bay (CVE 86) at San Diego, California, for the journey to Korea. The arrival of HMR-161 and the HRS-1 would mark a new era in Marine airborne support to ground troops.

Tustin, California, not far from Camp Pendleton while waiting for its new helicopters. The squadron gradually built up to its full strength of 43 officers and 244 enlisted men flying 15 HRS-1 helicopters before receiving orders to prepare to ship out for Korea in July 1951.

The squadron embarked at San Diego on 16 August with the helicopters and aircrews on board the escort carrier *Sitkoh Bay* (CVE 86) and the equipment and a working party on board the civilian-manned cargo ship *Great Falls*. The squadron arrived at Pusan on 2 September. In Korea, HMR-161 came under the administrative

control of the 1st Marine Aircraft Wing and the operational control of the 1st Marine Division, the same command and control arrangements used by VMO-6. Four days after landing, HMR-161 moved from airfield K-1 (Pusan East) to airfield K-18 (Kangnung Airdrome) in central Korea. From there, the advance echelon moved by truck and air to X-83 at Chodori, an auxiliary airstrip not far from the division headquarters, already hosting VMO-6. A rear echelon remained at K-18 to conduct advanced maintenance and make complex repairs.

The fact that HMR-161 was even in Korea was at least partially due

the efforts of Major General Thomas and Colonel Krulak who actively pushed to speed the pace of getting transport helicopters into the combat zone. Thomas and Krulak were well aware of the technical limitations of the HRS-1 and the demands of Korea's difficult weather and rugged terrain, so they began testing its abilities slowly. The initial helicopter operations were modest ones to test the waters, carefully conducted with little risk. First came a couple of resupply efforts well shielded from enemy observation and direct fire. Next came small-scale troop lifts, eventually increasing to battalion-sized movements. Tactical innovations were also on the agenda: counter-guerrilla activities; a night assault; and rapid movement of rocket batteries. It was not long before a division of labor emerged. The smaller aircraft of VMO-6 concentrated on medical evacuations, reconnaissance, observation, and liaison work, while HMR-161 conducted aerial resupply, moved troops, and experimented with vertical envelopment. Although the HRS could do everything its smaller kin could, medical evacuations and combat search and rescue were secondary missions for HMR-161. This was possible because of the static nature of the fighting. In fact, the combat situation eventually became stable enough that it was possible to increase emphasis on amphibious training even though the squadron remained in the combat zone, a factor that lent elements of realism and urgency to the helicopter training program that were probably not present at Quantico, Virginia, or Onslow Beach, North Carolina. The stunning success in Korea of helicopters used for assault support silenced critics and converted skeptics. In the words of historian



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LtCol George W. Herring, right, commanding officer of HMR-161, is welcomed to Korea by LtCol Edward V. Finn, the 1st Marine Division's air officer. LtCol Herring commanded the world's first transport helicopter squadron used in combat.

Lynn Montross, with the introduction of HMR-161 to Korea "a new era of military transport had dawned."

The first order of business was to conduct familiarization flights so the pilots could become accustomed to the terrain and get a feel for the tactical and operational conditions at the front. The veteran pilots of VMO-6's helicopter element indoctrinated the new men of HMR-161 in flying conditions and combat procedures. Also during this time various potential landing zones and flight routes were identified. While the pilots were busy flying, selected members of the shore party battalion became familiar with helicopter landing and loading procedures while planners met to prepare for the squadron's first combat opera-

tion. General Thomas wisely decided to use a series of cautious activities until both the helicopter crews and ground units got up to speed, he then pushed an aggressive agenda featuring a wide variety of missions that became progressively more complex and that thoroughly tested existing operational procedures and new theories for helicopter employment.

The initial combat operation by HMR-161 took place only two weeks after its arrival. It was dubbed Operation Windmill to honor the HRS's unofficial nickname, "Flying Windmill." Mindful of the chaotic experiences of the first Packard exercise at Camp Lejeune, North Carolina, and well aware of the dictates of *Phib-31*, Krulak and Thomas ensured the new transport helicopters would

MajGen Gerald C. Thomas, center, in command of the 1st Marine Division, discusses plans for using the new 10-place Sikorsky HRS-1 helicopters with the leaders of HMR-161, LtCol George W. Herring, the commanding officer, right,

and his executive officer, Maj William P. Mitchell. Thomas was instrumental both in bringing helicopters into the Marine Corps and getting the first Marine helicopter transport squadron to Korea in 1951.

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