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CHAPTER 6

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AIR OPERATIONSARRIVAL OF THE 9TH MEB

When the 9th Marine Expeditionary Brigade landed on 8 March, 1965, its air component initially consisted of two helicopter squadrons and one Hawk antiaircraft missile battery. Following successful negotiations with U.S. and Vietnamese Air Force officials at Danang, additional airfield space was acquired and, on 10 April 1965, the Brigade's F-4B Phantom fighter/attack squadron, VMFA-531, was ordered to deploy from Japan to Danang. The squadron arrived the same day and, before sundown, was ready for combat operations. With the acquisition of additional real estate, the Brigade's Marine Air Support Squadron was moved into Danang and, by 16 April, its Direct Air Support Center was functioning. Two days later its Air Support Radar Team was operational.

Thus, by 18 April 1965, the Brigade air/ground team was fully balanced with its air component providing helicopter mobility and close air support and the facilities necessary to control and coordinate these air operations. Moreover, the air support radar teams provided a capability to conduct around the clock, all-weather close air support.

Meanwhile, Marine Medium Helicopter Squadrons 162 and 163 provided support for both Marine and ARVN ground operations in the Danang area. By the end of March, 2,228 sorties had been flown of which 1,108 were in support of ARVN forces. During these first 22 days of operations, three helicopters were lost to enemy ground fire.

A third battalion landing team landed at Danang on 10 April and, that same day, in furtherance of the Brigade's expanding mission, elements of the battalion were lifted by the two helicopter squadrons to Phu Bai to provide security for the airfield and a nearby radio station. This movement was made without incident, marking the first U.S. large unit exploitation of the vertical assault concept in South Vietnam.

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III MAF ASSUMES CONTROL

When the III Marine Amphibious Force assumed control of all Marine forces in I CTZ on 6 May, the Commanding General, 1st Marine Aircraft Wing installed his Tactical Air Direction Center at Danang through which he, as III MAF Tactical Air Commander, could control all Marine air operations other than those turned over to another commander. And to counter any possible air attack, a light anti-aircraft missile battery, armed with 6 Hawk missile launchers, was emplaced around Danang. Other air elements arriving during this period included Marine Observation Squadron One with O-1 and UH-1 aircraft and a detachment of Marine Composite Reconnaissance Squadron One.

The mission of Marine forces remained primarily a defensive one. The majority of attack strikes were in support of ARVN operations. During the second quarter 1965, 1,252 fixed wing strikes supported ARVN operations while Marines received only 252. However, Marines were actively patrolling around their defensive areas and they were exploiting helicopter mobility. During this quarter 11,194 helicopter sorties were flown in support of Marines and 8,201 for the ARVN.

SHORT AIRFIELD FOR TACTICAL SUPPORT

Keynoting the aviation buildup was the requirement for an airfield at Chu Lai to accommodate additional combat aircraft to support III MAF's expanding responsibilities. This became a milestone in Marine aviation history for it was the first combat installation and operation of the Marine Corps developed Short Airfield for Tactical Support (SATS). Consistent with the Marine Corps amphibious warfare mission, the SATS concept had been developed for employment in areas where suitable airfields were lacking. It had been

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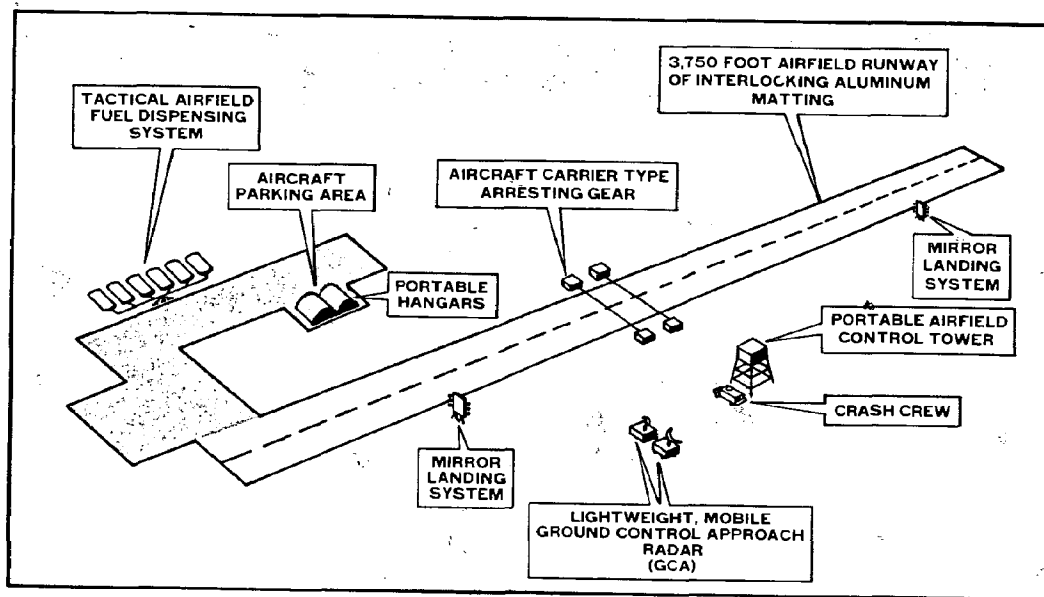
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tested and proven in training exercises, and it was programmed for use in all Southeast Asia contingency plans.

On 7 May, Marines conducted an amphibious landing at Chu Lai to uncover and protect the airfield site. Marine engineers and a Navy Construction Battalion immediately began construction and, twenty-five days later, the airfield became operational when the first A-4 aircraft of Marine Aircraft Group 12 landed on the 3,750 foot airstrip. By the end of June, three A-4 squadrons were operating from the field.

In addition to a runway constructed of interlocking aluminum matting, the airfield employed mobile arresting gear and support equipment common to a conventional airfield. This included a portable control tower, ground control approach radar, electronic navigation equipment, refueling systems, liquid oxygen plants and a communications system. The airfield typified exercise and test installations previously employed by the Marine Corps, as shown below.

CHU LAI SHORT AIRFIELD FOR TACTICAL SUPPORT (SATS:) 1 JUNE 1965



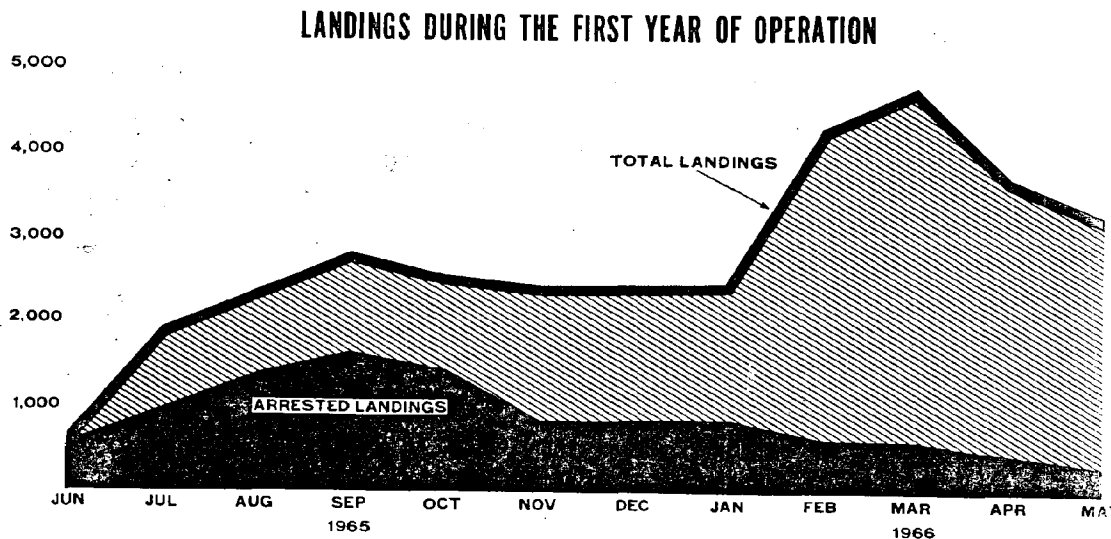
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A jet powered catapult was planned for Chu Lai but was not yet available; therefore, a longer runway was constructed and jet assisted take off (JATO) was utilized for launching the aircraft. Extension of the runway, to provide an additional safety factor for the pilots, continued until it reached a length of 8,000 feet during July of 1965. The lengthening of the runway permitted non-arrested landings by attack aircraft and also provided an increased margin of safety for transport aircraft. Although the number of arrested landings declined, overall utilization of the SATS rose steadily during the first year of operation as shown below.



AVIATION BUILDUP IN THE SUMMER OF 1965

Permission to commence search and clear operations, which CG III MAF received in July, provided the first real opportunity to exploit the mobility and offensive maneuver capabilities of the Marine air/ground team in Vietnam.

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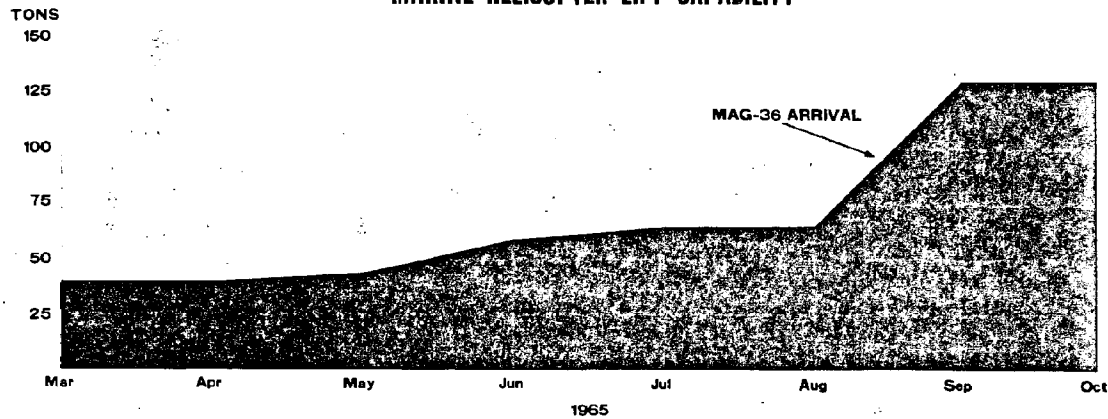
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To support this increasing demand for helicopter mobility, an additional helicopter group was deployed to the newly established aluminum matting field at Marble Mountain. Completing its displacement to Vietnam by September 1965, this group, Marine Aircraft Group 36, brought three medium helicopter squadrons, each with 24 UH-34's, and one observation squadron with UH-1E's. This doubled the lift capability of the rapidly expanding 1st Marine Aircraft Wing, as illustrated below.

MARINE HELICOPTER LIFT CAPABILITY



This progressive buildup also was marked by the arrival of an additional F-4B squadron and the headquarters of Marine Aircraft Group 11 at Danang, and a second Light Antiaircraft Missile Battalion for protection of Chu Lai. This now provided one fighter/attack group at Danang and one attack group at Chu Lai, thus insuring responsive air support in all sectors of I CTZ. During this time, as III MAF ground operations began to intensify, so too did supporting air operations. In the 3d quarter of 1965, the two Marine air groups flew 4,614 sorties in support of Marine units and 1,656 sorties for the ARVN. 635 of these were

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close air support attacks supporting friendly forces engaged in close battle with the enemy. In this regard, it is significant to note that a majority of the remaining sorties were in direct support of troops on the ground or were escorting helicopters over hostile areas and, while not classified as close air support, were nevertheless a vital part of the maneuver of III MAF forces. In addition, 299 electronic countermeasures sorties were flown in support of Navy and Air Force strikes while 420 attack sorties were provided for support of other Free World forces.

THE BALANCED CAMPAIGN

It was during this period that intelligence information, gained primarily from civilian sources as a result of Marine pacification efforts, revealed that the 1st VC Regiment was massing for an attack against Chu Lai. The air/ground team responded quickly to this information and a broad base regimental operation, STARLITE, was launched. This operation, during 18-21 August, was the first large scale engagement with the Viet Cong by U.S. troops, and provided a classic example of the advantages stemming from the close coordination between air and ground elements that is inherent in the air/ground team.

STARLITE commenced by a series of helicopter landings, massing the offensive strength of Marine forces covered by their organic air arm. This integration of air support into the scheme of ground maneuver, striking the enemy close to friendly positions and attacking enemy forces wherever they were sighted, brought a new dimension to the Vietnam war, and accounted for a large number of the 599 enemy killed during the four day battle. As an illustration of the magnitude of the air support, 115 close air support sorties were flown during one 48 hour period. Meanwhile, the Special Landing Force, comprised of a battalion landing team and a helicopter squadron, acted as regimental

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reserve and remained poised to strike from its floating positions offshore. The vertical assault capability of this amphibious striking force was exploited on 19 August when the battalion was helilifted into the area, thus adding significant combat weight to the battle.

Closely following, on 7-10 September in Operation PIRANHA, helicopter mobility enabled III MAF forces to surprise and outmaneuver these same enemy elements. Attacking both from sea and land bases, the air/ground team killed 163 Viet Cong in this operation.

These two operations surprised the enemy and thwarted his plans to attack the Chu Lai airfield, but they did not lessen his determination. Resorting to small suicide teams, he initiated concurrent night attacks against Marble Mountain and Chu Lai airfields on 27 October. The attack on Marble Mountain was costly to Marines; 19 helicopters were destroyed. The attack on Chu Lai, however, was repulsed with only two aircraft receiving strike damage. At Marble Mountain, the defenders killed all 17 of the Viet Cong that broke through to the field; of the 11 man suicide team attempting to infiltrate Chu Lai, all were killed or captured.

THE NORTHEAST MONSOON: 1965

The enemy was not the only adversary. During the latter months of 1965, III MAF aviation elements experienced their first monsoon season with its low ceilings, heavy cloud cover, torrential rains and reduced visibility. During November, monsoonal rains averaged an inch daily and reached a high of 7.8 inches for one twenty-four hour period. Nevertheless, during the last three months of 1965, 7,352 attack sorties were flown in support of the ground effort and, in spite of the weather, continual air support was assured as the air support radar teams controlled 22% of the sorties flown. Equally active, the helicopter squadrons flew 68,472

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sorties of which 59,501 were in support of Marines.

SUPPORT OF OPERATION HARVEST MOON

Operation HARVEST MOON in December, highlighting this year end period, brought 1965 to a climactic ending. Not only was the operation another crushing defeat for the elite 1st VC Regiment, but it was the first coordinated US/ARVN large unit operation and, in its success, was a precedent for future US/ARVN cooperation. And too, it was highly significant for Marines, for it again brought together in one operation the aggregate of their land, air, and amphibious capabilities.

But, the operation was singularly important to aviation. For, in spite of poor weather throughout the operation, characterized by low ceilings, heavy cloud cover, frequent rain, and limited visibility, fixed wing and helicopter support was available constantly. Here in a single operation, where air mobility and air fire power were the crucial factors and the monsoon should have favored the enemy, the Marine air/ground team exhibited overwhelming effectiveness. The initial assault capitalized on both land maneuver and helicopter mobility. As the operation progressed and the enemy sought to break away, helicopter mobility was exploited widely. Two battalions and four rifle companies were moved by heliborne operations in seven separate lifts. Meanwhile, three battalions were sustained over a full ten day period solely by helicopter resupply. And on 10 December, the Special Landing Force again demonstrated the unique value of the amphibious assault as two companies executed a helicopter assault from their sea base to join the battle. This force, moving swiftly from its sea base, enveloped the enemy from the south as the two battalions then engaged with the enemy were encountering heavy resistance from that direction.

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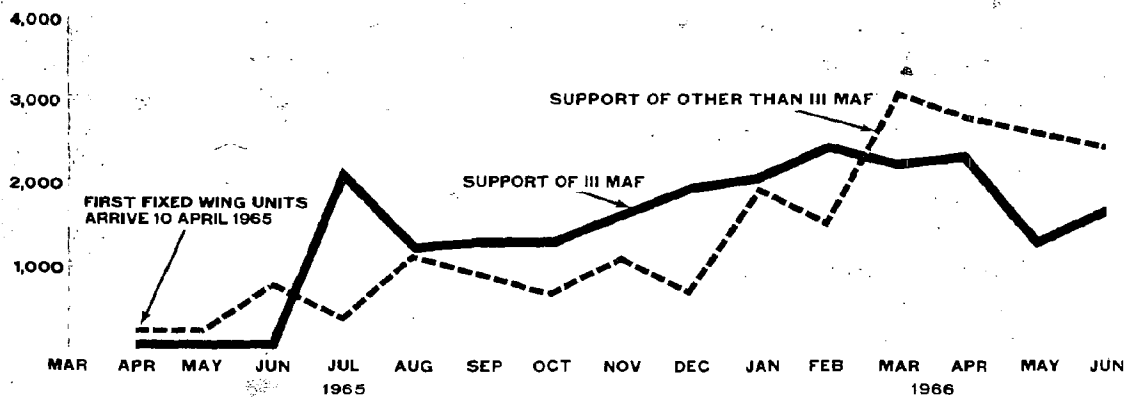
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Throughout HARVEST MOON, close air support was delivered wherever and whenever needed, with the air support radar team controlling 116 of the 523 sorties flown. These close air support strikes accounted for 93 of the 314 confirmed VC dead, and it was estimated that an additional 284 were killed by the bombs, rockets, and napalm of the attack aircraft.

CONTINUED EXPANSION OF MARINE OPERATIONS

III MAF aircraft flew a record of 13,621 fixed wing sorties and 99,341 helicopter sorties during the first three months of 1966. These high sortie rates set the pattern for future months. Through the spring, III MAF air operations intensified, and in April Marine aviation units flew a record of 39,441 helicopter sorties and 5,107 fixed wing combat/combat support sorties. Of the latter, over half were in support of units other than III MAF; 1,400 were flown in Laos or North Vietnam, and another 1,400 were flown in support of the Vietnamese Army in I and II Corps. Although April proved to be a record month, this trend continued through the end of June by which time, for the first six months of 1966, fixed wing sorties totalled 27,772 and helicopter sorties totalled 219,245. The increasing trend was graphically evident as shown on the following graphs.

FIXED WING COMBAT SORTIES: MARCH 1965-JUNE 1966

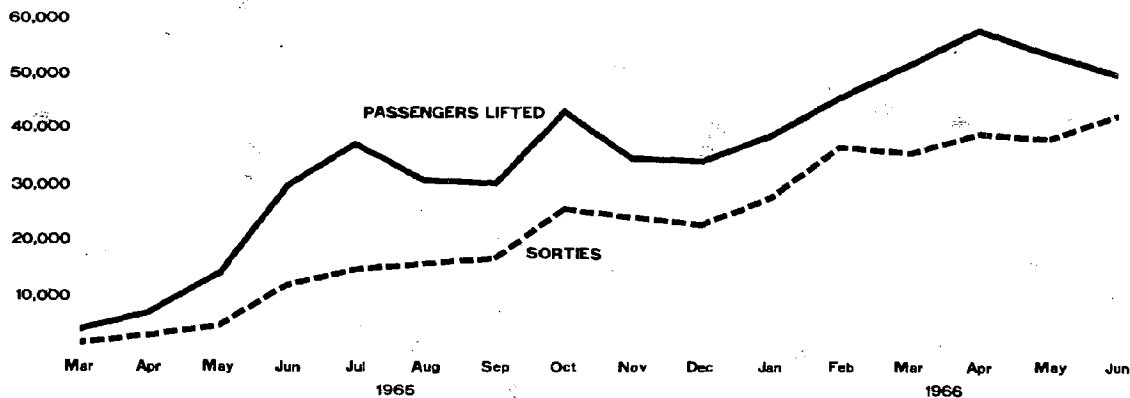


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HELICOPTER SORTIES AND PASSENGERS LIFTED



With the surge in air operations, III MAF activities continued to be characterized by mobility and rapidity of reaction. Keynoting mobility in large unit operations, Operation DOUBLE EAGLE, in January and February, was the largest amphibious operation since the Korean War. It was a search and destroy operation launched twenty miles south-east of Quang Ngai City. On D-Day, two battalions landed in an amphibious assault over the beaches, and the following day, the 2d Battalion, 3d Marines made a heliborne amphibious assault landing 5 miles inland. Two days later, the 2d Battalion, 9th Marines joined the battle by heliborne assault from Quang Ngai to exploit B-52 strikes in the area. Throughout the operation, helicopter mobility provided the key to a comprehensive search of the area. In the end, 312 enemy were killed and 19 captured.

During this same period, Operation NEW YORK proved the value of being able to commit forces rapidly and in decisive strength, thus forcing the enemy to stand and fight. Again, helicopter mobility was the key to success. The action was initiated on 27 February to relieve pressure on the 1st Battalion, 3d ARVN Regiment heavily engaged

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with strong VC main force elements northeast of Hue. Alerted at 2000, three companies of Marines completed a successful night heliborne landing under flares into the battle area by 0200. Besides demonstrating rapidity of reaction, this action served to reaffirm another important tactical concept: helicopters could be used successfully at night for large troops lifts. In the operations, VC losses were 123 KIA, 7 captured, and 15 suspects apprehended.

The capability to carry out operations such as these, over long distances and on short notice, underscored the great strides which had been made since September 1951, when Marines introduced air mobile operations into actual combat. At that time, the helicopter movement of a thousand Marines, eight miles across the battlefield in a single day, marked a milestone in military mobility. In contrast, during Operation TEXAS in March 1966, III MAF helicopters lifted 917 Marines into the combat area in three hours. Altogether, during the month of March alone, III MAF helicopters lifted 48,000 troops and carried over four million pounds of cargo to these troops.

SPARROWHAWK ACTIONS

The helicopter maneuverability which characterized Marine large unit operations also was apparent in the counter guerrilla campaign, especially in the small "Sparrowhawk" actions. The Sparrowhawk concept was developed to provide a ready force to protect downed helicopters, reinforce small units, or exploit intelligence reports. In these actions, small units, often of squad size, either patrolled the airspace over Marine areas in helicopters or stood by in alert areas ready for immediate launch orders. These Sparrowhawk actions made effective use of helicopter mobility and made it more difficult for the guerrilla to operate and find safe haven.

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MARINE AIR SUPPORT FOR A SHAU

Complementing helicopter mobility, fixed wing attack aircraft of the 1st Marine Aircraft Wing were continually overhead to protect the helicopters and the ground troops, particularly at ranges beyond other supporting arms. A noteworthy example which, coincidentally, inaugurated III MAF's second year in-country, was the four - day emergency operation in support of the Vietnamese outpost at A Shau which was attacked and later overrun by a large Viet Cong force.

A Shau was a remote outpost located some sixty miles west of Danang deep in the rugged mountains, astride a major communist resupply route. The 400 defending troops had first heard the sound of digging shortly after 0200 on the morning of 9 March. At about 0300, the Viet Cong attacked with a force of three battalions. Shortly afterward the post lost communications. By 0930 communications were re-established and at 1055 emergency ammunition resupply was requested.

Air fire support, aerial resupply and air evacuation missions, with Marines playing a major role, began shortly after noon. On 9 and 10 March, Marine fixed wing aircraft flew ninety-two sorties in support of the besieged troops on the ground, and to cover helicopters evacuating survivors.

Unfavorable weather and intense enemy ground fire made the rescue costly. The first USMC aircraft lost, a helicopter on an emergency evacuation mission, was shot down at 1830 on 9 March. Its crew was rescued by another Marine helicopter. Later, VMA-311 lost an A-4C when the pilot crashed into the mountains in the thick overcast during a bombing attack. Flying into the hotly contested airstrip to evacuate the defenders, Marine helicopter squadrons lost a total of three UH-34's. The crews were all rescued later

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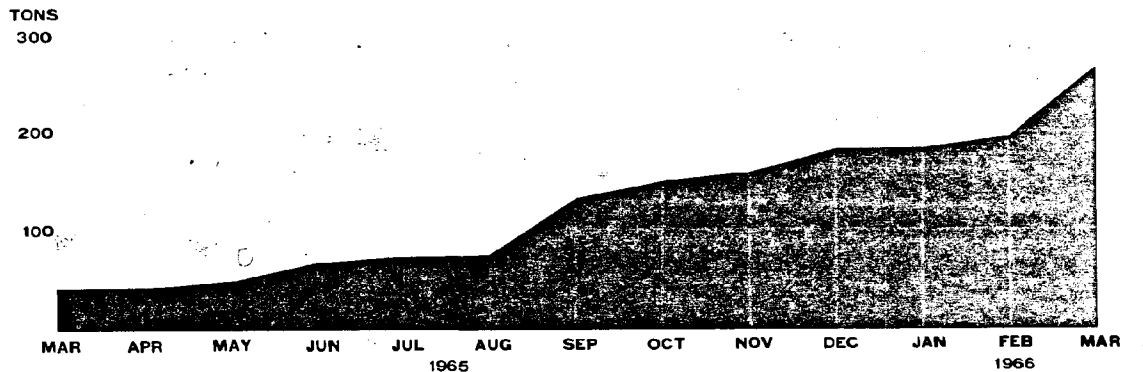
by other Marine aircraft.

In all, sixty-nine U.S. and Vietnamese troops were brought out by Marine aircraft by 11 March. Returning on 12 March after the camp had been completely overrun, HMM-163 helicopters rescued an additional thirty-eight survivors.

HELICOPTER LIFT CAPABILITY INCREASES

Another significant event inaugurating III MAF's second year in-country was the acquisition of the CH-46 helicopter. To satisfy the need for a more rapid build up of combat power, Marines had programmed progressive replacement of the reliable UH-34 helicopter with the larger and faster turbine powered CH-46 helicopters. The first squadron of these CH-46's arrived in-country during March 1966 and more than tripled the lift capability of the UH-34 squadron which it replaced while, at the time, adding a 20 knot speed advantage. With the addition of this squadron, III MAF's lift capability showed a sharp rise, as shown below.

**HELICOPTER LIFT CAPABILITY
MARCH 1965 - MARCH 1966**



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MARINE SATS CONCEPT VALIDATED

Equally significant, the SATS airfield at Chu Lai now had been in operation for one year. And as this first year of operation drew to a close, another milestone was attained when the first combat loaded A-4 and F-4 aircraft were launched from the field by use of the jet powered CEI-3 expeditionary catapult. This catapult, powered by two modified J-79 engines, enabled a fully combat loaded A-4 aircraft to become airborne within 1,000 feet. This installation completed the full SATS implementation and further validated the short airfield concept. During one year of continuous operation, under climatic conditions varying from extreme heat and dust to torrential rains, the SATS system and its components -- mobile arresting gear, aluminum runway, portable control tower, and complete communications, radar, and fueling systems -- had validated conclusively the SATS concept. During its first year of operation, the SATS expeditionary field supported 25,996 takeoffs and landings by a variety of fixed wing aircraft, including A-4's, F-4's, and C-130's.

MARINE AIR IN SUPPORT OF SMALL UNITS

June marked the fourth consecutive month wherein counter guerrilla small unit actions had exceeded 10,000 operations. Because of this activity, the Viet Cong were moving farther into the hinterland and thus were becoming more difficult to find, fix, and destroy. Therefore, new tactics were devised, and one, developed during May, aptly was named "Sting Ray". The helicopter was the basis for this tactical innovation. Teams from the Reconnaissance Battalion of a Marine Division were dropped unobserved into the heart of the enemy's jungle sanctuary. They routinely reported invaluable intelligence information. In addition, using support by artillery and attack aircraft, they were able to direct strikes against enemy base camps or

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targets of opportunity. Thus, the air/ground team was able to reach into the heart of the enemy's haven when he least expected it. These teams were employed extensively throughout I CTZ from May 1966 through September 1967 and accounted for 1,676 enemy killed with a loss of 56 Marines. An excellent illustration of their effectiveness occurred on 9 June, 1966 when an enemy force was sighted 30 miles south of Chu Lai. An immediate air strike by A-4 aircraft killed 79 Viet Cong.

THE DMZ CAMPAIGN

By mid-1966 it was evident to the communists that Marines slowly but surely were winning their part of the war in I CTZ. To counter a year of unremitting defeats, the North Vietnamese Army sent two elite divisions -- the 324B and 341st -- to attack across the DMZ. They hoped to win a psychologically important military victory over a sizeable Marine unit and capture the capital city, or perhaps the entire province, of Quang Tri.

Reconnaissance patrols obtained intelligence of the invading enemy soldiers. As the North Vietnamese moved into position for their attack, Marines, in concert with ARVN forces, made vertical envelopments into the precipitous jungles and attacked first. Again, I CTZ Marines were reinforced by the amphibious striking power of the Special Landing Force which also effected a helicopter assault. Tactical troop movement, resupply, casualty evacuation, and much of the fire support were performed by Marine aircraft -- jets, helicopters, and C-130 transport/tankers. The ensuing battle (Operation HASTINGS) was one of the biggest battles of the war. Severely mauled, the North Vietnamese withdrew back across the DMZ. 1,107 attack sorties were flown in support of Operation HASTINGS, an all time high for any single III MAF operation. By the end of July, 769 of the enemy had been killed and contacts

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had become infrequent. Contacts continued to be light and sporadic during the first few days of August. Nevertheless, Marines accounted for an additional 55 NVA killed, principally by Marine strike aircraft and artillery.

While HASTINGS and the follow on PRAIRIE operations were the headliners during August and certainly presaged a northward thrust for III MAF forces, Marines remained active throughout I CTZ conducting, in addition to the counter guerrilla program, eleven operations of battalion size or larger. Of the 975 enemy killed by Marines during August, 33% (325) were credited to Marine attack aircraft. The 5,437 fixed wing attack sorties total in August was the second highest up to that time. Of the 325 enemy killed by Marine air, many were victims of STING RAY operations.

Marine air activity continued with equal intensity and effectiveness in September. In support of the continuing Operation PRAIRIE in northern Quang Tri Province, Marine attack aircraft flew 1,272 sorties, averaging 11 sorties per engaged battalion per day, and expended 1,670 tons of ordnance. But despite the northward shift of Marine forces, the attack aircraft of the 1st Marine Aircraft Wing ranged throughout I CTZ, supporting 13 large unit operations from PRAIRIE in the north, to Operation FRESNO in southern I CTZ, to Operation MACON in the central area, and accounted for 343 of the 1,789 enemy killed during the month. And Marine aircraft ranged beyond the borders of I CTZ, flying 1,013 sorties into North Vietnam, 14 in Laos, and 382 in support of ARVN and other Free World forces. Marine attack aircraft even supported the Army's Operation SEWARD in east-central II Corps where one Marine A-4 aircraft was lost on a close air support mission. But while the Marine fixed wing aircraft sorties rose to a new high of 5,826, helicopter activity showed a slight decrease to 35,527 sorties.

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THE NORTHEAST MONSOON: 1966

In the final months of 1966, the northeast monsoon proved to be more severe than in 1965. During November alone, rains in III MAF areas exceeded that which normally falls in Washington D.C. during an entire two year period. But while rain, clouds, and fog caused cancellation of 3,157 sorties between October and December, fixed wing aircraft nevertheless showed a gradual ascendancy in sortie totals due, in part, to the arrival of a A-6A squadron in November.

MARINE ALL-WEATHER AIR SUPPORT

As a counterpoise to this unfavorable weather, the 1st Marine Aircraft Wing's combat effort, already enhanced by air support radar teams at Chu Lai, Danang, and Dong Ha (2 teams), was further improved by the arrival of a fifth team from the U.S. on 10 November. A general re-allocation of the air support radar teams provided an all weather close air support system that covered the entire I CTZ littoral, as well as much of the mountainous region to the west.

During the period October-December, these teams, with their radar-to-target range of approximately 50 miles, controlled 4,993 sorties, which was 31% of the total of 15,983 combat sorties flown during the period.

In Operation PRAIRIE during October, 97% of the 1,487 fixed wing combat sorties flown were controlled by the air support radar teams positioned at Dong Ha. Their precision strikes often were delivered within 300 meters of friendly forces.

In addition to this offensive capability, air support radar teams in RVN were utilized for accurate positioning of Marine helicopters delivering troops and supplies to forward

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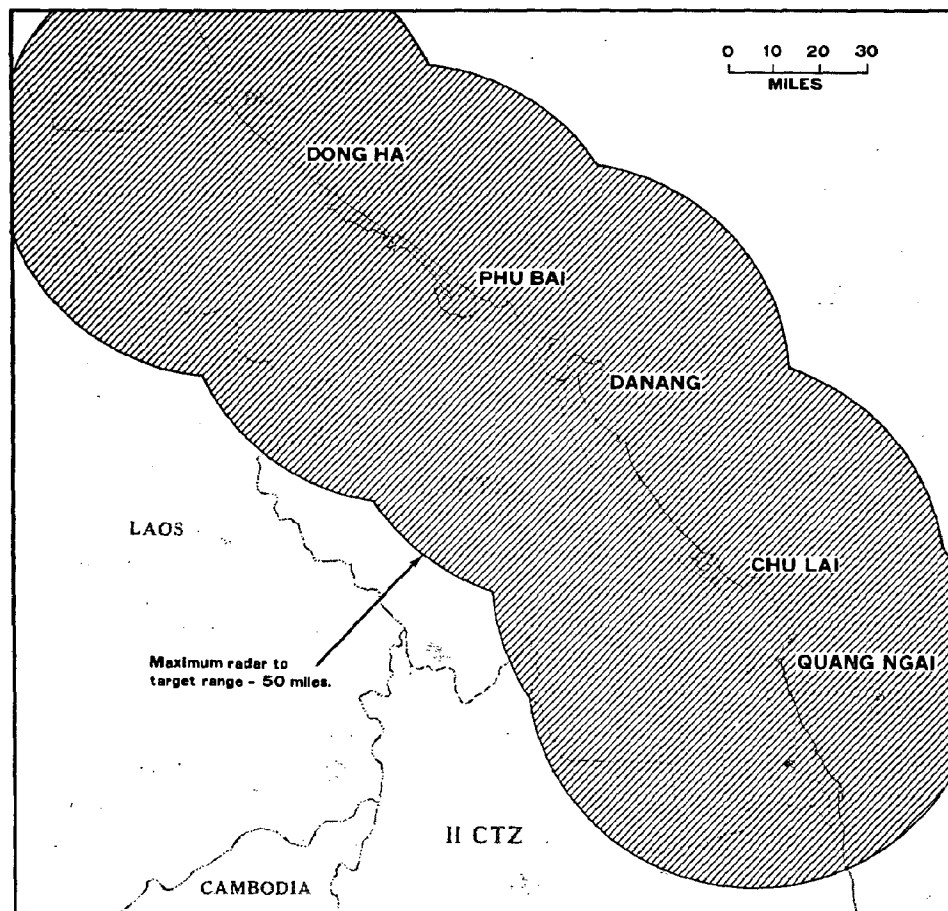
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bases, as well as for directing photo aircraft to assigned locations during the hours of darkness or low visibility.

The location of the Marine bombing installations and their effective area coverage is shown on the accompanying map.

MARINE AIR SUPPORT RADAR TEAM COVERAGE IN I CTZ DECEMBER 1966



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III MAF'S AIRCRAFT INVENTORY EXPANDS

The final months of 1966 were also marked by a continued modernization of aviation equipment as three new types of aircraft, the RF-4B, the EA-6A, and the A-6A, were added to the inventory of the 1st Marine Aircraft Wing. The RF-4B, a supersonic photo aircraft, utilizes advanced visual, radar, and infrared sensors to obtain intelligence. The EA-6A, one of the most advanced electronic counter measure aircraft available, is utilized to obtain electronic intelligence and to counter enemy fire/missile control and surveillance radar.

The arrival of the A-6A brought to the 1st Marine Aircraft Wing an attack aircraft capable of finding and attacking targets in all types of weather without external assistance -- a truly all-weather capability. The tremendous bomb carrying capacity of the aircraft -- up to thirty 500 pound bombs or other equivalent combinations -- complemented by automated navigational and attack problem solving systems, made it a versatile element of the tactical air effort. It provided a capability to deliver ordnance on a target obscured by weather or darkness at ranges in excess of 500 miles, depending on the aircraft's load. During December 1966, the 12 A-6A's of the III MAF, which represented 8% of the total fixed wing aircraft, flew 370 sorties and delivered 1,888 tons, or 28% of the total ordnance delivered by III MAF aircraft.

Contributing to the northward thrust of III MAF power was the KC-130 aircraft. While possibly not considered to be combat type aircraft, these aircraft averaged 3.5 hits each by enemy ground fire during the period July 1966 to September 1967. These aircraft, by orbiting near major airfields, permitted attack aircraft to launch with heavy ordnance loads, refuel in the air, and proceed to their targets; after the strikes, the KC-130's were

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available to provide additional refueling as required. Their large load carrying capacity, over 30,000 pounds each, coupled with their excellent short field characteristics, permitted a steady flow of men and materials into the 3,900 foot airfield at Dong Ha during Operation HASTINGS. This rapid resupply was instrumental in sustaining the drive of the combat elements during this operation.

SUMMARY OF MARINE AIR OPERATIONS: 1966

In summary, Marine air operations contributed substantially to realization of U.S. goals in Vietnam throughout 1966. During the final six months of the year, 26,607 fixed wing sorties supported III MAF; 5,075 were flown for the 7th Fleet and 7th Air Force against targets in the North, and 2,003 supported ARVN operations. Marine helicopters flew 191,258 sorties for III MAF and 15,046 for the ARVN. Another 10,718 were flown in support of two battalions of the ROK Marine Brigade following their arrival in-country during August.

Overall for the year, 61,457 fixed wing combat/ combat support sorties and 436,267 helicopter sorties were flown in support of III MAF and other Free World forces.

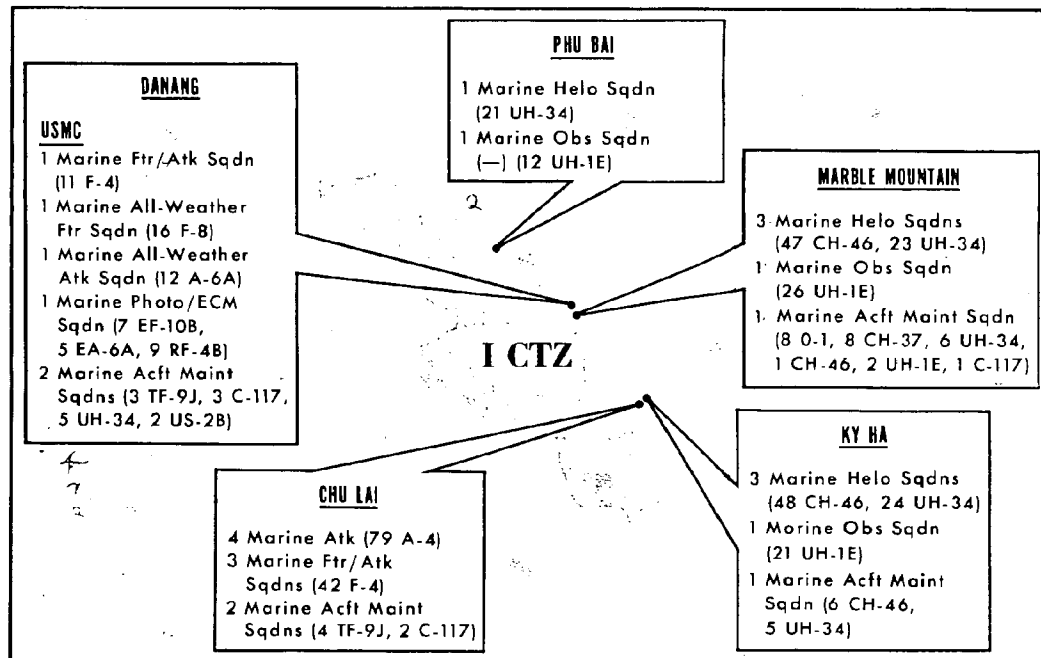
- By the end of 1966, Marine aircraft were dispersed among the five major airfields in I CTZ as shown on the following page.

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MARINE AIRCRAFT POPULATION AT THE FIVE MAJOR AIRFIELDS IN I CTZ AS OF 31 DECEMBER 1966



* Does not include 74 Marine aircraft undergoing repair or maintenance out-of-country.

1967: THE AIR CAMPAIGN INTENSIFIES

1967 found the pace in Marine air operations accelerating to match the intensification of ground operations as the coastal campaign in I CTZ regained momentum. Fixed wing sorties soared to a total of 43,680 during the first six months of the year as compared to 33,685 during the final six months of 1966. The increase in helicopter activity, while not so dramatic, nevertheless increased during the corresponding periods from 217,022 to 248,882 sorties.

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216,195 helicopter sorties supported Marines, 17,435 supported the ROKMC, 10,568 were for ARVN forces, and the remainder served other Free World forces.

The arrival of a second A-6A squadron during March contributed to this increase and also enabled Marines to bolster the effort against North Vietnam by the unique capability of the A-6A to attack at night and in weather when other types of aircraft were forced to divert. This activity by Marines over North Vietnam had been increasing steadily, particularly since receipt of the A-6A, the RF-4B, and the EA-6A. Complementing the valuable attack capabilities of the A-6A, the EA-6A's and the older EF-10B's, with their electronic countermeasure capability, provided protection not only to the Marine A-6A's but to all U.S. aircraft from SAM and radar-controlled conventional anti-aircraft fires.

Concurrent with the increasing tempo both in-country and to the North, Marine air stepped up its attacks against enemy infiltration in Laos. Thus, Marine air was fulfilling with increasing eagerness its role of protecting Marine ground forces by both close air support and long ranging interdiction. And it constantly stood ready with its dual purpose F-4B fighter/attack aircraft to protect III MAF forces from enemy air attack should such an eventuality occur.

But, while Marine air ranged far beyond the borders of I CTZ, the emphasis remained in I CTZ with 33,392 combat sorties supporting III MAF or ARVN forces during this first six months. Of these sorties, 24% or 7,930, were close air support closely integrated with the fire and maneuver of ground forces. The majority of the remaining sorties were direct air support, flown in support of ground operations, but at distances which did not require the detailed coordination of a close air support sortie.

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THE DMZ CAMPAIGN CONTINUES

The April-May action at Khe Sanh in the intense battle for Hill 881 was a classic example of the complementary nature of close and direct air support. On the 1st of May, in particular, the 2d Battalion, 3d Marines assaulted Hill 881 North and was supported by 107 Marines close air support sorties striking the enemy in the immediate front of the advancing Marines while, at the same time, 45 direct air support sorties were neutralizing more distant but equally dangerous enemy emplacements farther up the hill. In the same manner, Marine air supported the operation throughout, and during the period 24 April to 6 May, flew 979 sorties and delivered 1,502 tons of ordnance. Details of that support, and the results it achieved, are reflected on the map on the following page.

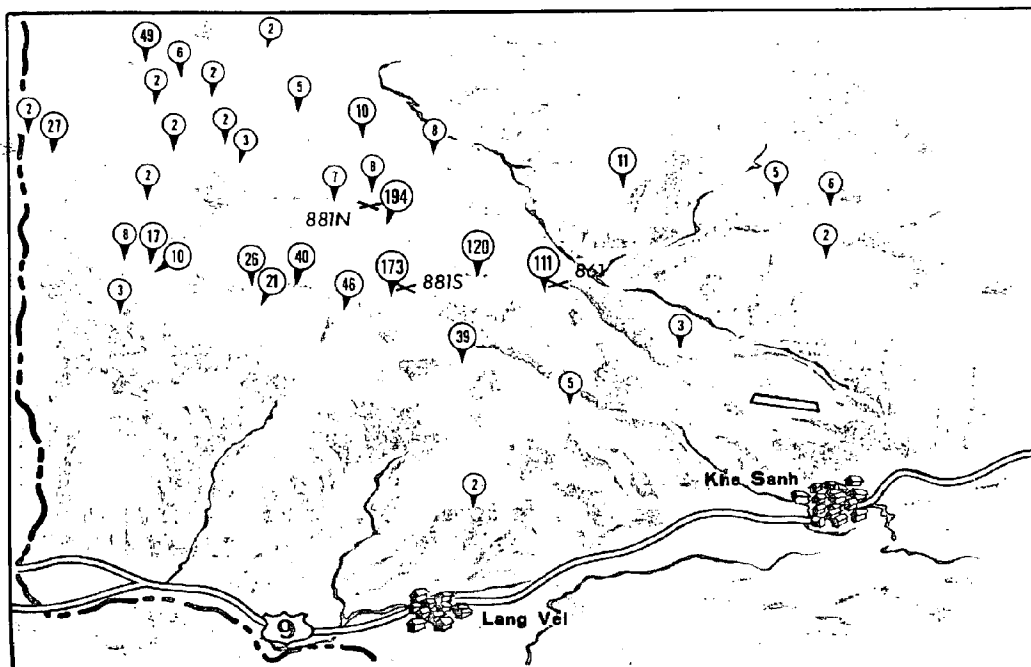
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MARINE CLOSE AIR SUPPORT-KHE SANH-24 APRIL-6 MAY



⑩ Location and number of strikes

979 SORTIES; 1502 TONS OF ORDNANCE.

ENEMY KILLED BY AIR: 112 CONFIRMED; 41 PROBABLE.

DAMAGE

Bunkers destroyed	328
Bunkers damaged	40
Structures destroyed	14
Structures damaged	4
Trenches damaged	12
Tunnels destroyed	5

Tunnels damaged	7
Automatic weapon positions destroyed	11
Secondary fires	10
Secondary explosions	14

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East of Khe Sanh, the pace of activity continued at a high level. Beside an unsuccessful thrust to overcome Con Thien on 8 May to highlight the 13th anniversary of the fall of Dien Bien Phu, the enemy intensified his shelling of friendly forces in northern Quang Tri from the relative safety of positions in or north of the DMZ. Therefore, in mid-May authority was granted for friendly forces to enter that portion of the DMZ south of the Ben Hai river. In the ensuing Operation HICKORY, during the period 18 to 28 May, the efficacy of the air/ground team again was underscored as 411 close air and 385 direct air support sorties contributed to the successful sweep through the southern DMZ. Once again, the air support radar teams assured continuous air support in spite of bad weather as 200 sorties were radar controlled.

ENEMY SURFACE TO AIR MISSILE THREAT

During this period, Marine pilots encountered a new threat along the DMZ. The North Vietnamese SA-2 surface-to-air missile system had been expanding southward from the Hanoi, Thanh Hoa and Vinh areas since September 1966. On the 10th of May, an A-4E flying a radar controlled mission was approaching its target near the southern boundary of the DMZ, when Marines on the ground and other pilots in the area noted the firing of three SAM missiles. One exploded at the level of the A-4E and the aircraft disappeared from the controlling radar screen at Dong Ha.

Artillery was brought to bear on the suspected launching sites within minutes, but a damage assessment of the firing was not obtainable. Marines of the 1st Battalion, 4th Marines, saturating the area south of the DMZ with patrols, found an eight foot long section of an SA-2

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missile two miles southwest of Con Thien. It was immediately evacuated through intelligence channels and proved to be the guidance section and lift surfaces of an SA-2 missile.

On the 13th, another SAM was observed in flight 18 miles north of Dong Ha, but Marine aircraft crews in the area also sighted the missile and took evasive action. The missile disappeared from view without doing any damage.

Suspected and probable launch sites were attacked by Marine and Air Force air strikes and Marine and US Army artillery. No other missiles were sighted in the area, but on the 29th a patrol from the 2d Battalion, 26th Marines found another section of a missile three miles southwest of Con Thien. This section included most of an SA-2 guidance system and the sustainer engine.

AIR SUPPORT IN THE SOUTH

With the heavy action along the DMZ, equally intense activity continued throughout I CTZ, particularly in the Nui Loc Son area where mounting evidence confirmed the presence of a considerable enemy force. Marines found that in addition to their extensive counter guerrilla program they now were engaged on two fronts. In all of these ground activities Marine air was a ubiquitous partner.

In Operations UNION I and II, designed to engage and destroy the NVA forces in the Nui Loc Son area, Marine air provided 494 attack sorties (278 close air support and 216 direct air support sorties) which delivered 684 tons of ordnance during the period 21 April to 5 June. These air attacks were instrumental in minimizing Marine losses during successive assaults on an extensive complex of well fortified positions. Meanwhile, Marine air not only maintained support of other major operations in I CTZ, but its A-6A Intruders

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continued ranging deep into North Vietnam striking targets from the DMZ to north of Hanoi.

OPERATIONS IN A SHAU VALLEY

Marine air effort also was directed upon the increased enemy presence in A Shau valley. Since the early part of 1967 enemy activity, in the form of road and bridge construction in and around this major route of access from Laos, had been on the increase. He apparently was building a major logistic base in that area to support operations in Quang Tri, Thua Thien and possibly Quang Nam provinces.

Marine jet aircraft flew 1,438 combat sorties in A Shau valley and along Route 9 between the 1st of March and the end of June. These included 717 attack sorties, 259 armed reconnaissance, 95 visual reconnaissance, 59 photo, 16 tactical air controller sorties and a total of 292 air support radar controlled attack missions.

The 1,715 tons of bombs and rockets expended in these missions resulted in 30 enemy killed, 11 vehicles destroyed or damaged, 413 road cuts, 30 secondary explosions, 73 bridges or dams and 29 fords or river crossings destroyed or damaged.

The repeated attacks in the A Shau valley restricted enemy movement on one of his main lines of communication. Aerial photographs showing significant road cuts also revealed great effort by the enemy to repair or bypass the damaged areas.

HELICOPTER OPERATIONS AND CH-53 ARRIVAL

During this period, 1st Marine Aircraft Wing helicopters were equally active. Rising to a record breaking

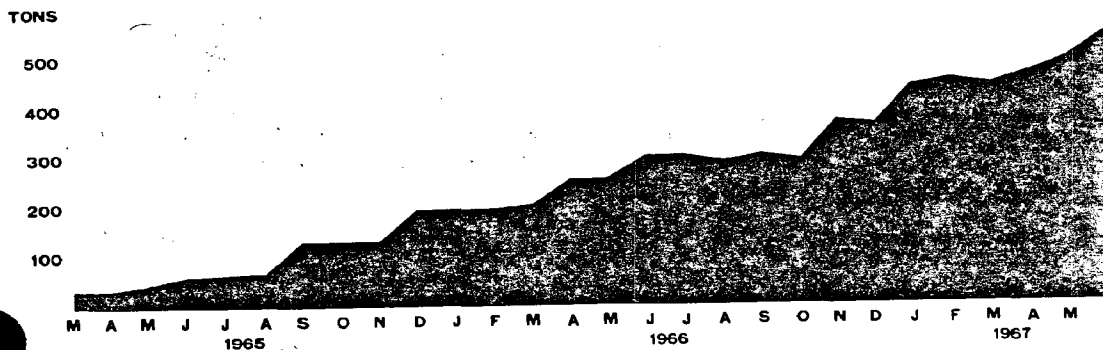
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month of 56,031 sorties in May, III MAF helicopters lifted 318,689 tons of vital cargo, and evacuated 25,014 casualties. The growth of Marine helicopter lift capacity is graphically evident as shown below.

MARINE HELICOPTER LIFT CAPABILITY MARCH 1965 - JUNE 1967



Contributing to this growth was the arrival of the CH-53 helicopters. The first increment of a 24 plane squadron arrived in January 1967. The balance of the squadron arrived during June. This helicopter is capable of lifting up to 13,591 pounds of cargo and can carry 8,000 pounds of cargo, at a cruising speed of 150 knots, to an advance loading zone 100 nautical miles distant. After hovering for 10 minutes, it can land, discharge its cargo, and then return to the original takeoff point with a 4,000 pound payload and still have 10% fuel remaining. Also, it can be configured to carry 37 combat equipped troops or 24 litter patients. A hoist for external lifts enables the CH-53 to lift an 11,000 pound truck, or equivalent load, for limited distances. This external lift capability has been adapted to recover downed helicopters, and in the first nine months of 1967, Marine CH-53's retrieved over 120 downed helicopters and light aircraft in South Vietnam. These aircraft would have been lost to the enemy or would have required destruction in place,

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had the CH-53 not been available. The recovered aircraft, later placed in an operational status, represented a saving close to \$47 million.

The improved capability brought by the CH-53 was sorely needed. Marines were spread from the DMZ in the north to the southern border of I CTZ. Helicopter mobility helped to overcome this dispersion, but at the same time, the helicopters were committed heavily in support of 78 large unit operations conducted by Marines of III MAF and the Special Landing Forces during the first half of 1967.

AIR IN SUPPORT OF THE DMZ CAMPAIGN

The ability of Special Landing Forces to move rapidly from one extremity of I CTZ to the other, and even south to IV Corps, provided a highly responsive reinforcing capability to III MAF during a period when Marines were spread thinly. Again helicopter mobility was the key to the Marines' amphibious striking power. In Operation DECKHOUSE VI during February, the three dimensional air, sea and land power of the amphibious striking force combined to reinforce III MAF Marines engaged in Operation DESOTO. Pulling out of this successful thrust, the Special Landing Force moved north to the DMZ and again by helicopter reinforced Marines in the action at Khe Sanh. Again in May, both Special Landing Forces launched amphibious heliborne assaults into the DMZ complementing III MAF's Operation HICKORY. In all, besides DECKHOUSE V in IV Corps, the Special Landing Forces conducted nine heliborne amphibious assaults in I CTZ during the period January to June 1967.

During the 3d quarter of 1967, the high tempo of activity continued. Major actions in the DMZ area were highlighted by the support given Operations BUFFALO and KINGFISHER during July. Between the 2d and 10th of July,

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the period of the heaviest ground fighting, BUFFALO was supported by 914 missions in which every 1st Marine Aircraft Wing fighter and attack squadron participated, dropping 1,066 tons of ordnance. Operation KINGFISHER was supported by 931 missions.

In early July both Special Landing Forces, Alpha and Bravo, were heli-lifted from off shore positions to engage the enemy in operations just south of the DMZ.

Striking the enemy in the DMZ, Marine aircraft flew some 2,300 sorties during July which damaged the enemy and caused him significant personnel and material losses, but did not halt his buildup of power within the sanctuary area.

In an attempt to reduce the amount of air power available to III MAF, the enemy again struck Danang Air Base on 15 July, with 122mm surface-to-surface rockets. The first volley was accurate and caused heavy damage to facilities, destroyed two aircraft, and damaged 16 others.

MARINE ALL-WEATHER AIR OPERATIONS

In addition to supporting small and large unit actions, the aircraft of the First Marine Aircraft Wing continued to conduct raids into Laos and North Vietnam, supported by organic electronic countermeasures aircraft. Electronic countermeasure support was provided by the EF-10B in the area just north of the DMZ, and by the newer EA-6A in the more northern regions. The A-6A and EA-6A proved to be an effective team for attacking targets in North Vietnam under any conditions of weather and visibility. The ability of the EA-6A to detect and counter enemy surface-to-air missile and anti-aircraft radars, reduced the enemy's capabilities to oppose the A-6A's attack. Although both had the same basic airframe, the EA-6A did not carry a bomb

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load and therefore had greater endurance than the A-6A. This allowed electronic counter measure coverage of the objective area prior to the arrival of the A-6A, and until it departed. The success of this team effort was evidenced by nightly attacks, with relatively ineffective opposition, in areas of heavy surface-to-air missile and radar-directed antiaircraft artillery concentrations.

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The unseasonably early arrival of the 1967 monsoon began to affect air operations as early as August. Air support radar teams compensated for low ceilings and reduced visibility by controlling 1,678 missions. In September, rain, low clouds, and fog caused cancellation of 332 fixed wing sorties as compared to 79 during the same period in 1966. Control by air support radar teams increased commensurately to over 2,000 missions. On the following page is a map illustrating radar bombing operations and the relatively low target cancellation rate of sorties due to the all-weather attack control capability.

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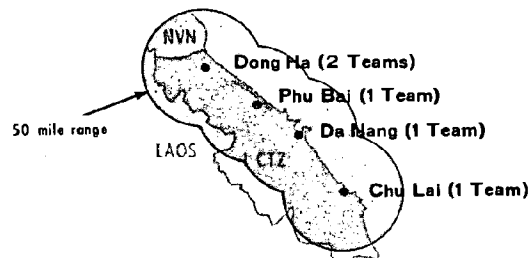
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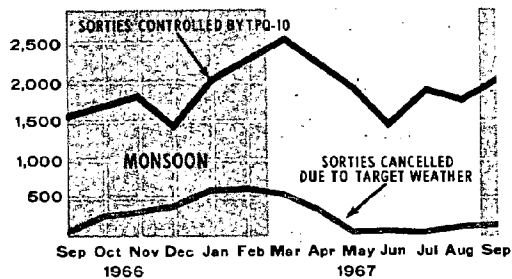
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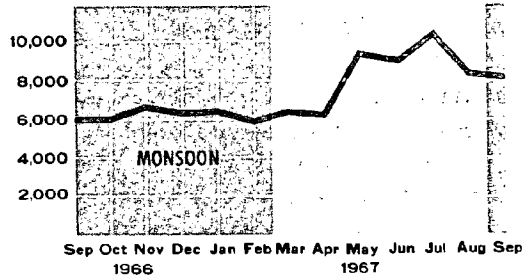
MARINE AIR SUPPORT RADAR TEAM LOCATIONS & COVERAGE



TPQ-10 SORTIES



IN-COUNTRY BOMB TONNAGE DELIVERED

MARINE AIRBORNE OBSERVERS

An incident occurring on 22 August underscored the importance of another, little hailed, element of the air-ground team -- the aerial observer operating in light observation aircraft. Throughout the war these small aircraft, flown by experienced combat pilots and carrying a trained Marine air observer in the rear seat, ranged from one extreme of I CTZ to the other and even into the

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southern regions of North Vietnam. Their missions were reconnaissance, tactical air control of air strikes, and control of artillery and naval gunfire. Their achievements became legion. The pilots and observers were cited by the Commanding General, III MAF for their operations during the first three months of 1967, which accounted for 354 VC/NVA killed (confirmed), 495 VC/NVA probably killed, 1,539 structures destroyed, 1,009 structures damaged, and 97 secondary explosions. In the incident on 22 August, an NVA force attempted to ambush a Marine company traveling south on Route 9 from Thou Son to Ca Lu. However, Marine ground forces, supported by air, converged on the NVA ambush force and entrapped it. In the process of the battle, an air observer sighted a large enemy force a short distance from the main encounter, but not directly involved in it. The air observer directed air attacks on this force and 305 NVA were probably killed.

MARINE AIR OVER THE NUI LOC SON BASIN

Marine air was equally active to the south. During Operation SWIFT in September, for example, helicopters and fixed wing aircraft supported the 5th Marines in a major thrust against an old adversary, the 1st VC Regiment, and against elements of the 3d NVA Regiment. Much of the success of this operation was attributed to the immediate availability of the Marines organic close air support capability. With a total of 275 close air support missions flown during the operation, Marine units were able quickly and meaningfully to exploit each ground contact.

TEMPORARY DECREASE IN HELICOPTER FORCE

Helicopters continued to be the main vehicle for the transport of troops into combat and for resupply of these actions. The lift capability of III MAF was reduced severely in September due to the grounding of all CH-46's. This

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drastic action followed a fatal CH-46 crash on 31 August which was traced to failure of the rear pylon. Investigation revealed that structural modifications were required and this modification program was to begin in October. The necessity for prompt correction of the aircraft's structural deficiencies was underscored by the fact that the 105 Marine CH-46's in III MAF represented 48% of the total lift capability.

To augment the 1st Marine Aircraft Wing and to sustain the mobility of III MAF's forces, ten CH-53 and 23 UH-34 helicopters were to be shipped to III MAF during October. In addition, 31 US Army UH-1's were placed under operational control of Commanding General, 1st Marine Aircraft Wing, on 28 September.

Paradoxically, even with the loss of the CH-46's during September, the number of 1st Marine Aircraft Wing helicopter sorties rose from 138,940 during the previous quarter to 161,962 during the 3d quarter. They transported 176,386 troops and 19,916 tons of cargo. The CH-53, proven to be a workhorse by flying 20,029 sorties since its introduction in Vietnam, lifted 62% of all cargo carried during September.

THE AIR RECORD

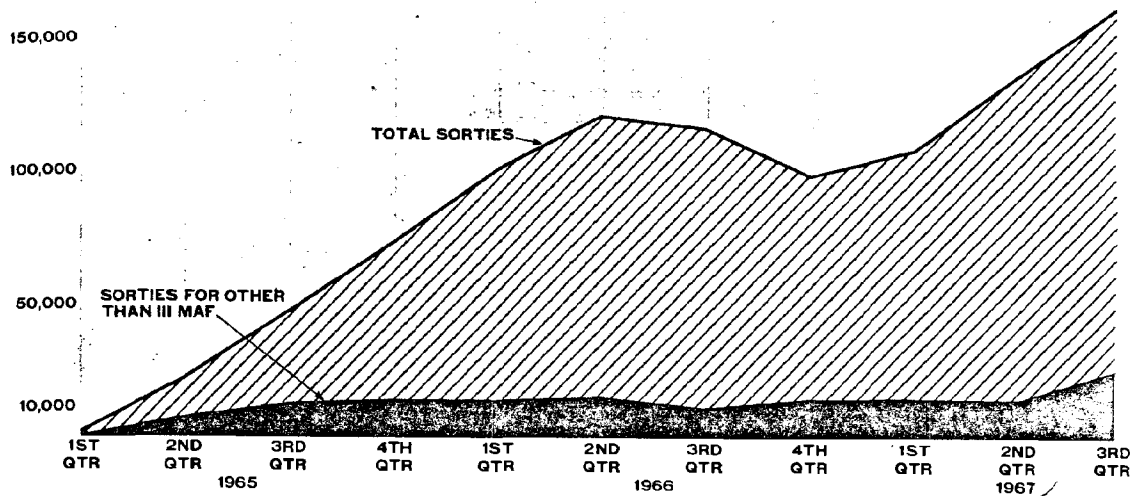
Thus, by the end of this first nine months of 1967, total helicopter sorties since March 1965 had neared the million mark, at 981,559.

The graphs on the following page depict the gradual rise in helicopter sorties throughout the two years in Vietnam and the support provided ARVN and Free World forces.

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MARINE HELICOPTER SORTIES: MAR 1965 - SEP 1967



Fixed wing aircraft were equally active during the quarter, flying 21,965 sorties. This brought to 143,999 the number of fixed wing combat/combat support sorties flown since March 1965.

The accelerated pace of Marine air operations during the first nine months of 1967 was not without cost. 296 fixed wing aircraft received combat damage and 28 were lost to enemy ground fire and brought to 59 the total fixed wing aircraft lost to enemy fire since March 1965. Helicopters, flying more than six-fold the number of sorties of fixed wing and exposed to ground fire for longer periods, received combat damage on 1,185 occasions. But only 43 helicopters were lost to enemy action. This is attributable, in part, to recovery operations by the CH-53. Between March 1965 and end-September 1967, 104 helicopters were lost to enemy ground fire, including 78 lost to anti-aircraft fire.

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