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the pilot, in the event of cloud obstruction, descended below the cloud deck to get his target if the area was not too "hot." There was an advantage to unescorted missions: a single *Banshee* at high altitude presented a very low profile to enemy AA radar and radar fighter direction gear. The unescorted missions penetrated all the way up the East Coast to the Soviet border and, at the extreme northeast end of the run, Vladivostok was clearly visible. Other missions took the aircraft the length of the Manchurian border, down the Yalu to the point where the range of the MiG dictated escort.

From November 1951 to July 1953, there was an arrangement between the 5th AF and 1st MAW which provided for a few Marines, after they finished their tours in MAG-33 jets, to experience several weeks of temporary duty with the F-86 squadrons. During

this period, these "visitors" shot down a total of 21 MiG-15 aircraft. At any given time, there was usually only one Marine on duty with each of the two operating F-86 wings. The high scorer and only Marine jet ace of the group was Major John F. Bolt, with six kills, although Major John Glenn, getting three in July 1953, was closing in fast when the ceasefire was announced.

The 1st MAW post-armistice plan, a part of the 5th AF plan, was effective on July 27, 1953. Its basic objective was twofold: to carry out 5th AF responsibilities as assigned, and to maintain a high level of combat readiness in all units.

Because of the uncertain duration of the armistice, it was necessary to deploy additional Fleet Marine Forces to the Far East in order to maintain a posture of amphibious readiness in the area. Late in the summer of 1953, the

3rd MarDiv arrived in Japan accompanied by MAGs 11 and 16. The latter was a helicopter transport group equipped with HRS2s and based at Hanshin AFB with its two squadrons and service units. MAG-11, comprised of three F9F squadrons, was based at Atsugi, as was VMR-253, an additional transport squadron assigned to the 1st MAW and flying the Fairchild R4Q *Packet*.

V. Technological Development

Both in Korea and Japan, the period was one of intensive training, including landing exercises and joint exercises with the Army and the Air Force, concentrating on bombing and gunnery. One program within the wing was an exchange program between Japan-based and Korean-based squadrons. The objective of the program was to familiarize pilots new to the area with flight conditions in Korea, just in case the ceasefire didn't work out.

In June 1956, the 1st MAW moved its headquarters to NAS Iwakuni, Japan, and control of the wing passed from the 5th AF to Commander in Chief, Pacific Fleet (CinCPac), in Hawaii, thus ending Marine Aviation participation in the Korean police action.

For Marine Aviation, this period between the Korean War and the major involvement of the U.S. in Vietnam in 1965 was characterized mainly by research and development. New aircraft in Marine Aviation reflected the tremendous effects of technological advances during the period leading up to Vietnam.

The types which most advanced Marine Aviation capability during this nine year period were the jet fighter and attack aircraft, helicopters, and the turboprop transport. It all began in 1947 with the commissioning of HMX-1 at Quantico to develop the use of helicopters, and VMF-122 flying the first jet, the FH-1 *Phantom* at Cherry Point. These were closely followed by VMF-311 at El Toro in 1948, first with TO-1s (F-80Cs), the Lockheed *Shooting Star* for jet indoctrination of experienced pilots, and then late in 1949 operating the F9F *Panther* for normal fighter/attack training. But the aircraft that heralded the rapid advance of technology with the loudest



Marine jet fighters went to sea with the Grumman F9F Panther.

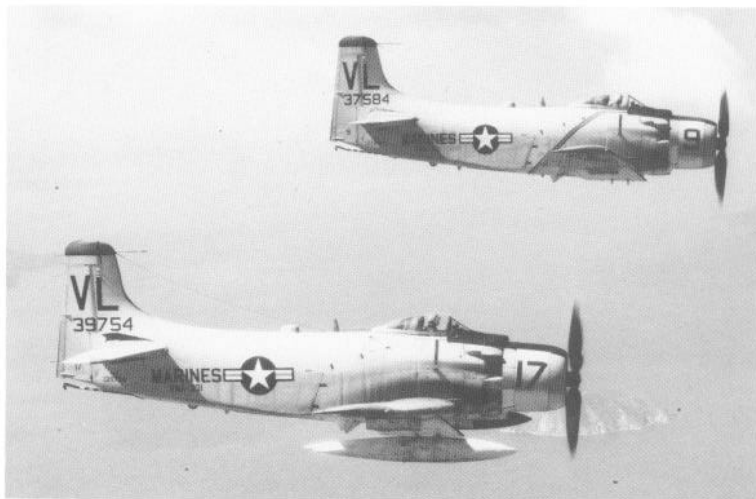
bang, was the F4D-1. This was a short-range, all-weather, high-rate-of-climb (for its time) interceptor, equipped with the Marine Corps' first afterburner. A serviceable and successful carrier fighter, the *Skyray*, came to the Corps in late 1955 and early 1956. It was assigned in rather limited numbers because of its shorter range and because it was rapidly overtaken by additional design advances. The FJ-2 *Fury* came into the inventory at approximately the same time.

With the earlier establishment of the HRS series as the first significant step in building a Marine Corps helicopter transport capability, two additional developments took place in the mid fifties. The first was a medium helicopter, the HUS series with greatly increased capability. The second was the first design of a heavy helicopter, the HR2S-1. The HUS became the principal vehicle in the rotary-wing lift capability of the Corps, the inventory showing 309 HUSs in the transport squadrons. The HR2S was programmed for a major part of the lift capability but, because of shortfalls in its performance parameters, the overall numbers were cut back. Competitive selection of a new heavy helicopter resulted in a design winner, the CH-46 *Sea Knight* by Boeing-Vertol. This was followed by a series of attempts by the Department of Defense to unify the requirements of all services. However, they were not able to integrate the tri-service requirements into a single vehicle. At this time, Navy competition resulted in a true heavy-lift machine for the Marine Corps, the CH-53 *Sea King* series by Sikorsky.

Following similar developmental procurement, the light observation helicopters, which have not been mentioned previously except for the very early HO3S-1 used in Korea, underwent progressive refinements. Deliveries of the UH-1E, began by 1964. It was a light helicopter by Bell whose basic design had been procured by the Army earlier as the HU-1B, in significant numbers. This made possible the timely replacement of the retiring light helicopters and fixed wing aircraft then in use by the Marine Corps for observation.

Thus, by the end of this period in 1965, an extraordinary advance in rotary-wing lift had been achieved for the Marine Corps through its efforts with the Navy, in just nine years from redeployment out of Korea.

To ensure that the development of rotary-wing aircraft did not outstrip the design of amphibious ships to carry them and move the troops, the Marine Corps moved into action early. In July



In 1959, VMA-331 was the last Marine Corps AD-equipped squadron to deploy overseas.

1951, General Clifton B. Cates, Commandant of the Marine Corps, stated in a letter to the Chief of Naval Operations:

"Studies and past experience indicate that the most desirable type of assault shipping for such a helicopter-borne force will be ships which can accommodate the necessary embarked troops, the helicopters to land them and the crews to operate and maintain the helicopters. It is becoming increasingly urgent to commence a ship conversion or building program that will parallel the availability of the 36-man helicopter."

This resulted in an active program beginning with the conversion of light carriers to amphibious assault ships (LPHs), and then the development of designs for LPHs from the keel up. The first of the latter, USS *Iwo Jima*, was at sea for trials on September 5, 1961. She was followed by a succession of similar vessels through the sixties, which led to further design developments and improvements.

The transition of attack aircraft to jet propulsion had begun in 1952. Douglas aircraft designed a concept for a new attack machine to perform the types of missions being carried out in the Korean War. The result was the A4D series, an aircraft that developed into the attack stalwart of the Navy and the Marine Corps for all of this period and much of the Vietnam conflict. Various versions of the series were the attack standard aircraft from the midfifties on. One of the last versions, the A-4M, was all-weather with the latest systems. It had over twice the gross weight of the original design and carried almost twice the ordnance load.

In late August of 1958, MAG-11 of the 1st MAW, received orders to deploy

immediately from Atsugi, Japan, to Taiwan to augment the air defense of that portion of the 7th Fleet operating in the Formosa Strait. There, a crisis between the Nationalist and Communist Chinese had begun to threaten what peace there was in region. MAG-11 consisted of three combat squadrons, two with F4Ds and one flying FJ-4s. Their principal duties were to fly cover over the night air drop and surface resupply runs to the offshore islands, and augment the air defenses of Taiwan and the 7th Fleet. Although the responsibility for Taiwan air operations was an Air Force function, MAG-11 supplied over 50 percent of both the force on hand and the sorties flown. A ceasefire was declared in October, and MAG-11 returned to Atsugi in early December.

The year 1958 turned out to be a time of deployment when trouble broke out in Lebanon as well. The 2nd Provisional Marine Force landed at Beirut on July 15, 1958, augmented by the reinforced 2nd Battalion, 8th Marines, but it had no Marine Aviation component other than Sub Unit 1 of HMR(L)-262 providing helicopter support. Tactical air support came from the carriers of the 6th Fleet; logistic air support was provided by the Air Force and by four transport squadrons of MAG-35 from Cherry Point, operating through NAS Port Lyautey, Morocco.

On May 27, 1958, one of the finest air weapons ever used by the Navy and Marine Corps had its first flight, the McDonnell Douglas F-4 *Phantom II*. It became operational in late 1960 and early 1961 and, by the end of 1965, 29 Navy and Marine squadrons were flying the *Phantom II*. The primary role of the F-4 was as an interceptor, but it was given the secondary job of



Bell HU-1 helicopters provided assasut support.



The Vought F8U-2N was an all-weather fighter.

providing close support and it carried a wide range of external ordnance by the start of Vietnam. This two-man, interceptor-attack aircraft, with its pilot and airborne radar intercept operator and its multiple systems and subsystems, ushered Marine Aviation into a new and advanced realm of military aviation.

In October 1962, Fleet Marine Force, Atlantic was ordered to assume a posture of increased readiness because of the introduction of nuclear weapons into Cuba by the Soviets. In the ensuing

weeks, nearly all 2nd MarDiv and 2nd MAW units were either deployed to Florida or the Caribbean area, or were aboard ships o the Amphibious Force or carriers of the Atlantic Fleet. While no actual combat took place, the confrontation involved a limited blockade of Cuban waters and continuous high-altitude photoreconnaissance of suspected Cuban missile sites. Much of this photography was accomplished by F8U-2Ps of the 2nd MAW, operating from bases in Florida.

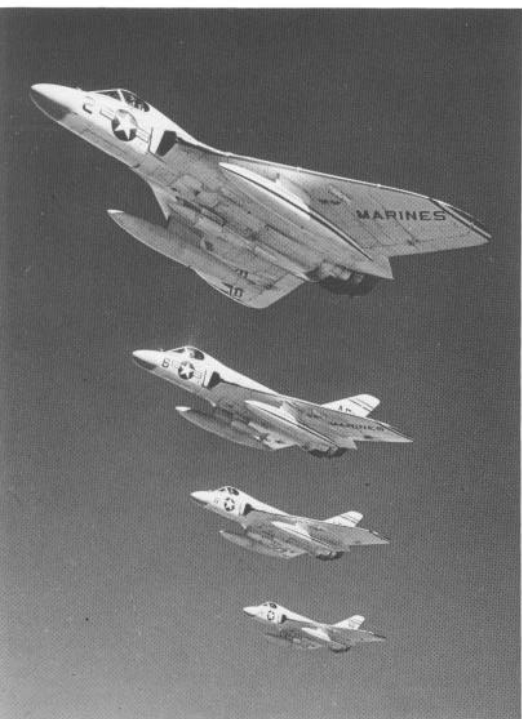
In April 1965, an attempted coup by leftist forces in Santo Domingo threatened the safety of U.S. nationals and the U.S. Embassy requested their evacuation. This was followed by a request for intervention by the existing government. Marine forces were organized into the 4th Marine Expeditionary Brigade and included a Provisional MAG. By the end of May and early in June, Marines were being withdrawn.

In late 1960 and early 1961, one of the most significant acquisitions for Marine Aviation began to come into the inventory, the Lockheed GV-1 *Hercules* transport, which was later given the unified designation of C-130. This was a four-engined turboprop transport with many improvements in speed, range and small field capabilities over anything the Marine Corps had previously operated. The C-130 was extremely flexible and could be quickly reconfigured to carry troops, maximum cargo, casualties, airborne command posts, or to perform one of its prime missions, aerial refueling of the wing jets on long flights.

situation faced by South Vietnam in attempting to counter the determined communist guerrilla moment within its boundaries was deteriorating. Within this scenario, a requirement evolved for an increased commitment of U.S. helicopter capability in country, in order to improve the mobility and responsiveness of Republic of South Vietnam Army (ARVN) troop in executing counteractions against guerrilla attacks. It was decided to deploy a 1st MAW helicopter squadron into the Delta area.

A task unit was quickly formed by the 1st MAW while participating in an exercise in the Philippines, including Medium Transport Helicopter Squadron (HMM) 362, a squadron with 24 UH-34s, augmented by three light observation aircraft, one R4D transport and 50 additional helicopter maintenance personnel; and a sub-unit of Marine Air Base Squadron 16, reinforced. The task unit was code-named "Shuffy" and operated in Vietnam with different components and in different Corps areas for the next several years. The force-in-readiness posture and responsiveness of Marine Aviation was again demonstrated, as the task unit was in place at Soc Trang less than two weeks from the date of approval of the deployment.

It was an interesting operation in the light of what was to follow. The entire sub-unit for the operation of the base at Soc Trang was flown from Okinawa by C-130s in less than five days into a field 3,000 feet long with jury-rigged navigational aids. The next day HMM-362 arrived from USS *Princeton*, during an all day procession of lifts, with all its equipment and personnel from about 20 miles off the coast. In the lift from the ship, 362 were assisted by HMM-261, the squadron regularly assigned to *Princeton* as part of the Special Landing Force, 7th Fleet.



Several squadrons were equipped with the Douglas F4D to provide an interceptor capability.

VI. Southeast Asia Involvement

By 1961, the military advisory group in South Vietnam was being built up. The

By the latter half of 1964, the Military Assistance and Advisory Group in Vietnam had grown to about 20,000 U.S. personnel and had a new name, the U.S. Military Assistance Command, Vietnam (USMACV). Marine Aviation was continuously represented in country from 1962 by the helicopter squadron of Task Unit Shufly. Up to 1964, helicopter squadrons of the 1st MAW had been rotated to Shufly about every four or five months. Thus, by the time the escalation of U.S. forces began in early 1965, the 1st MAW had considerable experience in the tactics and operation of helo troop lifts in Vietnam combat.

The commitment of U.S. forces had its beginning in early August 1964. Ships of the 7th Fleet on surveillance missions off the North Vietnam coast were attacked by North Vietnamese torpedo boats on the night of August 2.

With growing harassment of American compounds in Vietnam in the latter months of 1964, retaliatory strikes were

beginning of the Vietnam conflict, although a considerable number of actions against the Viet Cong preceded them in the south.

On March 8, 1965, in response to a decision of President Lyndon Johnson, the 9th Marine Expeditionary Brigade (MEB) landed at Danang to protect the airfield from possible communist attack. By mid-March, the air component of the brigade consisted of two medium transport helicopter squadrons, one light anti-aircraft missile battalion, and a group headquarters, MAG-16. All the aviation units were attached to MAG-16 under Colonel John H. King, Jr. On April 10, additional tactical aircraft arrived at Danang when Marine Fighter-Attack Squadron 531 landed after a nonstop, aerial refueling flight from Atsugi. Ground personnel and equipment were flown in by the KC-130s of the 1st MAW. Also during April, the need arose for electronic warfare aircraft to counter the growing use of surface-to-air missiles. Marine Composite Squadron (VMCJ) 1 at Iwakuni, Japan, has the best aircraft for this mission. The EF-10Bs were soon effectively supporting USAF, Navy and Marine strike groups on their missions. Fortunately, 1st MAW was able to support MAG-16 with a detachment of KC-130s based in Japan.

In May, the 3rd MEB, under Brigadier General Marion E. Carl, landed at Chu Lai about 50 miles south of Danang. The brigade was composed of the 4th Marines and MAG-12, plus Naval Mobile Construction Battalion 10. One of its principal objectives was to select a site and construct a second major jet-capable airfield.

The first step was the installation of a short airfield for tactical support (SATS), a Marine Aviation concept which provided a field complete with carrier deck-type arresting gear, catapult and an aluminum surface of interlocking lightweight metal alloy planking. The concept also included a tactical airfield fuel dispensing system. Much difficulty was encountered with the base of soft sand at Chu Lai in the installation of the SATS but, by the end of the month, 4,000 feet of usable surface was down and the first landing of an A-4 into the gear was made on June 1, by Colonel John D. Noble, C.O. of MAG-12. By mid-afternoon, with the use of jet-assisted takeoff bottles, the first combat mission was launched from Chu Lai, led by Lieutenant Colonel R. W. Baker, C.O. of VMA-225. On May 11, Major General Paul J. Fontana opened 1st MAW headquarters at Danang and the Marine air-ground team was beginning to function in all respects.

By September, more changes had occurred. MAG-36 had deployed from Santa Ana to Chu Lai and was ensconced in a new helicopter field called Ky Ha.

MAG-16 had been relieved of its jet squadrons by the arrival of MAG-11 from Atsugi, and was operating its helicopters from a new base in the immediate area of Danang called Marble Mountain. In the north at Phu Bai, one helo squadron operated in support of the ground units deployed in the vicinity.

After the helicopters moved to Marble Mountain, new construction began on a parallel runway at Danang. The shifting, while building and operating, continued through the year and well into 1966 before the new 10,000-foot runway and taxiway systems were completed.

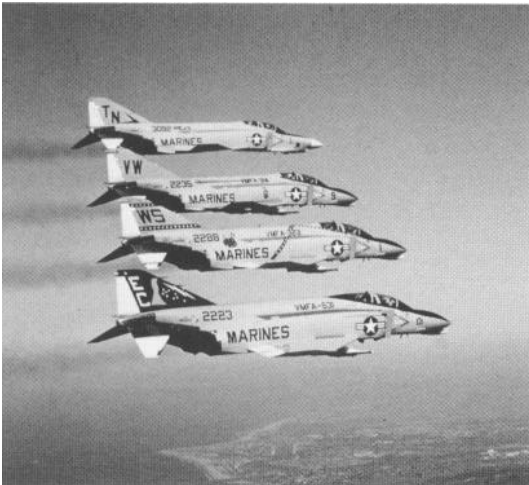
At Chu Lai, a similar plan of expansion was laid down in mid-1965 which was realized in the fall of 1966 with a 10,000-foot runway just west of the SATS strip. At that time, MAG-13 came in from Iwakuni and occupied a new area on the west side of the field.

Although there were many helicopter bases of varying capacities, as well as some fixed-wing strips, built in the northern part of I Corps Tactical Zone (ICTZ) in the ensuing years, the foregoing represent the main bases of the 1st MAW units from 1965 to 1970.

In mid-1965, there were nine fixed-wing and five helo squadrons deployed in the 1st MAW. In 1968, there were 14 and 14, or half the deployable squadrons of Marine Aviation. It is also significant that no more squadrons of the Marine Corps could be deployed since all the remainder in the U.S. were required to train either individual replacements or were squadrons participating in the unit rotation program for introduction of new aircraft.

During the Korean War, there was a strong element of dissatisfaction at certain times with the idea of all Marine Aviation tactical units being under the operational control of the 5th Air Force. Several years prior to 1965, CinCPac had convened a special board to examine the employment of tactical air and the lessons to be learned from the Korean War. The board was composed of members of the CinCPac staff and each of the component commands, Army, Navy and Air Force, and was headed by Brigadier General McCutcheon, then-Assistant Chief of Staff for Operations, CinCPac.

The board met and drew up guidelines for CinCPac directives promulgated in the Vietnam war years. As a result, an agreement was reached between Commander 7th AF (formerly 2nd Air Division) and Commanding General 1st MAW in August 1965, delineating the levels of control. Essentially, this left operational control of Marine Air under the 3rd Marine Amphibious Force, except that single control authority for purposes of air defense was given to the 7th AF. This remained the basic policy for



The McDonnell FH Phantom was a fighter-attack aircraft with photoreconnaissance capabilities.

ordered against the North. On February 7, carrier strikes from Task Force 77 hit enemy barracks at Dong Hoi and, on the 11th, 99 aircraft from *Ranger*, *Hancock* and *Coral Sea* bombed and strafed the North Vietnamese barracks at Chanhua. On the same day, South Vietnam and U.S. Air Force aircraft also struck Vu Con. These strikes were the start of a bombing operation against North Vietnam called *Rolling Thunder*, designed to increase both in intensity and depth of penetration. *Rolling Thunder* was conducted in conjunction with a similar operation against the panhandle of Laos, in an attempt to inhibit the passage of troops and supplies from North Vietnam to the south. The Laos operation was called *Barrel Roll*. Both of these strike programs against the North marked the

command and control of Marine Aviation in Vietnam until 1968 when the subject arose again.

At the start of the escalation of U.S. deployments to Vietnam, the Marine air control system (MACS) was basically composed of the same elements as in Korea.

In June 1967, MACS-4 arrived in Vietnam, bringing with it a modern semi-automated, computer-oriented TADC which had been developed as a component of the Marine tactical data system (MTDS). MACS-4 was sited on Monkey Mountain, near Danang, a high promontory overlooking the South China Sea. More construction at the site was needed because, in addition to the radars and their antennae, room had to be made in the thick jungle for 16 helicopter-transportable huts for the TADC and for four others that comprised the tactical data communications central (TDCC). It was worth the effort, however, as the TADC gave the wing the ability to handle 250 aircraft tracks, friendly and hostile, simultaneously.

It was recommended that the various service air control systems talk to each other. The TDCC turned out to be the logical link. From the time it was in place, the TADC was operating with the naval tactical data system and the airborne tactical data system units of the 7th Fleet in the Tonkin Gulf, both of which were compatible with MTDS from the development period on. The loop was closed with the Air Force system. Essentially, this allowed the receipt of messages from either Navy, Marine or Air Force systems, the translation of the one received into the other two, and the transmission of the translations to the respective centers where they could be displayed. The net result was that air defense and air control data could be passed from Thailand to Danang to 7th Fleet ships in the Tonkin Gulf, and vice versa.

Much like Korea, Vietnam for Marine Aviation was not an air-to-air show. North Vietnamese aircraft were employed mainly in the Hanoi-Haiphong area and the 1st MAW concentrated on support of the Marine divisions operating in the I Corps. Three kills of MiGs were credited to Marine pilots, two of whom were on exchange tours of duty with the Air Force, and the third with a Marine F-4 squadron operating aboard *America*.

In direct air support missions, including close air support, there were some notable differences in Vietnam from previous operations. With few exceptions, air strikes had to be controlled by an airborne controller, and there had to be a political clearance in addition to the tactical go-ahead to hit the target. Not only was it necessary to know the exact position of the requesting unit



In-flight refueling and transportation of cargo and personnel is provided by the Lockheed C-130 of the VMGR squadrons.

and the target area of the village, but it also was essential to know the location of any friendly villagers or district militia who might be in the environs of the village. This additional clearance requirement sometimes came through the Province Chief, through ARVN channels, or was included in the mission. Needless to say, it was a complicating factor, although essential and understandable. What it did was to minimize the roles of the FAC on the ground and increase the activities of the Forward Air Controllers Airborne.

When the A-6A deployed to Vietnam, all-weather air support capability was measurably improved. The A-6 could deliver weapons at night or in bad

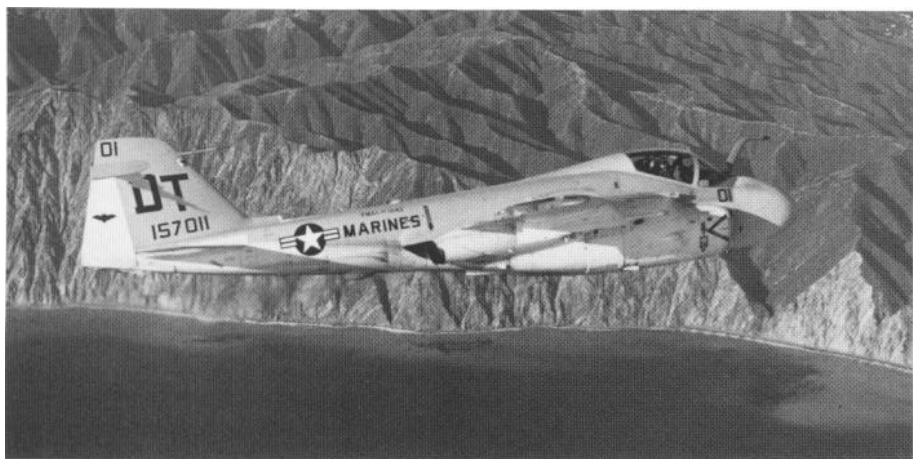
weather with accuracy approaching that achieved by the A-4 in clear weather. Carrying a normal load of 14,000 pounds of ordnance, this A-6 capability was extremely useful in the monsoon season.

Both the F-4 and A-4 were used primarily in direct air support, most of the time in daylight clear weather. The average ordnance loads were 3,000 pounds for the A-4 and 5,000 for the F-4. The F-8 was similarly used from December 1965 to May 1968. VMF-212 embarked in *Oriskany* in 1965 and flew strikes in both North and South Vietnam.

On April 1, 1966, the USMACV was authorized by CinCPac to conduct air strikes in the demilitarized zone (DMZ) and north of it in a strike zone known as



First used in WW II, the Douglas R5D continued its mission of logistic support into the 1960s.



All-weather bombing became a reality with the introduction of the Grumman A-6.

Route Package One. By midsummer, 1st MAW aircraft were assigned to hit targets in this package, most of them artillery and rocket sites. Late in 1966, Marine A-6s began striking targets as far north as Hanoi and Haiphong, and continued until the bombing halt in 1968. Most of this work was done at night and EA-6As provided electronic jamming, with F-4Bs flying escort.

The EA-6A was indeed a welcome arrival at the 1st MAW late in 1966. By that time, the surface-to-air missile strikes had reached serious proportions and it was only a matter of time before Marine aircraft were frequently encountering the threat. Again VMCJ-1 carried out a major portion of the area reconnaissance and electronic warfare mission for USMACV, just as it did for 5th AF in the Korean War with its photographic reconnaissance. VMCJ-1 provided escort for B-52s, support for tactical air strikes, and collection of all forms of electronic intelligence. On the photorecon side, VMCJ-1 was operating in a science which had become much more sophisticated and was now called "imagery intelligence."

Employment of transports was essentially a story of two aircraft, the KC-130 and the ancient and honorable C-117, the old R4D-8. Normally the C-117 was organic to each MAG and only assigned at a level of one per group. The old *Skytrain* was certainly the queen of the three-war group, serving in WW II, Korea and Vietnam. VMGR-152, the 1st MAW's KC-130 squadron kept a four-plane detachment at Danang. It did everything in the air transport line that could be done.

If one had to hang only one characteristic on the Vietnam war to describe it in the Marine Corps experience, it would have to be named a "helicopter war." Marine Aviation deployed seven medium transport

helicopter squadrons and three heavy squadrons out of a total of 12 mediums and six heavies before the war was over. In addition, gunship versions of the UH-1E were introduced and deployed in the VMO squadrons. In 1969, the AH-1G *Sea Cobra* arrived and operated first in the HML units which had come into being during the war to handle the increased number of UH-1Es.

With regard to the transport helos, the UH-34 was the prime vehicle in the 1st MAW at the start of the war and through most of the following year. In midsummer 1965, a detachment of CH-37s was deployed to give a heavy-lift capability to the wing. The obsolescent CH-37 was a valuable addition and stayed in Vietnam until early 1967 when the first echelon of CH-53s arrived. The CH-46 made its first appearance when HMM-164, landed at Marble Mountain from USS *Valley Forge* in March 1966.

There were several technical problems that had an impact on helo employment in Vietnam. First, the high temperature and high humidity reduced payload; second, the sandy and dusty landing zones created engine maintenance problems; and, third, installation of additional armor to protect their vital parts became a requirement in all helos as enemy AA effectiveness increased. Another need was the mounting of door guns and at least one gunner (the crew chief manned a second gun) in the transport helos, further adding to the weight of the machine and reducing its payload.

By the end of 1965, the transport helos were lifting an average of 40,000 passengers and over 2,000 tons of cargo per month, mainly out of the two principal bases at Ky Ha and Marble Mountain. By 1968, this had steadily increased to better than 50,000 passengers and over 6,000 tons per month, the increase in capability coming largely from the

introduction of the CH-46. In the first half of 1970, even though the phase-down of Marine forces had already begun, they were lifting more than 70,000 passengers and 5,000 tons in a single month, thanks to the increasing numbers of CH-53s in the wing.

One of the most hazardous missions was the evacuation of casualties at night or in bad weather. Most of these types of medevacs were requested by troops in close contact with the enemy and there were no aids to help the pilot in finding the zone and landing in it. Flare aircraft were often used to illuminate the zone for night pickups, and gunships or jets provided fire suppression.

It is interesting to compare the Vietnam figures on medevacs with those in the Korean War. Where the latter were measured in the low thousands, including the fixed-wing evacs, in 1968, a peak year in Vietnam, the helos evacuated 67,000 casualties during 42,000-plus sorties. On these evacs, a very large number of the helos received battle damage and crew casualties, with a high percentage of the crews earning the Purple Heart. The double-barreled conclusion adds up to the fact that the helo was one great innovation, and it required lots of staunch pilots to realize its full potential.

At the start of Vietnam, there were only 12 light helos in each VMO squadron of the 1st MAW. Two additional VMOs were soon authorized and, in 1968, a further reorganization established three VMOs and three HMLs. The VMO complement was set at 18 OV-10As and 12 light helos, and the HML complement at 24 light helos. By the latter part of 1968, two of each type of squadron were in the 1st MAW, giving the wing a total of 72 light helicopters, including gunships.

In a war of the complexity reached in Vietnam, an appreciation of the part played by Marine Aviation is achieved through a year-by-year summation of operational statistics. It is important to keep in mind that few movements of troops of III Marine Amphibious Force (MAF) were by ground vehicle. It was truly a helicopter war. All the other elements of the air-ground team were present and fully functional, but the vehicle that characterizes the war for most Marines is unquestionably the helicopter.

For each of the regimental or battalion-size operations, the troops were put in initial position by escorted helolift. Also, fire suppression fighters and attack aircraft kept the landing zone sanitized as much as possible during the landings, and aided in preparation of the landing zone. In addition, close air support aircraft were either on station overhead or were on call when requested. Once the unit landed, of course, casualty evacuation and resupply were both a part

of the operation plan. When the operation was concluded, the helos and their friends were again on hand to extract them.

In 20 months, III MAF had grown from the initial brigade landing at Danang to a two division, reinforced wing air-ground team, totaling almost 60,000 Marines.

During this first 18 months of the war, operations or operation "code names" familiar to many Marines include the following: Starlite, Piranha, Blue Marlin, Hiep Due, Thach Tru, Golden Fleece, Harvest Moon, Double Eagle, New York, Texas, Indiana, and Ky Lam.

1st MAW sorties during the 18 to 20-month period through December 1966, totaled the following: 61,457 fixed-wing

fighter/attack sorties, with 79 percent in direct support of III MAF, 15 percent against targets in North Vietnam, and the balance of six percent in support of South Vietnamese units; 436,267 helicopter sorties, with 88 percent in support of III MAF, seven percent for South Vietnamese units and five percent for Korean Marine battalions.

At the end of 1967, III MAF had reached a strength of 81,115. This was an increase for the year of 10,737. The statistics for the year were astounding. In 1967, III MAF conducted over 110 major operations of battalion size or larger. There were 356,000 small unit operations. These two types of operations resulted in 17,876 enemy

killed during the year.

Supporting the III MAF ground operations, the 1st MAW flew 63,000 fighter/attack sorties in direct support, and 10,000 more in support of other ground units in country. In addition, there were 11,000 1st MAW strike sorties over North Vietnam. Total ordnance expended by the fighter/attack sorties for the year included 134,000 tons of bombs, 166,000 rockets and 2,100,000 rounds of 20 mm ammunition.

1st MAW helicopters flew a total of 490,000 sorties and lifted a total of 732,000 troops, besides performing evacuation, resupply and a host of other support missions for units in and out of combat.



HMR-161 continued in Vietnam its helo support role which it began in Korea with the CH-46.